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# EVAPORATION OF A THICKENED AGENT SIMULANT FROM OAK AND HICKORY LEAVES

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William A. Cooper
Leonard Edwards
Franklin Hardaway

RESEARCH DIRECTORATE


December 1990

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**13. ABSTRACT** *(Maximum 200 words)*
This study identifies the physical parameters and determines the extent of their influence on the evaporation of the candidate thickened liquid agent simulant diethyl malonate deposited as droplets on oak and hickory leaves. Controlled evaporation/persistency experiments were conducted in a low-speed, open-circuit wind tunnel facility at a constant temperature of 60 °F. In each test, vapor concentrations downstream from an area (4 ft by 1 ft) contaminated by uniform-sized droplets (2 mm diameter) and a contamination density of 30 g/m$^2$ were continuously monitored with a Miran IA gas analyzer. Two factorial experiments were performed according to a bi-level design of four variables. The four variables treated in this study included liquid viscosity (100/1,000 centipoise), average wind speed (3/11 mph), leaf surface (top/bottom), and leaf type (oak/hickory) in Experiment 1 and leaf condition/age in Experiment 2. An elaborate set of tables is provided; the vapor concentration values downstream from the contaminated area, the residual droplet mass, the cumulative mass recovered as vapor, and the droplet evaporation rate as a function of time. Spread factors of the deposited droplets on the leaf surfaces were determined. Droplet evaporation and persistency behavior are compared with half-life model predictions.

**14. SUBJECT TERMS**

| | | |
|---|---|---|
| Simulant | Vegetation | Evaporation |
| Deposited droplet | Vapor | Persistency |
| Droplet | Half-life | (continued on page 2) |

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14. Subject Terms (continued)

Wind tunnel
Diethyl malonate
Viscosity
Wind speed
Vapor recovery
Spread factor
K125
Factorial design
Relative humidity
Northern red oak
Shagbark hickory
Vapor concentration

## EXECUTIVE SUMMARY

Studies conducted in recent years have resulted in greater importance being attached to chemical defense against attack by thickened agents of intermediate and low volatilities. If the contaminant is a thickened chemical agent, droplets significantly larger than normal will be deposited on a target area, posing a longer term hazard for liquid contact. Further, the droplets constitute an emitting source for the formation of a secondary vapor cloud. Under some conditions, the hazard from the vapor may outweigh that from the liquid. These effects have been modeled in several ways, but selecting the most appropriate formal model and model improvements has been handicapped by a lack of sufficient experimental data to verify the modeling aspects. One of the critical data gaps pertains to the quantity of vapor that becomes airborne and its rate of evolution from droplets of thickened CW agents deposited on various natural-occurring surfaces and common structural materials.

Phase III of a three-phase research program designed to fill part of this data gap has been completed. Basic experimental information has been obtained to characterize the evaporation and sorption losses of thickened liquid droplets deposited on two leaf surfaces (Northern Red Oak and Shagbark Hickory) under a variety of conditions.

To aid in identifying and clarifying the most critical parameters controlling the persistence and evaporation characteristics of thickened liquid droplets deposited on a leaf surface, a bi-level fractional factorial experimental design was followed. The variables treated included the following:

- Liquid viscosity: 100 and 1,000 centipoise (cP); the liquid simulant was thickened with EA K125 copolymer to achieve the specified zero shear viscosities

- Average wind speed over the droplets: 3 and 11 mph

- Leaf surface: either the bottom or top surface of the leaf was contaminated

- Leaf type: oak and hickory leaves collected from the Edgewood Area of Aberdeen Proving Ground

- Leaf condition: green leaves picked in September, and red/yellow/orange leaves gathered in October.

Two bi-level factorial screening experiments were conducted. In all experiments, the leaves were contaminated with 2 mm diameter droplets of thickened diethyl malonate (DEM) and the air temperature was controlled at 60 °F. The relative humidity (RH) in the experiments was not controlled. The average RH was 42% +/-8% standard deviation (SD). An area of approximately 4 ft$^2$ (4 ft by 1 ft) was contaminated in each test. The contamination density was 30 g/m$^2$. A previous study showed that there was no significant difference in droplet evaporative behavior at a contamination density of either 30 g/m$^2$, or 10 g/m$^2$ (NATO Standard); therefore, the former was chosen for experimental reasons.

Factorial analysis, as well as analysis of variance (ANOVA), was employed to obtain a clearer understanding of the effects the variables on the evaporation and spreading characteristics of the droplets of thickened DEM deposited on the leaf surface. The following seven droplet evaporation characteristics were studied:

- The percentage of contamination recovered after the 1st, 2d, 3d, and 6th hr from droplets deposited on the leaf surface

- The average droplet evaporation rates (micrograms per minute) based on a 1st, 2d, 3d, and 6th hr after deposition

- The half-life (minutes) of a droplet in the array of droplets deposited on the leaf surface or the time required to recover 50% of the initial (volatile) contaminant

- The average evaporation and recovery rates (micrograms per minute) associated with the half-life of the contaminant

- The total percentage of the contamination recovered as vapor from the droplets deposited on the leaf surface

- The lifetime of the droplet contamination deposited on the leaf surface

- The average evaporation rate (micrograms per minute) over the lifetime of the droplet contamination

In general, the factorial analysis and the ANOVA results are in good agreement. Wind speed is the most dominant factor affecting the amount, the rate of return, and the duration of the 2 mm diameter droplets of thickened DEM deposited on a leaf surface at 60 °F ambient temperature. The effect produced by wind speed is predominantly a direct effect. The wind speed factor alone can explain most of the total variation (80/88%) in the droplet evaporation characteristics that were studied in the two factorial experiments. Only one exception was found. In Experiment 2, the total percentage of contamination recovered was strongly dependent on the viscosity of the deposited liquid droplet and either the condition or age of the oak leaf.

Differences in droplet weathering on contaminated leafy surfaces at 3 and 11 mph are significant. Initially (0-3 hr), the average droplet evaporation rate of the deposited 2 mm diameter droplets at 3 mph is one-half the evaporation rate of the deposited droplets exposed to 11 mph wind speed. However, after 6 hr, the average droplet evaporation rate at 3 mph is nearly two-thirds the droplet evaporation rate at 11 mph. The difference in lifetime of the deposited droplets at 3 and 11 mph is approximately 10 hr, and there is a 3-hr difference in the half-life of the 2 mm diameter droplets.

The leaf surface (top versus bottom) is the second most dominant factor affecting the evaporation behavior of the deposited DEM droplets. The DEM droplets spread substantially more on the top surfaces of the oak and hickory leaves than on the bottom surfaces. This, in turn, affects the initial droplet evaporation characteristics for times, up to 6 hr (the last time increment in the analysis), after contamination. However, the long-term yields associated with the droplet contamination, such as the total amount of contamination that evolves and surprisingly the lifetime of the deposited droplets, are not dependent on the leaf surface.

The leaf type (Northern Red Oak versus Shagbark Hickory) has only a minor effect on the evaporation of deposited DEM droplets. The measured differences in evaporation behavior for droplets deposited on the oak and hickory leaves are not considered to be operationally significant.

The condition or age of the oak leaf primarily affects the percentage of the liquid droplet contamination that eventually evolves. However, the final amount of liquid agent that is recovered as vapor from the oak leaf is strongly dependent not only on the condition or age of the leaf, but also on the initial viscosity of the liquid droplet.

The spread factor of a thickened DEM droplet deposited on a leaf surface is affected mainly by the leaf surface and the condition or age of the leaf. The leaf surface (top versus bottom) is the most dominant factor, and surprisingly the difference in spreading of a deposited droplet is greater between the top and bottom surfaces of the leaves investigated than between the leaf types. Liquid droplets spread on the top surface to a greater extent than on the bottom surface of both leaf species tested. The average spread factor for a deposited droplet is estimated to be 2.56 (+/-0.236 SD) on the top surface and 1.88 (+/-0.052 SD) on the bottom surface, for both the oak and hickory leaves.

However, there is also evidence that the condition or age of the leaf affects the spreading of the droplet on the leaf surface. A significant difference was detected in spreading of droplets deposited on the green September oak leaf and the red October oak leaf. This is manifested by the interaction effect between the leaf surface and the leaf condition in Experiment 2. The average spread factor for a droplet deposited on the top surface of a green oak leaf is 2.47 (+/-0.292 SD), whereas the average spread factor on the top surface of a red oak leaf is 1.95 (+/-0.062 SD). However, the average spread factors for the bottom surface of the green and red oak leaves are similar; 1.88 (+/-0.004 SD) and 1.79 (+/-0.052 SD), respectively.

The viscosity of thickened DEM (100/1,000 cP) and the wind speed (3/11 mph) over the ranges tested had no detectable effect on the extent of spreading of a droplet deposited on the oak and hickory leaves.

Perhaps one of the most significant results is that a simple first order mathematical expression is shown to be adequate for representing the disappearance of a thickened liquid agent simulant droplet from contaminated leaf foliage surfaces during the evaporation of the thin liquid film that is formed on the leaf surfaces. Droplet half-life is the key and critical parameter for predicting the evaporation of the candidate simulant agent from leaf foliage.

In summary, a clearer understanding has been obtained of the effects of liquid viscosity of deposited droplets, wind speed, and particularly the properties of contaminated foliage leaf, namely leaf surface, leaf type, and condition or age of the leaf on the evaporation and the spreading characteristics of deposited DEM droplets.

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## PREFACE

The work described in this report was authorized under Project No. 1L162706A553, CB Defense and General Investigations, Task 3-1, Chemical Threat Assessment Technology, and Project No. 1C464803DF95, XM135 MLRS Binary Chemical. This work was started in October 1981 and completed in June 1989. The experimental data are stored on an IBM PC/AT computer.

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## CONTENTS

## LIST OF FIGURES AND TABLES

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# EVAPORATION OF A THICKENED AGENT SIMULANT FROM OAK AND HICKORY LEAVES

## 1. OBJECTIVE

This report documents the findings of the fourth in a series of experiments on the liquid droplet evaporation and persistency. This laboratory study was conducted to determine how much vapor contamination occurs, and at what rate the vapor contamination becomes airborne when the thickened agent simulant diethyl malonate (DEM) is dispersed in a uniform array of droplets on foliage, oak and hickory leaves. Once the source of vapors is better defined, the prediction of downwind concentrations can be accomplished with an appropriate model of surface evaporation to ascertain the vapor threat over the given period of evaporation for the threat agent.

## 2. INTRODUCTION

The need and requirements for experimental data to quantify the evaporation and the persistency of thickened liquid agents and simulants dispersed as droplets on various types of natural and structural materials have been outlined in several reports.[1-4] The need includes not only basic evaporation data (i.e., evaporation rates, percent recoveries, etc.) of droplet behavior on the various surfaces, but there is also a requirement to identify the parameters that control the evaporation and persistency of the deposited droplets and determine the extent of their influence over ranges of the parameters that are operationally significant.

An experimental program has been devised to collect the fundamental data needed to more clearly characterize and quantify the evaporation and sorption losses of chemical agents. This program has three related tasks: (1) to quantify the persistency and liquid availability of contamination from nonporous surfaces and determine the principal factors governing liquid persistency, (2) to quantify the evaporation and sorption losses for droplets deposited on porous surfaces of concrete and sand, and (3) to determine the vapor hazards from thickened persistent agents/simulants dispersed on vegetation, turf, and foliage.

In Phase I of this research study, various physical parameters and the extent of their influence on the persistency and liquid availability of deposited droplets on nonporous surfaces of unpainted aluminum and chemically inert Teflon substrates were identified by using two candidate thickened liquid agent simulants, DEM and methyl salicylate (MeS).[2] These two liquid agent simulants have been used extensively in the past as simulants for CW agents TGD and THD, respectively.

In Phase II, basic experimental information was obtained that characterized the evaporation and sorption losses of the candidate thickened MeS and DEM agent simulants deposited as droplets on wet and dry concrete,[3] and of DEM droplets deposited on several compositions of wet and dry sand.[4]

During previous studies, the following five droplet characteristics were quantified for test periods that ranged from 1 to 2 days: (1) the half-life of the deposited droplet contamination, (2) the average evaporation and recovery rates associated with the half-life, (3) the percent of contamination that is vaporized and recovered from the concrete after 1, 2, and 3 hr, (4) the total percent of contamination from the deposited droplet that is vaporized and recovered from the concrete surface, and (5) the average droplet evaporation rates for 1, 2, and 3 hr after deposition.

In the experiments with concrete surfaces, the primary factors affecting the evaporation characteristics of MeS and DEM were the size of the deposited droplet and the prevailing temperature. Other controlled factors [i.e., viscosity of the thickened agent simulant, moisture content of the concrete, and the relative humidity (RH) of the incident airstream] had little effect on the evaporation characteristics of the deposited droplets for the conditions studied.

The best estimate for the total percent of recoverable contamination from concrete within 1 to 2 days was 75%, which was the extent of the measurement in this study. However, approximately two-thirds of the contamination that eventually evolved from the concrete was recovered within 2 to 3 hr after deposition at temperatures from 60 to 100 °F. Therefore, 3 hr were judged to be the critical period for secondary vapor hazard, following contamination of concrete with thickened agents having intermediate volatility.

The half-life of droplet contamination on concrete, or the time to recover 50% of the mass deposited, was principally affected by the prevailing temperature, the agent simulant characteristics (i.e., vapor pressure, spread factor, etc.), and the incident wind speed for the ranges of the variables tested.

The spread factor of a droplet deposited on concrete was found to be a function of the time after deposition. A maximum spread factor value of 6 [standard deviation (SD) = 1.2] was achieved after approximately 1 hr from an initial spread factor of 5 (SD = 1.27). However, except for the viscosity of the agent simulant, the other factors investigated, most notably the moisture content of the concrete, droplet size, and the liquid agent simulant, did not significantly influence the droplet spread factor in these experiments.

In the experiments with various compositions of wet and dry sand, the primary factors affecting the evaporation characteristics of DEM were the size of the deposited droplet, the ambient temperature, and the incident wind speed. Other controlled factors [i.e., viscosity of the thickened agent simulant, moisture content of the sand, composition of the sand (particle size), and the RH of the incident airstream] had little effect on the evaporation characteristics of the deposited droplet for the conditions studied.

Among the three dominant factors, the ambient temperature is the primary factor controlling the percent of contamination recovered as vapor from the droplets deposited on sand. For the first hour after contamination, wind speed is the second most important factor. However, after the first hour, the size of the droplet deposited on the sand had a slightly greater effect on the percent of contamination recovered than the wind speed. The size of the droplet is the primary factor controlling the evaporation rate of the liquid droplet deposited on sand. The temperature is the second most important factor, and the wind speed is the third most important factor (parameter) affecting the average evaporation rates of the droplets during the 1-, 2-, 3-, and 6-hr sampling periods. In these experiments, there were interaction effects between the droplet size and the wind speed with the ambient temperature that also affected the evaporation rate of the droplets deposited on sand. Changes in both the ambient temperature and the wind speed had a greater effect on the larger (5 mm diameter) droplets than on the smaller (2 mm diameter) droplets.

The composition of the sand (particle size) had no detectable effect on either the percent of contamination recovered as vapor from the sand or on the average evaporation rate of the droplets deposited on sand during the 1-, 2-, 3-, and 6-hr sampling periods. A slightly greater percent of contamination of DEM droplets deposited on sand was recovered from wet sand than from dry sand for each of the sampling times; however, the differences in recovery were not statistically significant. Evaporation rates from wet sand were consistently greater than the rates for dry sand; however, the differences were within experimental error. Therefore, for all practical purposes, DEM droplets evaporate at the same rate during the first 6 hr whether they are deposited on dry or wet sand. Liquid viscosity [100 per 1,000 centipoise (cP)] of DEM had no detectable effect on either the percent of contamination recovered as vapor or on the average evaporation rates of the droplets deposited on sand during the first 6 hr.

The extent of spreading of a droplet deposited on sand, as measured by the spread factor, varied little for the conditions studied, and none of the six variables investigated in the experiment had a significant effect on the spreading of the droplet. The average spread factor for thickened DEM droplets, 2 and 5 mm diameter, on wet and dry sand was 2.7.

The available half-life data indicated that droplets of thickened DEM deposited on sand at 60 °F have a half-life of 2 to possibly 10 times greater than the half-life of the same droplets deposited on sand at 100 °F.

In this study and during Phase III of the research program, experiments were conducted of the evaporation of thickened DEM deposited as droplets on two species of leaves from oak and hickory trees at the Edgewood Area of Aberdeen Proving Ground. These experiments followed a $2^4$ bi-level factorial design. The specific parameters of the experiments investigated included the following:

- Liquid viscosity: 100 and 1,000 cP--the liquid simulant was thickened with EA K125 copolymer to achieve the specified zero shear viscosities

- Average wind speed over the droplets: 3 and 11 mph

- Leaf surface: either the bottom or top surface of the leaf was contaminated

- Leaf type: oak and hickory leaves collected from trees in the Edgewood Area of Aberdeen Proving Ground

- Leaf condition: the green leaf picked in September, and the red/yellow leaf gathered in October.

Two bi-level factorial screening experiments were conducted. In all experiments, the leaves were contaminated with 2 mm diameter droplets of thickened DEM, and the air temperature was controlled at 60 °F. The RH in the experiments was not controlled. The average RH was 42 +/-8% SD.

An area of approximately 4 $ft^2$ was contaminated in each test. The contamination density was 30 $g/m^2$. A previous study showed there was no significant difference in droplet evaporative behavior at a contamination density of either 30 $g/m^2$ or 10 $g/m^2$ (NATO Standard); therefore, the former was chosen for experimental reasons.

In keeping with the format established in previous reports and to aid in subsequent modeling efforts, an elaborate set of tables is provided for each test case that completely characterizes the evaporation of the array of uniformly spaced and sized droplets deposited on the leaf. The principal tables include vapor concentration values downstream from the contaminated area, residual droplet mass, cumulative mass recovered, evaporation rates as a function time for a deposited droplet, and total yield from the contaminated area. Data are also given on the extent of spreading of DEM droplets on the two leaf surfaces.

All tests were performed in a specially designed open circuit, low-speed wind tunnel, which are briefly described in this report. This wind tunnel can accommodate surfaces up to 6 ft in length. The primary measurement in each experiment was the time history of the vapor concentration, measured with a Miran IA infrared vapor analyzer. Data analyses and transformations of the spectrometer information were performed with the aid of a Fortran computer program described in a previous report.[3] This program was modified to be more interactive and to run on an IBM PC/AT computer, using a MICROSOFT Fortran Compiler (MICROSOFT, Bellevue, WA). A listing of the modified Fortran program is given in Appendix A.

## 3. EXPERIMENTAL DESIGN

In keeping with the test strategy initiated under Phase 1, a bi-level fractional factorial design was followed to develop a data base for clarifying the most critical physical parameters and the extent of their influence (main effects) on the persistency of liquid droplets on leaf surfaces.

Table 1 lists the variables and the test levels selected for investigation in this initial screening of variables and the experimental test matrix. The design consists of 16 distinct evaporation tests conducted at an ambient temperature of 60 °F. According to convention, a plus sign (+) and a negative sign (-) are used to indicate the high and low levels for each variable in each test. The experiment is a $2^4$ factorial design and has a resolution of four (IV); however, because this is a complete factorial design in four variables, there are no confounding of main and interaction effects.

Two experiments were run using the factorial design. Variable 4 is the only variable that differs in these two experiments. In Experiment 1, variable 4 is the type of leaf (hickory versus oak), and in Experiment 2, variable 4 is the condition of the oak leaf (green versus red). The same

Table 1. Design Matrix for Factorial Experiments

| Test | Variables 1 | 2 | 3 | 4* | Contrast |
|---|---|---|---|---|---|
| 1 | - | - | - | - | Mean |
| 2 | + | - | - | - | 1 |
| 3 | - | + | - | - | 2 |
| 4 | + | + | - | - | 12 |
| 5 | - | - | + | - | 3 |
| 6 | + | - | + | - | 13 |
| 7 | - | + | + | - | 23 |
| 8 | + | + | + | - | 123 |
| 9 | - | - | - | + | 4 |
| 10 | + | - | - | + | 14 |
| 11 | - | + | - | + | 24 |
| 12 | + | + | - | + | 124 |
| 13 | - | - | + | + | 34 |
| 14 | + | - | + | + | 134 |
| 15 | - | + | + | + | 234 |
| 16 | + | + | + | + | 1234 |

Variable Identities/Ranges:

| | | | |
|---|---|---|---|
| 1. | Liquid Viscosity | (+) 1,000 cP | (-) 100 cP |
| 2. | Wind Speed | (+) 11 mph | (-) 3 mph |
| 3. | Leaf Surface | (+) Bottom | (-) Top |

Experiment No. 1

| | | | |
|---|---|---|---|
| 4. | Leaf Type | (+) Oak | (-) Hickory |

Experiment No. 2

| | | | |
|---|---|---|---|
| 4. | Leaf Condition | (+) Green | (-) Red |

* Note: Only Variable 4 differs between experiments 1 and 2.

experimental design was used for both experiments. Thus, half the experiments performed in Experiment 1 pertaining to the oak leaves are also appropriate to Experiment 2. These eight tests (Tests 9-16) from Experiment 1 were not repeated and are used to complete the factorial design for both experiments.

# 4. EXPERIMENTATION

## 4.1 Test Materials.

### 4.1.1 Candidate Chemical Agent Simulant.

Diethyl malonate was the candidate agent simulant used in this study. The physical properties of DEM closely approximates the nerve agent GD. The simulant is made viscoelastic by adding either a copolymer or polymer; in this form, the simulant closely mimics the properties of the thickened agent TGD. However, because the precise nature of the thickened threat agent is unknown, the test strategy was to bracket the operationally significant range of liquid viscosities. Therefore, two liquid viscosities (100 and 1,000 cP) were formulated by adding an appropriate concentration of a copolymer thickener (K125 EA)* that were experimentally determined to be 2.8 and 4.8% (by weight) per 100 mL of DEM.

The pertinent physical properties of the candidate agent simulant, gathered from various sources, are in Table 2. The data on liquid vapor pressure were derived by performing a linear regression of reported vapor pressure values.[4] The coefficients for the evaporating liquid (in air) are based on the optimized Gilland-type equation. An experimental investigation has been undertaken by the Physical Chemistry Branch, Research Directorate, U.S. Army Chemical Research, Development and Engineering Center, to obtain the vapor pressure values for unthickened DEM in the temperature range of interest and the best fit predictive equation for the vapor pressure of DEM.[5]

### 4.1.2 Contaminated Surface.

Two species of leaves were selected for this study. The Northern Red Oak (quercus borealis) and the Shagbark Hickory (carya ovata) were collected from trees at the Edgewood Area of Aberdeen Proving Gound. The oak and hickory leaves identified as green in the experimental design were picked during early September. Those leaves identified as red were actually multicolored leaves (red/yellow/orange, etc.) that were collected from the same area during October of the same year. The Northern Red Oak measured 5-9 in. long by 4-6 in. wide, and had 5-11 unequal bristle-tipped lobes. The top surface of the leaf was a dark green, and the bottom surface was a paler green. The leaves appear in late spring, turn to either deep red or orange by fall, and hang on until late fall or winter. The hickory leaf is from the Shagbark Hickory, which is the most widespread type of hickory tree on the American continent. The compound leaves of the hickory are alternately

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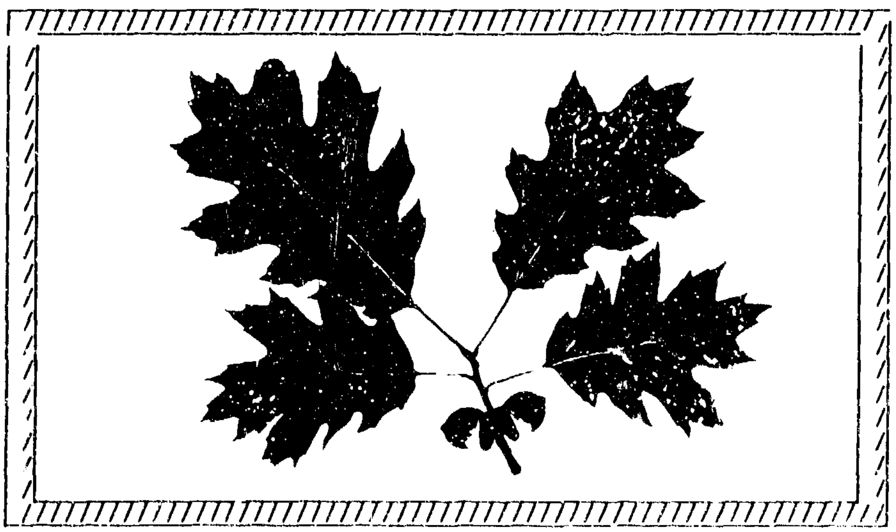
*Manufactured by Rohm and Haas, Philadelphia, PA. Copolymer EA K125 is 80% PMMA, 7% ethyl, and 13% butyl acrylate, with an MW of $2.5 \times 10^6$.

Table 2. Physical Properties of Chemical Agent Simulant

| Properties | Diethyl Malonate |
|---|---|
| Molecular weight, gm/mole | 160.17 |
| Density, $gm/cm^3$ | 1.055 @ 25 °C |
| Surface Tension, dynes/cm | 32.3 @ 25 °C |
| Vapor Pressure, mm Hg | |
| 60 °F | 0.195 (0.101)[6] |
| 80 °F | 0.427 (0.255) |
| 100 °F | 0.885 (0.592) |
| Diffusivity, $cm^2/sec$ | |
| 60 °F | 0.060 |
| 80 °F | 0.0646 |
| 100 °F | 0.0689 |
| Volatility, $\mu g/cm^3$ | |
| 60 °F | 1.739 (0.897) |
| 80 °F | 3.659 (2.181) |
| 100 °F | 7.310 (4.882) |

arranged on a stem with five or seven leaflets. The narrow base of each leaflet is attached to the leaf stem. The three outer leaves are 4 to 6 in. long, while the lower (inner) ones are much smaller. Narrow at the base and wide at the top, the margin of each leaflet is toothed and the shape is described aas obovate. Photos of the oak and hickory leaves are shown in Figure 1.

(a)



(b)

Figure 1. (a) Hickory Leaves (*Carya Ovata*), and
(b) Oak Leaves (*Quercus Borealis*)

At the most, 1 to 2 weeks may have transpired between the time the leaves were collected and used in an evaporation experiment. To reduce the deterioration of the leaves during this period, the leaves were stored in sealed polyethylene bags and refrigerated. There was no discernible difference in the appearances of most of the leaves after 2 weeks of storage. The leaves that appeared to have changed were not used. No attempt was made in these initial screening experiments to investigate the effect of storage time of the leaves on the evaporation characteristics of droplets deposited on the leaves.

## 4.2 Experimental Wind Tunnel Facility.

An overall view of the experimental Plexiglas wind tunnel facility that was designed for controlled large-scale evaporation studies is shown in Figure 2. Room air enters the wind tunnel through the inlet filter and the evaporator of a high-volume 27,000 BTU, water-cooled air conditioning unit (Koldwave Model K26DF) and exits into a laboratory fume hood. A large test section can accommodate contaminated materials up to 75 in. long. The walls of the wind tunnel downstream from the test section are lined with Bytac,* a Teflon overlay, to prevent adsorption of vapors on the walls and to facilitate cleaning. The wind tunnel offers a wind speed range of approximately 1-15 mph, a temperature range of 10-40 °C, and a RH of 15-85%. Details of this facility have been described in an earlier report.[2]

## 4.3 Procedures.

All the evaporation experiments were conducted, using approximately 4 $ft^2$ of exposed leaf surface. This leaf surface was contaminated with a uniform array of 2 mm diameter droplets to a deposition level of 30 $g/m^2$ (nominal values). The test leaf samples were supported and held in place horizontally 2 in. above the wind tunnel's floor by a specially designed wire rack, which had a mesh size of approximately 2 in. Two wire racks (25 in. long by 10.5 in. wide) were used in each evaporation experiment. The leaves were carefully positioned on the wire racks to form a continuous layer of overlapped leaves, without any large voids. This facilitated contaminating the leaves with a uniform array of test droplets and prevented the loss of any test droplets. A similar wire rack was also laid over the leaves. This prevented the leaves from flapping in the wind during the test.

The test droplets of the thickened DEM were expeditiously produced by simply immersing a rod into a liquid reservoir to a predetermined depth and then transferring the adherent liquid to the leaves by allowing the droplets to drip off the rod. This technique, which has been successfully employed in previous droplet evaporation experiments, makes use of a transfer block, with an array of uniformly spaced rods of the appropriate size, to expedite the contamination process and facilitate producing an array of droplets with the desired spacing. With this method, contaminating the two racks with droplets of DEM was accomplished in approximately 10-15 min. The total liquid mass contamination on each rack of leaves was determined gravimetrically with a standard laboratory beam balance. This provided a reliable

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*Distributed by Bolab, Incorporated, Derry, NY

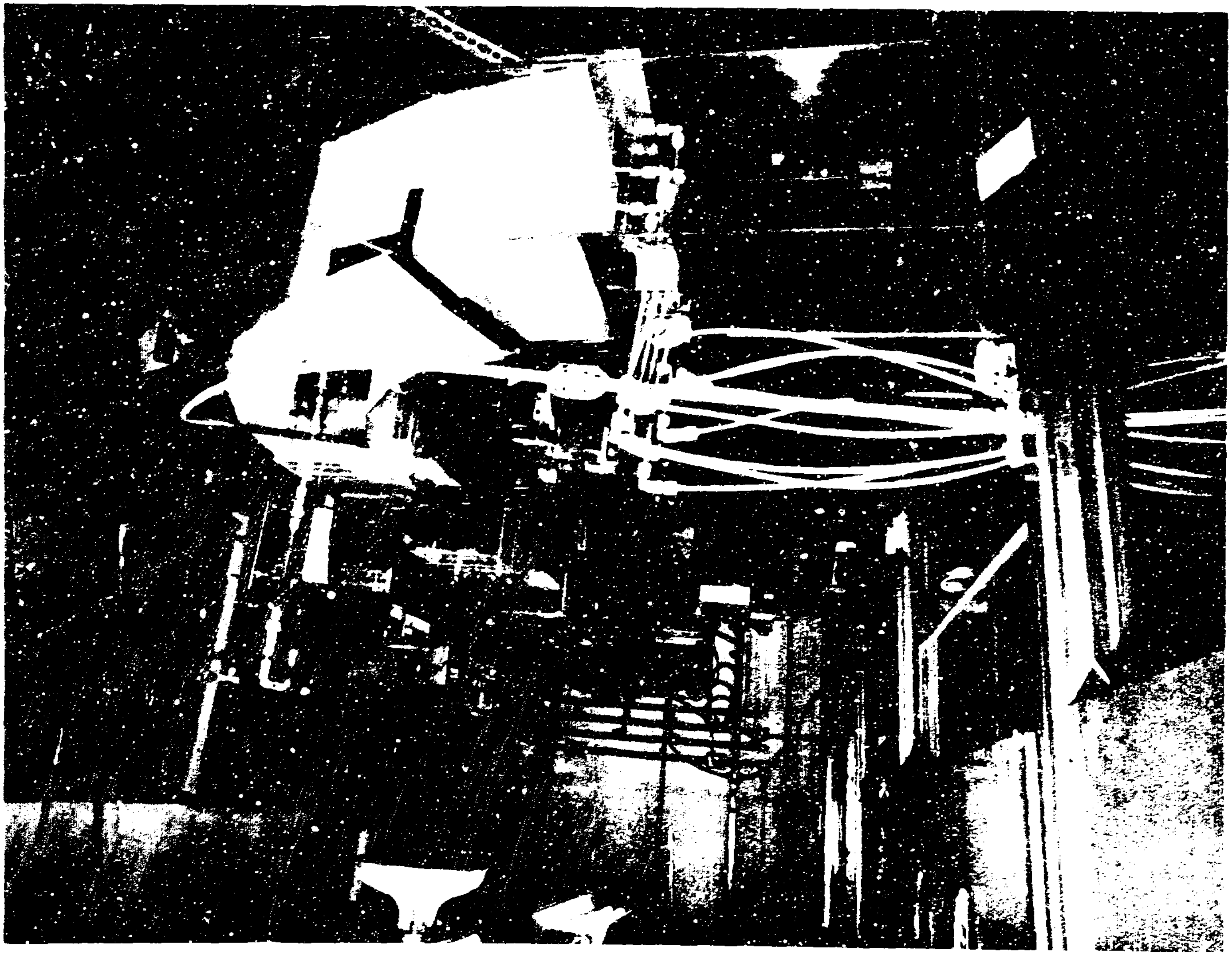

Figure 2. Experimental Wind Tunnel Facility

means of estimating the average droplet size per rack. The measurements of contamination mass had an accuracy of +/-0.1 g. Two contaminated racks of leaves were placed in the test section of the wind tunnel. These were butted together to form a continuous contaminated area (patch) 50 in. long by 10.5 in. wide.

During the course of an experiment, the incident air temperature and RH were measured with a Humitemp instrument* and associated electro-humidity temperature sensors in a probe that was projected into the airstream ahead of the test section. The data were recorded on a standard two-channel strip chart recorder. The accuracy of the RH measurements is +/-2.5%, and the accuracy of the temperature measurement is +/-0.5 °C. The wind speed [feet per minute (fpm)] was measured with a direct reading, electronic anemometer,** with a rotating vane that was also installed ahead of the test section. The stated meter accuracy was +/-2% of full-scale deflection. The surface temperature of the contaminated leaves was measured with copper constantan thermocouples and a multipoint digital/recording thermometer (Omega Model 2176A***).

A measurement of the simulant vapor concentration in the airstream was made continuously at a location approximately 9 ft downstream from the contaminated area with a Miran IA analyzer† and recorded on a Linear Strip Chart recorder.†† The Miran IA is a single beam spectrometer variable filter that is capable of scanning the infrared spectral range between 2.5 and 14.5 μm.

The vapor samples were obtained from a multipoint probe. The probe is a grid of nine symmetrically arranged sampling tubes located at a position downstream from the test section where a uniform vapor concentration profile was established (see Figure 2). During the course of the experiment, the gas analyzer was periodically purged with an automatic zero gas purging system (Model 063-5751) to enhance the long-term stability of the instrument. The accuracy of the zero gas purging system is reported as +/-1 millivolt (mv).

At the end of the test, the analog records of vapor concentration/time information were manually converted into a representative series of data points (maximum - 40) and stored in assigned computer files for detailed computer analysis. The resolution of these data conversions is limited to 1 mv [approximately 0.02 parts per million (ppm)] which is equivalent to the background noise level of the Miran IA vapor analyzer system.

A special purpose Fortran computer program was written to perform the cumbersome tasks of reducing all the digitized voltage readings from the Miran IA analyzer time plots into an equivalent time history of vapor concentration values and transforming the basic vapor concentrations to dosage values, mass transfer rates, and the deposited droplet mass remaining as

*Manufactured by Phys-Chemical Research Corporation, New York, NY
**Manufactured by Davis Instrument Manufacturing Company, Inc., Baltimore, MD
***Omega Engineering, Inc., Stamford, CT
†Wilks Scientific Corporation, Norwalk, CT
††Linear Instruments Corporation, Irvine, CA

a function of time, etc. This enabled us to extract as much information as possible for an in-depth analysis of the experimental results and to also tabulate the mass of information with a consistent style and notation to facilitate further reference. A discussion of the computer program is given in the Phase I and II reports.[2,3] The original Fortran program was slightly modified to handle the analyses of tests on an IBM PC/AT computer for this study. A listing of the IBM PC/AT computer version for this study is in Appendix A.

# 5. RESULTS

## 5.1 Evaporation and Recovery.

In this preliminary screening, an experimental data base was developed to quantify the evaporation and persistency of thickened DEM deposited on foliage, which consisted of the Northern Red Oak and the Shagbark Hickory leaves. For purposes of this experiment, distinctions were made between the top and bottom surfaces of both species of leaves, and additionally for the oak leaves, distinctions between the condition or age of the leaf, identified as green and red leaves. All the evaporation results are based on tests with one candidate agent simulant, DEM. The physical properties of DEM closely resembles those of the nerve agents having intermediate volatility. When thickened with a polymeric additive, this simulant becomes more viscous and closely mimics the properties of a thickened CW agent, such as TGD.

The primary purpose of these controlled wind tunnel experiments was to quantify as a function of time and under a variety of conditions the amount of agent and the rate at which it becomes airborne. An extensive number of tables and figures are provided in Appendixes B-I. With this information on liquid droplet persistency/evaporation, prediction of downwind concentrations can be accomplished using an appropriate surface evaporation model to determine the vapor threat to personnel over the given period of evaporation.

A bi-level factorial experiment was followed to aid in clarifying and identifying the most critical parameters controlling the persistency and evaporation characteristics of thickened viscoelastic liquid droplets deposited on a porous surface, such as a leaf. The variables treated in this initial screening included: (a) liquid viscosity of DEM, (b) wind speed, (c) leaf surface, (d) type of leaf (Experiment 1), and (e) condition of leaf (Experiment 2). By design, 16 distinct tests, in Experiment 1, and 8 complimentary tests, in Experiment 2, were investigated. These 24 tests were conducted at one ambient temperature of 60 °F and with an average RH of 42%.

The results of experimental evaporation are given in detail in Tables 1-24 of Appendixes B-L. Tables 1-16 contain the results for the tests performed in Experiment 1 with oak and hickory leaves, and Tables 17-24 contain the test results in Experiment 2 pertaining only to oak leaves.

Appendix B provides the absorbance (volts) data measured by the Miran IA vapor analyzer, on which all subsequent tabulations were based. The absorbance voltage readings were derived from continuous strip chart recordings, using a fixed sampling period that was chosen based on the length of the experiment and how quickly the readings changed during any given test. The sampling period ranged from 10 to 45 min, but was predominantly 15 min for the high wind speed condition and 30 min for the low wind speed. An integration of the absorbance volts and time data was performed using Simpson's rule. The area (volt minute) is proportional to the cumulative vapor mass recovered under the steady state test conditions. The fractional (normalized) values given in the last column of Appendix B are based on the total initial liquid contamination for two contaminated racks of leaves. The last value in this column is a measure of the total fractional mass recovered from the leaves.

Appendix C presents the vapor contamination levels developed from the uniform array of droplets covering an area of approximately 4 $ft^2$ of leaf surface. The vapor concentration is given as a function of time in terms of parts per million in Column 2 and equivalently as micrograms per cubic meter in Column 3. Columns 4 and 5 indicate the vapor contamination (micrograms per cubic meter) developed per unit area and per unit contamination mass. The sixth and seventh columns present the vapor concentration attributed to an average size deposited droplet, in terms of parts per million and micrograms per cubic meter, respectively.

Appendix D contains the data on the evaporation history for a typical test droplet in the array and the results of a simple half-life model fitted to the residual droplet mass. The elapsed time is given in Column 1 of the tables. The residual droplet mass, in terms of milligrams, and the fractional mass remaining are shown in Columns 2 and 3, respectively. Alternately, Columns 4 and 5 in the table indicate the cumulative mass recovered in terms of milligrams of mass and fractional amount. The right half of this table provides the predictions for a simple half-life model. The half-life is estimated by a linear interpolation of the fractional mass recovered.

A summary of the half-life values for each experiment are given in Table 4 and are analyzed in the Section 6, Analysis, of this report.

Columns 6 and 7 of the tables in Appendix D indicate the residual contamination mass in terms of milligrams and fractional amount derived from the half-life model. Columns 8 and 9 show two alternate ways of indicating the elapsed time in the evaporation experiment. Column 9 gives the elapsed time in terms of half-lives and is perhaps more meaningful and useful.

Appendix E contains the evaporation rates of the residual droplet deposited on leaf surfaces; Columns 1, 2, and 3 depict the elapsed time in terms of minutes, fractional values, and half-lives. Column 4 gives the corresponding droplet evaporation rates in micrograms per minute. Column 5 indicates the normalized evaporation rates. The normalization was obtained by dividing the measured evaporation rate by the fraction of liquid droplet remaining.

Information defining the experimental contamination levels achieved for each rack of leaves in the experiment are in Appendix F [e.g., grams of contamination, number of droplets, grams of contamination per area (square meter), and grams of contamination per droplet]. In most instances, the level of contamination of one rack of leaves is identical to the level of contamination of another rack; therefore, the estimated mean droplet mass for the experiment is the same as that determined for the individual racks of leaves. In these cases, the indicated equivalent droplet diameter (millimeter) is also the same.

Graphs depicting the evaporation behavior of a droplet on a leaf surface are shown in Appendixes G through I. Plots of the residual droplet mass (milligram) versus time are in Appendix G. Appendix H depicts the corresponding droplet evaporation rates (micrograms per minute) as a function of time. The rates are given as negative values in keeping with the concept of vapor mass lost by the deposited droplet. Appendix I gives a combined plot showing the fractional mass remaining and the complimentary plot of fractional mass recovered as a function of time, normalized by dividing time by the droplet half-life. Additionally, a first order half-life model fit to data, given the fractional droplet mass remaining is indicated.

## 5.2 Droplet Spread Factors.

The extent of spreading of a liquid droplet deposited on leaf surface was determined from measurements of the minimum and maximum diameter of the coploymer residue, which was visible on the leaf surface after the liquid droplet had evaporated. The residual of 40 of 1,472 total droplets in the uniform array were examined for each test case. These values, as well as the average spread diameter for the sample of droplets, are in Appendix J. The appropriate spread factor information, derived from the ratio of the average spread diameter of the deposited droplet and the equivalent mass diameter of the droplets (Appendix F), is summarized in Table 3.

# 6. ANALYSIS

## 6.1 Evaporation and Vapor Recovery.

In keeping with the procedure established in Phase I, seven droplet evaporation characteristics were selected from the pool of empirical information cited above to describe the persistency/evaporation of a droplet deposited on a leafy surface. Information of this type provides the responses required for detailed statistical analysis of the experimental data and is extremely useful in identifying the conditions/critical parameters that contribute to the vapor hazard produced by contaminated surfaces. The seven evaporation characteristics that seem most pertinent are as follows:

- The percent of contamination recovered after the 1st, 2d, 3d, and 6th hr from droplets deposited on leafy surfaces

- The average droplet evaporation rates (micrograms per minute) based on a 1st, 2d, 3d, and 6th hr following deposition on the leaf surfaces

- The half-life (minutes) for a droplet in the uniform array of droplets deposited on the leaf surfaces or the time required to recover 50% of the initial (volatile) contaminant

- The average evaporation and recovery rates (micrograms per minute) associated with the half-life of the contaminant

Table 3. Average Spread Factor of 2 mm Diameter Droplets of Thickened Diethyl Malonate on Leaf Surface at 60 °F Air Temperature and 42% Average Relative Humidity

| Leaf Type (Condition) | Leaf Surface | Liquid Viscosity 100 cP | | 1,000 cP | |
|---|---|---|---|---|---|
| | | Nominal Wind Speed | | Nominal Wind Speed | |
| | | 3 mph | 11 mph | 3 mph | 11 mph |
| Hickory (Green) | Top | 2.47 | 2.72 | 2.67 | 2.80 |
| | Bottom | 1.89 | 1.91 | 1.91 | 1.85 |
| Oak (Green) | Top | 2.90 | 2.36 | 2.39 | 2.24 |
| | Bottom | 1.94 | 1.94* | 1.83 | 1.80 |
| Oak (Red) | Top | 1.97 | 1.86 | 1.99 | 1.99 |
| | Bottom | 1.77 | 1.87 | 1.76 | 1.77 |

* Estimate based on rearest

- The total percent of the contamination recovered as vapor from the droplets deposited on the leaf surfaces

- The lifetime of the droplet contamination deposited on the leaf surfaces

- The average evaporation rate (micrograms per minute) over the lifetime of the droplet contamination

These seven droplet evaporation characteristics are given in Tables 4-16 for each of the tests in the two, $2^4$ factorial experiments.

A factorial analysis (Yates' method), half normal probability plots (HNPP) analysis of the magnitude of the effects, and an analysis of variance (ANOVA) were performed to statistically examine the evaporation characteristics in Tables 4-16. The results of the factorial analysis and the studies of the magnitude of the effects in the two factorial experiments via HNPP, which depict the most significant factors and the 0.40, 0.20 and 0.05 confidence bars for Experiments 1 and 2, respectively, are in Appendixes K and L. The ANOVA results for both experiments are in Appendix M. In performing the ANOVA, it was arbitrarily assumed that all interactions of order, three and higher, were really zero, and the five corresponding sums of squares are used to estimate the residual variance (mean square term) in each case. The "F" statistic corresponding to confidence levels of 99.9, 99, 95, 90 and 75% for each case is indicated in Tables M1-M26. Because at times there is a question as to which effects can reasonably be pooled together into the residual sum of squares (which interactions will be assumed to be either zero or at least negligible), the probability plots of the magnitude of the effects in each experiment also serve to confirm the more formal ANOVA table. Adopting a significance level of either 0.10 or 0.20 or a confidence bar of 0.20, as used in HNPP (or correspondingly, a confidence level of 90 or 80%), seems appropriate in examining the significance of the main effects and interactions in this experiment.

In general, the factorial analysis and the ANOVA results are in good agreement. Tables 17 through 19 summarize the findings of the ANOVA for each of the droplet evaporation characteristics. Table 17 provides a summary of the analysis on the half-life and lifetime of the deposited droplet, the total percent of contamination recovered as vapor, and the average evaporation rates based on droplet half-life and lifetime values. Table 18 provides a summary of the most significant factors affecting the percent of contamination recovered as vapor after the 1st, 2d, 3d, and 6th hr. Table 19 indicates the most significant factors affecting the average droplet evaporation rates for the same time periods after deposition of the droplets on the leaf surfaces.

### 6.1.1 Wind Speed (Factor 2).

Inspecting the summarized ANOVA results in Tables 17 through 19 clearly indicates that wind speed [Factor 2 (11 mph versus 3 mph)] in these experiments is the most dominant factor in both droplet evaporation

Text continued on page 47.

Table 4. Half-Life (Minutes) of Droplet Contamination of 2 mm Diameter Droplets of Thickened Diethyl Malonate Deposited on Leaf Surface at 60 °F Air Temperature and 42% Average Relative Humidity

| Leaf Type (Condition) | Leaf Surface | Liquid Viscosity 100 cP | | 1,000 cP | |
|---|---|---|---|---|---|
| | | Nominal Wind Speed 3 mph | 11 mph | Nominal Wind Speed 3 mph | 11 mph |
| Hickory (Green) | Top | 246 | 84 | 264 | 98 |
| | Bottom | 320 | 148 | 332 | 156 |
| Oak (Green) | Top | 245 | 100 | 287 | 136 |
| | Bottom | 367 | 150 | 404 | 162 |
| Oak (Red) | Top | 339 | 142 | 315 | 137 |
| | Bottom | 341 | 145 | 315 | 150 |

Table 5. Average Evaporation Rate (Micrograms per Minute) over Droplet Half-Life of 2 mm Diameter Droplets of Thickened Diethyl Malonate Deposited on Leaf Surface at 60 $^{o}$F Air Temperature and 42% Average Relative Humidity

| Leaf Type (Condition) | Leaf Surface | Liquid Viscosity 100 cP | | 1,000 cP | |
|---|---|---|---|---|---|
| | | Nominal Wind Speed | | Nominal Wind Speed | |
| | | 3 mph | 11 mph | 3 mph | 11 mph |
| Hickory (Green) | Top | 12.6 | 33.1 | 12.2 | 32.9 |
| | Bottom | 8.7 | 20.5 | 9.1 | 20.8 |
| Oak (Green) | Top | 10.5 | 28.4 | 11.3 | 23.7 |
| | Bottom | 7.4 | 19.0 | 8.0 | 19.1 |
| Oak (Red) | Top | 9.3 | 22.3 | 10.3 | 24.4 |
| | Bottom | 8.9 | 20.0 | 10.1 | 22.0 |

Table 6. Total Percent of Contamination Recovered as Vapor from 2 mm Diameter Droplets of Thickened Diethyl Malonate Deposited on Leaf Surface at 60 °F Air Temperature and 42% Average Relative Humidity

| Leaf Type (Condition) | Leaf Surface | Liquid Viscosity 100 cP Nominal Wind Speed 3 mph | Liquid Viscosity 100 cP Nominal Wind Speed 11 mph | Liquid Viscosity 1,000 cP Nominal Wind Speed 3 mph | Liquid Viscosity 1,000 cP Nominal Wind Speed 11 mph |
|---|---|---|---|---|---|
| Hickory (Green) | Top | 76 | 84 | 84 | 94 |
| | Bottom | 75 | 87 | 77 | 89 |
| Oak (Green) | Top | 80 | 88 | 83 | 89 |
| | Bottom | 83 | 87 | 83 | 86 |
| Oak (Red) | Top | 81 | 86 | 98 | 98 |
| | Bottom | 83 | 88 | 93 | 96 |

Table 7. Time (Minutes) for Complete Evaporation of 2 mm Diameter Droplets of Thickened Diethyl Malonate Deposited on Leaf Surface at 60 °F Air Temperature and 42% Average Relative Humidity

| Leaf Type (Condition) | Leaf Surface | Liquid Viscosity 100 cP | | 1,000 cP | |
|---|---|---|---|---|---|
| | | Nominal Wind Speed | | Nominal Wind Speed | |
| | | 3 mph | 11 mph | 3 mph | 11 mph |
| Hickory (Green) | Top | 870 | 360 | 1,020 | 370 |
| | Bottom | 870 | 480 | 900 | 480 |
| Oak (Green) | Top | 780 | 360 | 960 | 390 |
| | Bottom | 1,280 | 465 | 1,160 | 435 |
| Oak (Red) | Top | 1,215 | 450 | 1,280 | 560 |
| | Bottom | 1,140 | 510 | 1,240 | 480 |

Table 8. Average Evaporation Rate (Micrograms per Minute) over Lifetime of 2 mm Diameter Droplets of Thickened Diethyl Malonate Deposited on Leaf Surface at 60 $^{o}$F Air Temperature and 42% Average Relative Humidity

| Leaf Type (Condition) | Leaf Surface | Liquid Viscosity 100 cP | | 1,000 cP | |
|---|---|---|---|---|---|
| | | Nominal Wind Speed | | Nominal Wind Speed | |
| | | 3 mph | 11 mph | 3 mph | 11 mph |
| Hickory (Green) | Top | 5.4 | 13.0 | 5.3 | 16.4 |
| | Bottom | 4.8 | 11.0 | 5.2 | 12.0 |
| Oak (Green) | Top | 5.3 | 13.8 | 5.6 | 14.8 |
| | Bottom | 3.5 | 10.6 | 4.6 | 12.2 |
| Oak (Red) | Top | 4.2 | 12.2 | 4.9 | 11.8 |
| | Bottom | 4.4 | 10.0 | 4.7 | 13.1 |

Table 9. Percent of Contamination Recovered as Vapor 1 hr After Deposition of 2 mm Diameter Droplets of Thickened Diethyl Malonate on Leaf Surface at 60 °F Air Temperature and 42% Average Relative Humidity

| Leaf Type (Condition) | Leaf Surface | Liquid Viscosity 100 cP | | 1,000 cP | |
|---|---|---|---|---|---|
| | | Nominal Wind Speed 3 mph | 11 mph | Nominal Wind Speed 3 mph | 11 mph |
| Hickory (Green) | Top | 16 | 39 | 14 | 33 |
| | Bottom | 12 | 23 | 11 | 22 |
| Oak (Green) | Top | 16 | 33 | 13 | 24 |
| | Bottom | 10 | 22 | 9 | 21 |
| Oak (Red) | Top | 10 | 24 | 11 | 24 |
| | Bottom | 10 | 23 | 11 | 22 |

Table 10. Percent of Contamination Recovered as Vapor 2 hr After Deposition of 2 mm Diameter Droplets of Thickened Diethyl Malonate on Leaf Surface at 60 °F Air Temperature and 42% Average Relative Humidity

| Leaf Type (Condition) | Leaf Surface | Liquid Viscosity 100 cP, Nominal Wind Speed 3 mph | Liquid Viscosity 100 cP, Nominal Wind Speed 11 mph | Liquid Viscosity 1,000 cP, Nominal Wind Speed 3 mph | Liquid Viscosity 1,000 cP, Nominal Wind Speed 11 mph |
|---|---|---|---|---|---|
| Hickory (Green) | Top | 29 | 63 | 27 | 58 |
| | Bottom | 22 | 42 | 21 | 40 |
| Oak (Green) | Top | 29 | 57 | 24 | 45 |
| | Bottom | 19 | 42 | 17 | 39 |
| Oak (Red) | Top | 20 | 44 | 21 | 44 |
| | Bottom | 20 | 43 | 21 | 41 |

Table 11. Percent of Contamination Recovered as Vapor 3 hr After Deposition of 2 mm Diameter Droplets of Thickened Diethyl Malonate on Leaf Surface at 60 °F Air Temperature and 42% Average Relative Humidity

| Leaf Type (Condition) | Leaf Surface | Liquid Viscosity 100 cP | | 1,000 cP | |
|---|---|---|---|---|---|
| | | Nominal Wind Speed 3 mph | 11 mph | Nominal Wind Speed 3 mph | 11 mph |
| Hickory (Green) | Top | 40 | 76 | 37 | 75 |
| | Bottom | 32 | 58 | 30 | 56 |
| Oak (Green) | Top | 40 | 74 | 34 | 62 |
| | Bottom | 27 | 58 | 23 | 54 |
| Oak (Red) | Top | 29 | 60 | 31 | 62 |
| | Bottom | 29 | 59 | 30 | 58 |

Table 12. Percent of Contamination Recovered as Vapor 6 hr After Deposition of 2 mm Diameter Droplets of Thickened Diethyl Malonate on Leaf Surface at 60 °F Air Temperature and 42% Average Relative Humidity

| Leaf Type (Condition) | Leaf Surface | Liquid Viscosity 100 cP, Nominal Wind Speed 3 mph | Liquid Viscosity 100 cP, Nominal Wind Speed 11 mph | Liquid Viscosity 1,000 cP, Nominal Wind Speed 3 mph | Liquid Viscosity 1,000 cP, Nominal Wind Speed 11 mph |
|---|---|---|---|---|---|
| Hickory (Green) | Top | 62 | 84 | 61 | 94 |
| | Bottom | 54 | 84 | 53 | 85 |
| Oak (Green) | Top | 64 | 88 | 59 | 89 |
| | Bottom | 49 | 85 | 46 | 84 |
| Oak (Red) | Top | 54 | 85 | 56 | 94 |
| | Bottom | 52 | 84 | 56 | 92 |

Table 13. Average Droplet Evaporation Rate (Micrograms per Minute) for the First Hour After Deposition of 2 mm Diameter Droplets of Thickened Diethyl Malonate on Leaf Surface at 60 °F Air Temperature and 42% Average Relative Humidity

| Leaf Type (Condition) | Leaf Surface | Liquid Viscosity 100 cP, Nominal Wind Speed 3 mph | 100 cP, 11 mph | 1,000 cP, Nominal Wind Speed 3 mph | 1,000 cP, 11 mph |
|---|---|---|---|---|---|
| Hickory (Green) | Top | 16.9 | 36.2 | 15.4 | 35.9 |
| | Bottom | 10.9 | 23.1 | 10.8 | 23.3 |
| Oak (Green) | Top | 13.7 | 31.0 | 14.4 | 26.4 |
| | Bottom | 8.6 | 21.5 | 9.4 | 21.6 |
| Oak (Red) | Top | 10.9 | 25.2 | 11.7 | 26.3 |
| | Bottom | 10.6 | 22.3 | 11.3 | 24.4 |

Table 14. Average Droplet Evaporation Rate (Micrograms per Minute) for the First 2 hr After Deposition of 2 mm Diameter Droplets of Thickened Diethyl Malonate on Leaf Surface at 60 $^{o}$F Air Temperature and 42% Average Relative Humidity

| Leaf Type (Condition) | Leaf Surface | Liquid Viscosity 100 cP | | Liquid Viscosity 1,000 cP | |
|---|---|---|---|---|---|
| | | Nominal Wind Speed 3 mph | Nominal Wind Speed 11 mph | Nominal Wind Speed 3 mph | Nominal Wind Speed 11 mph |
| Hickory (Green) | Top | 15.2 | 29.2 | 14.3 | 31.3 |
| | Bottom | 10.4 | 21.3 | 10.5 | 21.7 |
| Oak (Green) | Top | 12.3 | 27.1 | 13.1 | 24.3 |
| | Bottom | 8.4 | 19.7 | 9.1 | 20.0 |
| Oak (Red) | Top | 10.5 | 23.0 | 11.3 | 24.9 |
| | Bottom | 10.1 | 20.7 | 11.0 | 22.7 |

Table 15. Average Droplet Evaporation Rate (Micrograms per Minute) for the First 3 hr After Deposition of 2 mm Diameter Droplets of Thickened Diethyl Malonate on Leaf Surface at 60 °F Air Temperature and 42% Average Relative Humidity

| Leaf Type (Condition) | Leaf Surface | Liquid Viscosity 100 cP, Nominal Wind Speed 3 mph | Liquid Viscosity 100 cP, Nominal Wind Speed 11 mph | Liquid Viscosity 1,000 cP, Nominal Wind Speed 3 mph | Liquid Viscosity 1,000 cP, Nominal Wind Speed 11 mph |
|---|---|---|---|---|---|
| Hickory (Green) | Top | 13.9 | 23.4 | 13.4 | 27.0 |
| | Bottom | 9.8 | 19.6 | 10.1 | 20.2 |
| Oak (Green) | Top | 11.4 | 23.2 | 12.4 | 22.3 |
| | Bottom | 8.1 | 18.2 | 8.9 | 18.7 |
| Oak (Red) | Top | 10.2 | 21.2 | 11.0 | 23.2 |
| | Bottom | 9.7 | 19.1 | 10.7 | 21.3 |

Table 16. Average Droplet Evaporation Rate (Micrograms per Minute) for the First 6 hr After Deposition of 2 mm Diameter Droplets of Thickened Diethyl Malonate on Leaf Surface at 60 °F Air Temperature and 42% Average Relative Humidity

| Leaf Type (Condition) | Leaf Surface | Liquid Viscosity 100 cP | | 1,000 cP | |
|---|---|---|---|---|---|
| | | Nominal Wind Speed | | Nominal Wind Speed | |
| | | 3 mph | 11 mph | 3 mph | 11 mph |
| Hickory (Green) | Top | 10.7 | 13.0 | 11.0 | 16.8 |
| | Bottom | 8.3 | 14.1 | 9.0 | 15.3 |
| Oak (Green) | Top | 9.2 | 13.8 | 10.6 | 15.9 |
| | Bottom | 7.4 | 13.4 | 8.2 | 14.5 |
| Oak (Red) | Top | 9.2 | 15.0 | 10.0 | 17.5 |
| | Bottom | 8.8 | 13.6 | 9.8 | 16.8 |

Table 17. Summary of ANOVA of $2^4$ Experiments 1 and 2: 2 mm Diameter Droplets of DEM Deposited on Leaf Surfaces at 60 $^0$F Air Temperature and 42% Average Relative Humidity

| Source | (A) Exp 1 | (A) Exp 2 | (B) Exp 1 | (B) Exp 2 | (C) Exp 1 | (C) Exp 2 | (D) Exp 1 | (D) Exp 2 | (E) Exp 1 | (E) Exp 2 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 Liquid Viscosity | ** | | | | ** | **** | | | ** | ** |
| 2 Wind Speed | **** | **** | **** | **** | **** | *** | **** | **** | **** | **** |
| 3 Leaf Surface | **** | ** | * | | | | **** | *** | *** | *** |
| 4 Leaf Type/Condition | ** | | | ** | | **** | ** | | | * |
| Interactions | | | | | | | | | | |
| 1x2 | | | | | | | | | | |
| 1x3 | | | | | * | ** | | | | |
| 1x4 | | | | | * | **** | | | | |
| 2x3 | ** | | | | | | *** | * | ** | |
| 2x4 | | | | | ** | | | | | |
| 3x4 | | ** | | ** | | | | ** | | * |

Keys:

(A) Half-Life of Droplet

(B) Lifetime of Droplet

(C) Total Percent of Contamination Recovered as Vapor

(D) Average Evaporation Rate of Droplet Over Half-Life

(E) Average Evapora‹ on Rate Over Lifetime of Droplet

Critical Values for F-Statistic:

**** $F_{1,5,0.999} = 47.18$

*** $F_{1,5,0.99} = 16.26$

** $F_{1,5,0.95} = 6.61$

* $F_{1,5,0.90} = 4.06$



44

Table 18. Summary of ANOVA of $2^4$ Experiments 1 and 2 on Percent of Contamination Recovered as Vapor After Specified Time from 2 mm Diameter Droplets of DEM Deposited on Leaf Surface at 60 °F Air Temperature and 42% Average Relative Humidity

| Source | 1 hr Exp 1 | 1 hr Exp 2 | 2 hr Exp 1 | 2 hr Exp 2 | 3 hr Exp 1 | 3 hr Exp 2 | 6 hr Exp 1 | 6 hr Exp 2 |
|---|---|---|---|---|---|---|---|---|
| 1 Liquid Viscosity | ** | * | ** | ** | ** | ** | | |
| 2 Wind Speed | **** | **** | **** | **** | **** | **** | **** | **** |
| 3 Leaf Surface | *** | *** | **** | *** | **** | **** | *** | **** |
| 4 Leaf Type/Condition | * | * | ** | * | ** | | | |
| Interactions | | | | | | | | |
| 1x2 | | | | | | | | |
| 1x3 | | | | | | | | |
| 1x4 | | * | | ** | | ** | | ** |
| 2x3 | ** | | ** | | | | ** | |
| 2x4 | | | | | | | | |
| 3x4 | | ** | | ** | | *** | | *** |

Critical Values for F-Statistic:

**** $F_{1,5,0.999} = 47.18$

*** $F_{1,5,0.99} = 16.26$

** $F_{1,5,0.95} = 6.61$

* $F_{1,5,0.90} = 4.06$

Table 19. Summary of ANOVA of $2^4$ Experiments 1 and 2 on Average Evaporation Rate over Specified Time for 2 mm Diameter Droplets of DEM Deposited on Leaf Surfaces at 60 °F Air Temperature and 42% Relative Humidity.

| Source | 1 hr Exp 1 | 1 hr Exp 2 | 2 hr Exp 1 | 2 hr Exp 2 | 3 hr Exp 1 | 3 hr Exp 2 | 6 hr Exp 1 | 6 hr Exp 2 |
|---|---|---|---|---|---|---|---|---|
| 1 Liquid Viscosity | | | | | | ** | ** | *** |
| 2 Wind Speed | **** | **** | **** | **** | **** | **** | **** | **** |
| 3 Leaf Surface | **** | *** | **** | *** | *** | **** | *** | *** |
| 4 Leaf Type/Condition | ** | | ** | | ** | | | *** |
| Interactions | | | | | | | | |
| 1x2 | | | | | | | | |
| 1x3 | | | | | | | | |
| 1x4 | | | | | | | | |
| 2x3 | * | | * | | | * | | |
| 2x4 | | | | | | | | |
| 3x4 | | ** | | ** | | ** | | * |

Critical Values for F-Statistic:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

experiments. The "F" statistic associated with the wind speed effect is significant at 0.1% level for all evaporation characteristics examined in both of the factorial experiments. The effect produced by the wind speed is predominantly a direct effect. There is only one notable interaction effect (Factor 23) between the wind speed and the leaf surface, which is significant at 5% level in these experiments. For each of the droplet evaporation characteristic examined, except for the total contamination recovered from the DEM droplets deposited on the leaf surfaces, wind speed alone can explain most of the variation in the responses, 80 and 88% in Experiments 1 and 2, respectively. The total percent of contamination recovered was strongly dependent on the viscosity of the deposited liquid droplet and condition or age of the leaf surface, especially in Experiment 2. These effects are discussed in Sections 6.1.2 and 6.1.3. On the average, the initial (0-3 hr) average droplet evaporation rate of a droplet deposited on the leaf surface at 3 mph is one-half the evaporation rate of the droplet exposed to a wind speed of 11 mph. Correspondingly, the percent of contamination recovered as vapor from the contaminated surface at 3 mph when compared to 11 mph is one-half. However, the average droplet evaporation rate for 6 hr at 3 mph is nearly two-thirds the evaporation rate at 11 mph (9.3 μg/min versus 14.6 μg/min and 9.2 μg/min versus 15.1 μg/min ) in Experiments 1 and 2. The evaportion rate averaged over the lifetime of the droplet on the leaf surface at 3 mph is 38% of that for droplets at 11 mph in Experiments 1 and 2 (5.0 μg/min versus 13.0 μg/min and 4.6 μg/min versus 12.3 μg/min), respectively. The difference in the lifetime of the deposited droplets at 3 mph and 11 mph, 9.3 hr in Experiment 1 (980 min versus 418 min) and 10.8 hr (1,106 min versus 456 min in Experiment 2), is significant, both statistically and operationally. Additionally, the 3-hr difference in the half-life of the deposited droplets evaporating at 3 mph versus 11 mph, which is attributable mainly to the difference in the wind speed, in both experiments, is also of operational significance.

In summary, the variation in the evaporation characteristics of the DEM droplets deposited on leaf surfaces at a constant temperature is due primarily to the difference in wind speed (3-11 mph) in these experiments. The increase in droplet evaporation rates, the percent of contamination recovered during evaporation, and the decrease in persistency of the droplets deposited on the leaf surfaces exposed to wind speed of 11 mph, when compared to 3 mph, are both statistically and operationally significant.

### 6.1.2 Leaf Surface (Factor 3).

The leaf surface [Factor 3 (top versus bottom)] in Experiments 1 and 2 is also highly significant at 0.1 and 1.0% levels, respectively, for all the droplet evaporation characteristics examined, except for the lifetime of the droplet deposited on the leaf surfaces and for the total percent of contamination recovered as vapor from the evaporating droplets. Apparently, for short times (0-3 hr), whether the top or bottom surfaces of the oak and hickory leaves are contaminated, has a direct effect on the amount and rate at which the droplet contamination evaporates. However, the leaf surface does not have a direct effect on the long-term yields in the evaporation experiment (i.e., the total amount of contamination that evolves or the total time required for evaporation of the deposited droplet). There is evidence of an interaction effect between the top and bottom surfaces and condition or

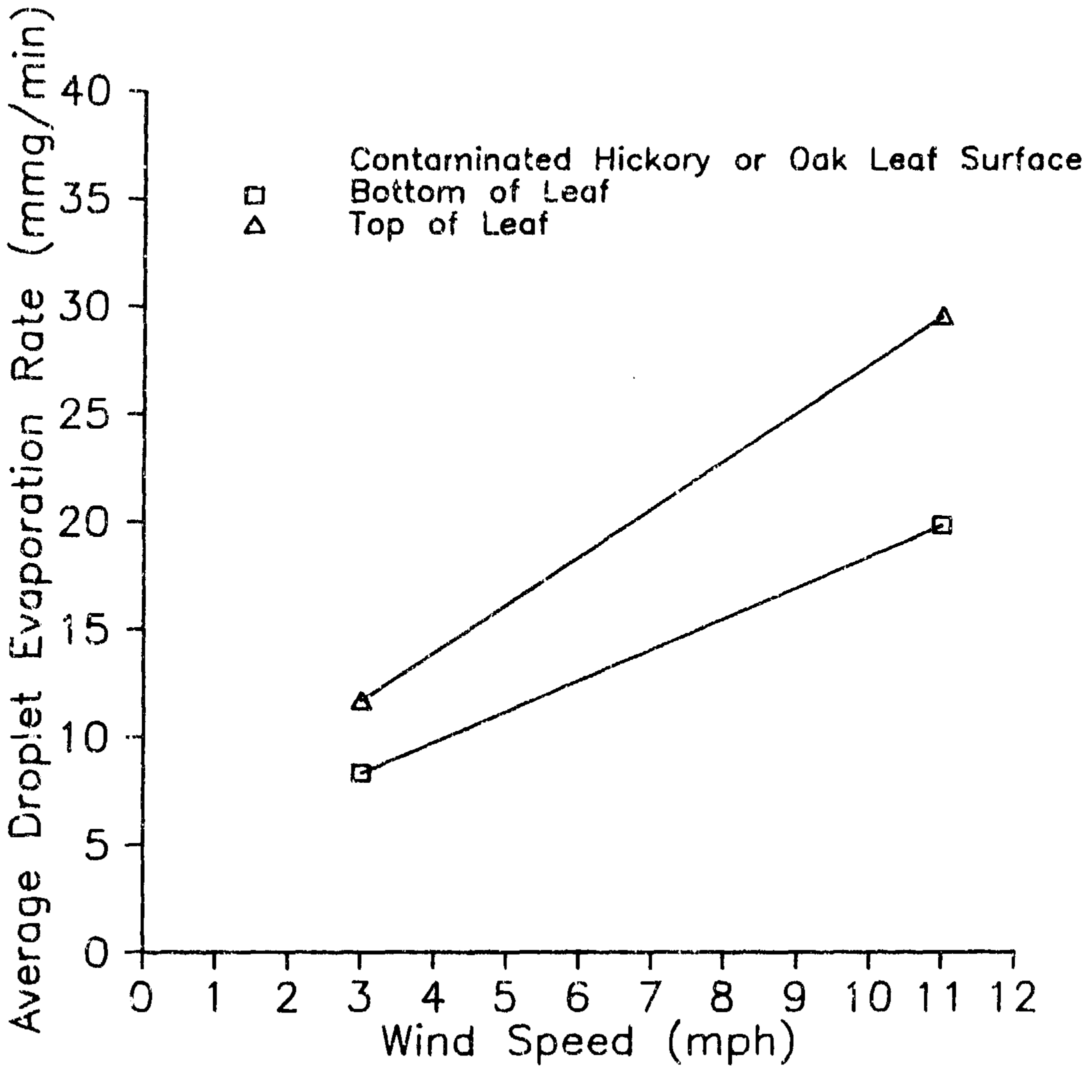


Figure 3. Effect of Interaction Between Wind Speed and Leaf Surface on the Average Droplet Evaporation Rate for Droplet Half-Life (Factor 23) in Experiment 1

interaction is evident with the hickory and oak leaves in Experiment 1. There is however evidence of an interaction between the leaf surface and the wind speed (Factor 23) that has an effect on the initial evaporation rate of the droplets in both the ANOVA and HNPP analysis. While there is only a small difference in the evaporation rate of the droplets deposited on the top and bottom surfaces at the the 3 mph wind speed (approximately 3 μg/min), a two-way comparison (Figure 3) shows that this interaction arises because there is a substantial difference in the evaporation rates (10.4 μg/min) between droplets deposited on the top and bottom leaf surfaces at 11 mph. This is probably related to the finding that droplets deposited on the top surfaces of the oak and hickory leaves spread substantially more than droplets deposited on the bottom surfaces of these leaves. With a larger exposed droplet surface, an increase in the incident wind speed can be expected to have a greater effect on the droplet evaportion rates, etc. It is noteworthy that the differences in the percent of contamination recovered from the top and bottom leaf surfaces in Experiments 1 and 2 are negligible, approximately 10 and 5%, respectively. These differences are not considered to be operationally significant to warrant making the distinction between the top and bottom surfaces of the leaf in modeling downwind vapor hazards. In addition, the leaf surface does not have to be considered to predict the persistency of the hazard because droplet lifetime and the total percent of vapor recovered are not affected by the leaf surface.

### 6.1.3 Leaf Types and Leaf Conditions (Factor 4).

In comparison with the wind speed and leaf surface effects, the type of leaf (hickory versus oak), Factor 4 in Experiment 1, has a minor effect on the evaporative behavior of the deposited thickened DEM droplets. Most notably, the type of leaf that is contaminated has a direct effect on the rate of evaporation and the half-life of the droplet, which are significant at the 5% level. According to the HNPP analysis, there are no two factor interactions that are significant at the 5% level. Therefore, the interaction (Factor 24) in Table 17 is suspect. The difference in the half-life of DEM droplets deposited on hickory and oak leaves (206/231 min) is <30 min and is not statistically significant by the HNPP standard. Moreover, a difference of 30 min in droplet half-life is not believed to be operationally significant. For the first 3 hr after deposit, the significant increase (2-3 μg/min) in the average evaporation rate for droplets deposited on hickory versus oak leaves, which is judged to be significant, cannot be attributed to a difference in spreading of the droplet on the leaf surfaces. Therefore, the difference in evaporative behavior of the droplets, cannot be directly attributed to the species of leaf. Because this increase in evapoation rate corresponds to <5% increase in the amount of contamination recovered from the hickory when compared to the oak leaf, it is not considered to be operationally significant. This raises the hope that leaf species does not have to be included to model the evaporative behavior of the droplets deposited on foliage in the field.

With regards to Factor 4 in Experiment 2, the condition of the oak leaf (red October leaf versus green September leaf), the statistical analysis indicates only the total percent of contamination recovered is directly affected by the condition or age of the leaf. Factor 4 is significant at the 0.1% level; however, there is also a large interaction (Factor 14) between the liquid viscosity and the leaf condition, which is also significant at 0.1%. The two-way plot of Factor 14 in Figure 4 shows that this interaction

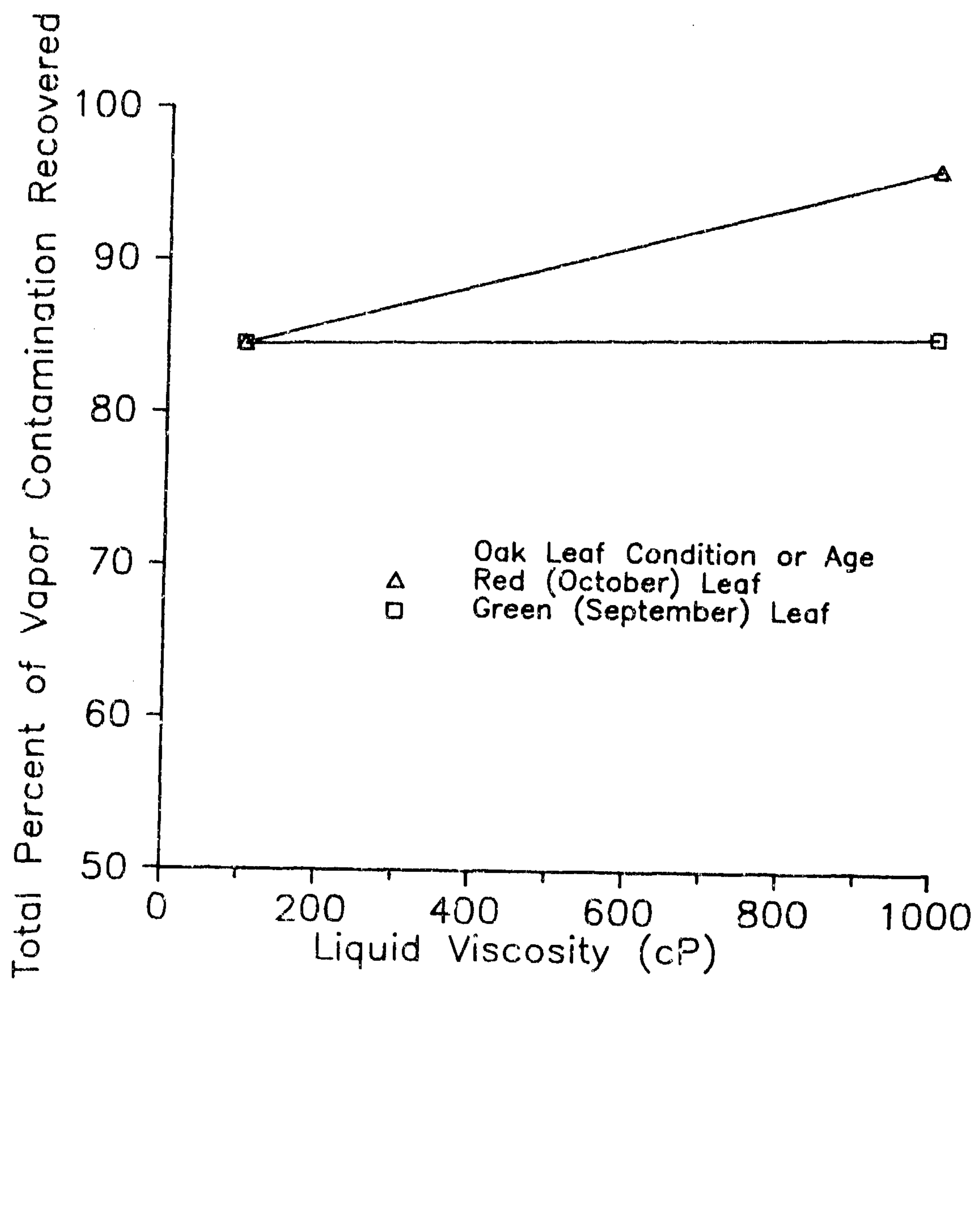


Figure 4. Effect of Interaction Between Liquid Viscosity and the Oak Leaf Condition/Age on the Total Percentage of Vapor Contamination Recovered (Factor 14) in Experiment 2

arises because there is a significant increase (11%) increase in the percent of vapor recovered from the 1,000 cP viscosity DEM droplets deposited on the red oak leaf over the green oak leaf (96 versus 85%), but there is no difference in the percent of vapor recovery of the 100 cP viscosity DEM droplets on the red and green oak leaves. There is also some evidence of this interaction effect on the percent of vapor recovered after 3 and 6 hr, because Factor 14 is significant at 5% in both the ANOVA and HNPP analysis. The only other noteworthy interaction involving the condition of the oak leaf is Factor 34 in Experiment 2. This interaction between the leaf condition and the leaf surface was discussed previously in this report.

In summary, the primary effect that Factor 4 (leaf condition or age) has in this evaporation experiment is on the percent of contamination that is eventually recovered as vapor from the leaves. However, the final amount of agent recovered from the oak leaf surfaces is strongly dependent on the initial viscosity of the liquid droplet, as well as the condition or age of the oak leaf.

6.1.4 Liquid Viscosity (Factor 1).

Although the factorial analysis results of the two statistical analysis methods are in general agreement, there is a major difference between the two in judging the significance of Factor 1, the liquid viscosity of the deposited droplets in these experiments. According to the results of the HNPP of the standardized effects, the liquid viscosity is not as dominant a factor in these experiments as the ANOVA results in Tables 17 to 19 indicate. This was substantiated by a one-way ANOVA on this data.

According to the ANOVA (Factor 1), the liquid viscosity (1,000 cP versus 100 cP) has a significant effect on the percent of contamination recovered as vapor from the leaf surfaces in both experiments (Table 18). After the first hour, there is a significant interaction between the liquid viscosity and the condition of the oak leaf in Experiment 2. This is indicated by the interaction (Factor 14) in the Tables, which is judged to be significant at the 5% level. This interaction effect is also highly significant (0.1% level) for the total percent of contamination recovered from the deposited droplets in Experiment 2. Surprisingly, no such interaction is manifested in Experiment 1. Apparently, the interaction of liquid viscosity with leaf condition (green versus red oak leaves), as examined in Experiment 2, is greater than the interaction of liquid viscosity with leaf type (oak versus hickory) in Experiment 1.

However, according to the HNPP of standardized effects, the liquid viscosity does not have a significant effect on the percent of contamination recovered as vapor from the leaf surfaces in either Experiment 1 or 2 for the 0-6 hr time period. The interaction effect (Factor 14) corresponding to the interaction between the liquid viscosity and the oak leaf condition in Experiment 2 is significant only after evaporation times of 3 hr and longer. Interaction of liquid viscosity with leaf condition is not evident for short evaporation periods (0 to 2 hr) after droplet deposit.

According to ANOVA, the viscosity of the liquid contamination has a significant effect on the half-life of the droplets deposited on the oak and hickory leaf surfaces in Experiment 1 (5% level); however, it has little effect on the half-life of the droplets deposited on the green and red oak leaves in Experiment 2. The HNPPs of the factorial analysis for the same results indicate there is no significant difference in the half-life of the 100 and 1,000 cP droplets deposited on leaf surfaces in Experiment 1 (208/217 min) and in Experiment 2 (229/225 min).

The HNPP and the ANOVA indicate that the differences in total percentage of contamination recovered from the deposited droplets, with initial viscosities of 100 and 1,000 cP (82.5/85.6%) and (84.5/90.8%) in Experiments 1 and 2, as indicated in Table 17, are significant at the 5% level. The actual differences, approximately 3 and 6%, in the total percent of contamination recovered between the 100 and 1,000 cP viscosity droplets are probably not operationally significant.

The ANOVA and HNPP results indicate that the viscosity of the liquid contamination does not significantly effect the lifetime of the droplet contamination in these experiments. Although the 100 cP droplets consistently exhibited a lifetime that is less than the liftime of 1,000 cP droplets in both Experiment 1 (69 min) and Experiment 2 (38 min), these differences cannot be judged to be significant at the 5% level in the HNPP.

The ANOVA and the HNPP results also indicate that the average evaporation rates of the 100 and 1,000 cP viscosity droplets are not significantly different in the early stage (0 to 2 hr) of the evaporation process in Experiments 1 and 2. However, in the later stage of the process, a statistically significant difference in the average evaporation rate for the 100 and 1,000 cP droplets is evident [e.g., after 6 hr in Experiment 1 (11.2 μg/min and 12.6 μg/min) and in Experiment 2 (11.3 μg/min and 12.9 μg/min)]. It is noteworthy that the average evaporation for the 6-hr period is greater for the 1,000 cP droplets than for the 100 cP droplets. The difference of approximately 1 μg/min amounts to a difference of 10% in the rates, which is probably of little operational significance.

## 6.2 Droplet Spread Factors.

A factorial analysis was performed on the average spread factor results that were derived for the droplets deposited on the leaf surfaces (Table 3). The results of the Yates' factorial analysis and HNPP of the magnitude of the effects are in Appendix N. The ANOVA tables for the droplet spread factors are in Appendix O. Both the HNPP and the ANOVA indicate that the leaf surface [Factor 3 (top versus bottom surface)] is the most dominant factor affecting the extent of spreading of the liquid droplets on the leaf surface. The droplet spread factors in Experiment 2 are also influenced to some extent by the condition of the leaf surface. Factor 4 is significant at the 1% level, and the interaction between the surface and condition of the oak leaf (Factor 34), which is significant at the 5% level, seems plausible. The other variables in these experiments, over the ranges tested, had no significant effect on the extent of spreading of the droplets on the leaf surfaces. Most important in Experiment 1, the results indicate there was no significant difference in spreading of the droplets deposited on the leaves of the Northern Red Oak and the Skagbark Hickory.

The principal finding in Experiment 1 is that the liquid droplets spread more on the top surface of the leaf than on the bottom surface for both leaf species (2.66/1.89 and 2.47/1.88 for the top/bottom surfaces of the hickory and oak leaves, respectively). The average spread factor for droplets on the top and bottom surfaces of these leaves are estimated to be 2.56 (+/-0.236 SD) and 1.88 (+/-0.052 SD), respectively.

In addition to the difference in spreading of the droplets on the top and bottom leaf surfaces in Experiment 2, it is also evident there is a difference in spreading of droplets deposited on the green September oak and the red October oak leaves. Moreover, this difference in spreading is greater for the top surfaces than for the bottom surfaces of these leaves, which explains the interaction effect (Factor 34) between the oak leaf surface and the condition of the oak leaf. This is evident in the two-way plot shown in Figure 5. The average spread factor for droplets on the top surface of the green oak leaf is 2.47 (+/-0.292 SD), compared to a spread factor of 1.95 (+/-0.062 SD) for the top surface of red oak leaf. However, the average spread factors for the bottom surfaces of the green and red oak leaves are quite similar (1.88 (+/-0.004 SD) and 1.79 (+/-0.052 SD), respectively). Evidently, this interaction arises because there is apparently little difference in spreading of the droplets on the bottom surfaces of the green and red oak leaves; however, there is a significant difference in spreading of the droplets deposited on the top surfaces of the green and red oak leaves.

The viscosity of the thickened liquid droplet and the wind speed, over the ranges tested, did not affect the spreading of the deposited droplets in these experiments.

In summary, the analyses of the droplet spread factor results indicate first that there is a greater difference between the top and bottom surfaces of the oak and hickory leaves investigated than between the oak and hickory species. Secondly, the spread factor for a leaf can be expected to vary with the condition of the leaf or its age, as indicated by the difference in spreading on the oak leaves in September and October. In general, these droplet spread factor findings correlate well with the evaporative behavior of the deposited droplets.

## 7. DISCUSSION

Graphs depicting the experimental residual mass and fractional mass of the evaporating droplets deposited on leaf foliage and the predictions of a first order model are in Appendixes G and H. The simple first order expression defined as

$$-dm/dt = Km$$

or

$$m(t) = M(0)e^{-Kt}$$

is described by the initial droplet mass, M(0), and an empirical constant K, the specific rate or velocity constant of the process. Recognizing that at $t = t_{\frac{1}{2}}$, $m(t) = M(0)/2$, this velocity content can then be defined in terms of the half-life of the deposited droplet

$$K = \ln 2/t_{\frac{1}{2}}$$

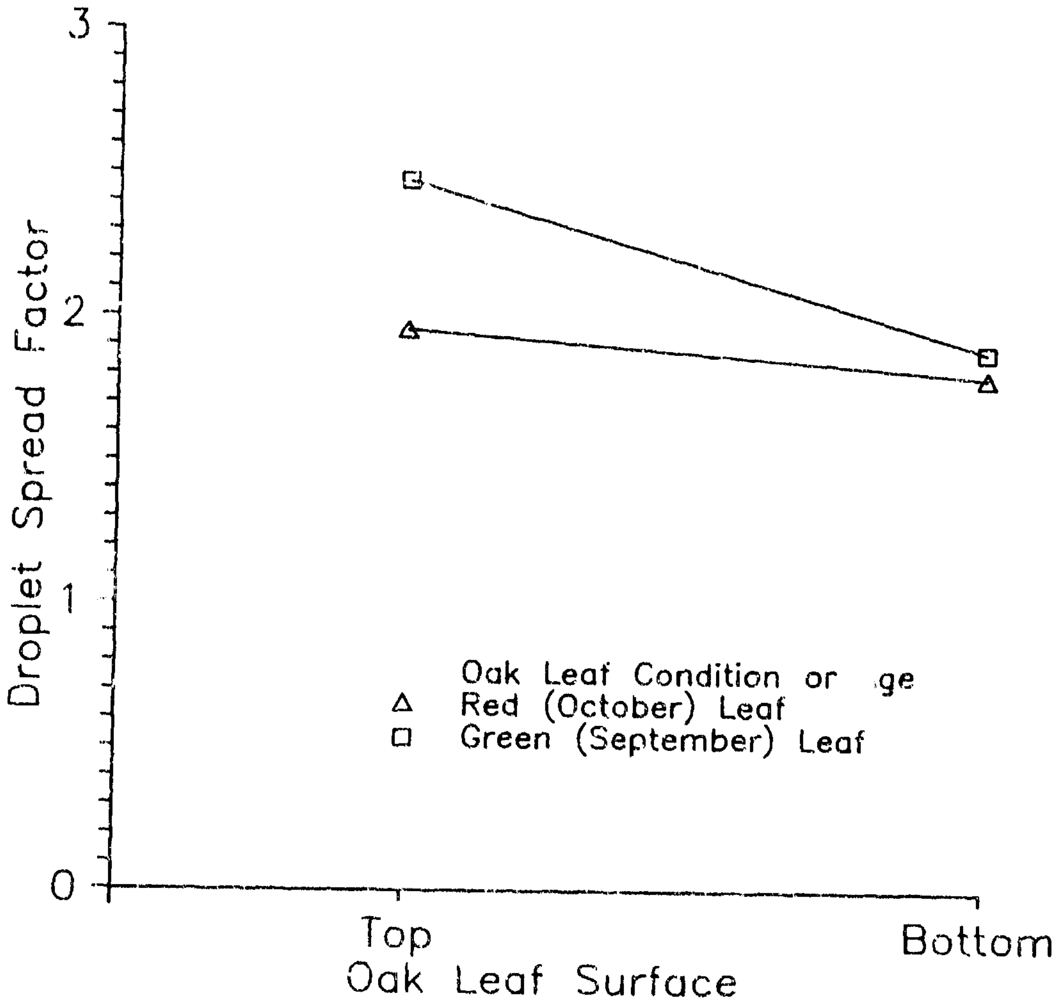


Figure 5. Effect of Interaction Between the Oak Leaf Surface and the Condition/Age on the Leaf Spread Factor (Factor 34) in Experiment 2

This simple expression fits reasonably well the experimental droplet evaporation data obtained in Experiments 1 and 2 during the most significant part of the volatilization period, as shown in Figure 6. This raises the possibility that the evaporation of droplets deposited on leaf foliage can be reasonably well predicted, in general, from the characteristic half-life of the contamination.

The utility of the half-life model in expressing the evaporative behavior of agent droplets on surfaces is not without precedence. For example, in 1928, Walker et al. issued a lengthy report on HD evaporation from soil in field tests conducted between 1922 and 1926 at the Edgewood Arsenal. The evaporation of large H droplets was found to follow a first order decay for about 2 to 3 hr, at temperatures ranging between about 18 and 28 °C.[7] In 1956, Trick showed that the evaporation of GB droplet contamination from wet and dry grounds also followed the first order relationship.[8] In 1986, Podoll et al. found that GD, TGD, VX, and HD droplets deposited on soil and vegetation had similar curves of volatilization. Generally, a slight maximum rise in the volatilization, which they believed corresponded to the initial spreading of the droplet, was followed by a first order decline in the volatilization rate.[9]

The summary of the ANOVA (Table 17) for droplet evaporation Experiments 1 and 2 indicate that the droplet half-life depends principally on two or three factors in these experiments, wherein the temperature was held constant. It seems plausible that the half-life of the simulant agent droplet evaporating at constant ambient temperature might be reasonably well predicted by a simple linear model involving two or three terms; wind speed, leaf surface, and perhaps leaf age or condition. The results of fitting three regression models (Models 1 and 1B--Experiment 1, and Model 2--Experiment 2) to the experimental half-life data obtained in these two experiments are in Appendix P, Tables 1 through 3. In Model 1, the droplet half-life is estimated by the two terms of wind speed (B = -89.4375), the leaf surface factor (C = 36.1875), and the constant 218.6875. In Model 1B, a slightly better estimate of droplet half-life over Model 1 is provided by including the effects due to the liquid viscosity of the droplet (A = 11.1875), the type of leaf (D = -12.6875), and an interaction factor (BC = -11.4375). The multiple correlation factor and standard error of the estimate for Model 1B are 0.9921 and 15.744, when compared to 0.9706 and 26.530 for Model 1. In Model 2, the droplet half-life is estimated by three terms; wind speed (B = -93.1875), leaf surface (C = 20.8175) and an interaction factor (CD = 18.5625) between leaf surface and leaf condition or age, and the constant 233.4375. The multiple correlation for this model is 0.9796, and the standard error of the estimate is 23.047. A comparison of the three model predictions is also shown in Figure P-1, which gives a plot of the experimental droplet half-life versus the predicted droplet half-life. In addition, the best fit linear curve for each of the model predictions is also shown. It is evident from these curves that there is little difference between the predictions of the models on the data in Experiments 1 and 2. This is further exemplified by comparing model predictions for the same droplet half-life in Table P-4. Figure 7 shows a two-way plot of the predictions of droplet half-life based on the wind speed and leaf foliage surface parameters of the most simple model (Model 1). If the leaf surface effect is compared to spreadability of the droplet on the leaf foliage, it is evident that the droplet half-life is inversely proportional to the wind speed and spread

Droplet Evaporation on Northern Red Oak and Shagbark Hickory Leaf Foliage

- Diethyl Malonate Droplets - 2 mm Diameter
- Liquid Viscosity - 100 and 1,000 cP
- Nominal Contamination Density - 30 $g/m^2$ on the Top and Bottom Leaf Surfaces
- Wind Speeds - 3 and 11 mph
- Air Temperature - 60 °F
- Average Relative Humidity - 42%

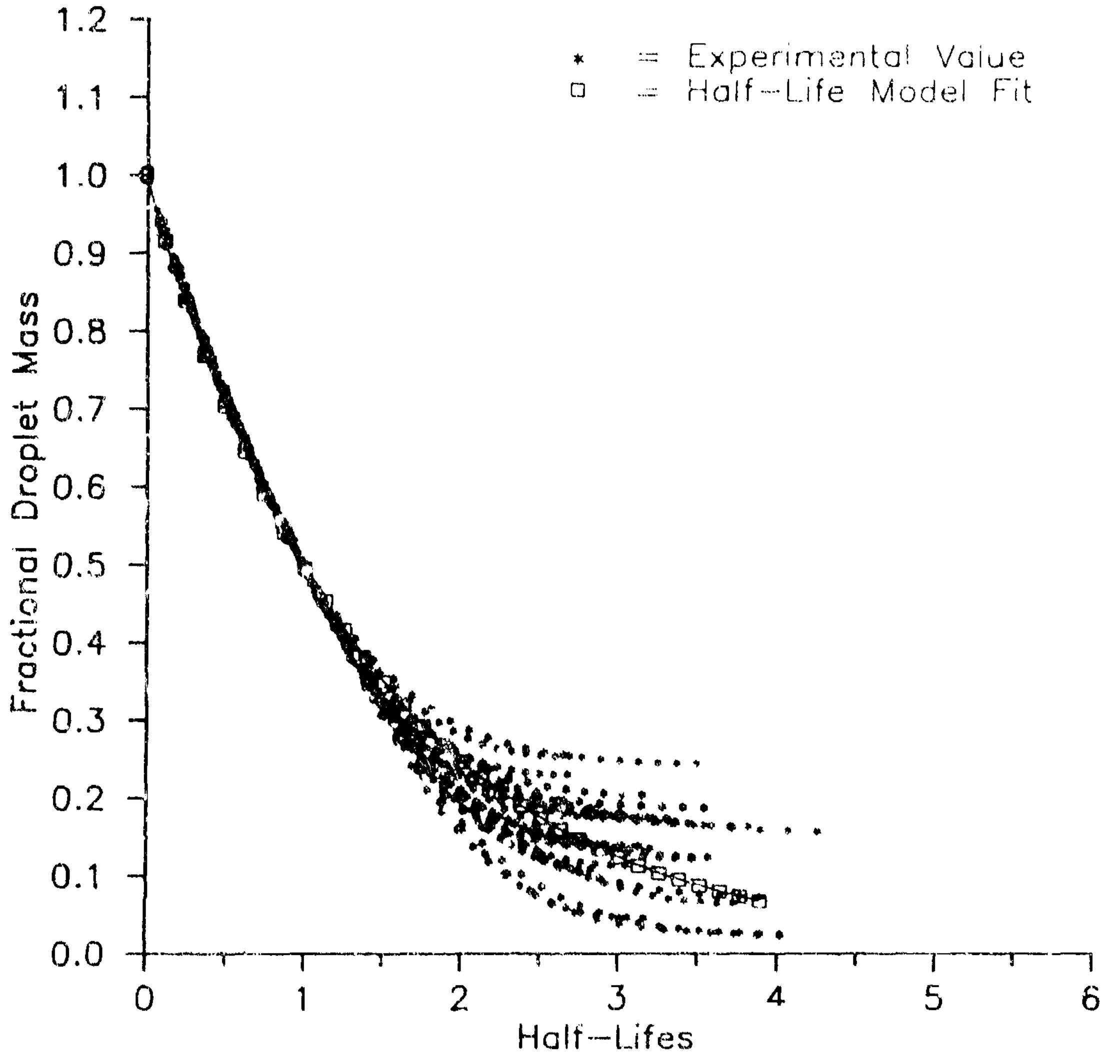


Figure 6. Comparison of Droplet Half-Life Model Predictions with Experimental Leaf Foliage Results (Normalized)

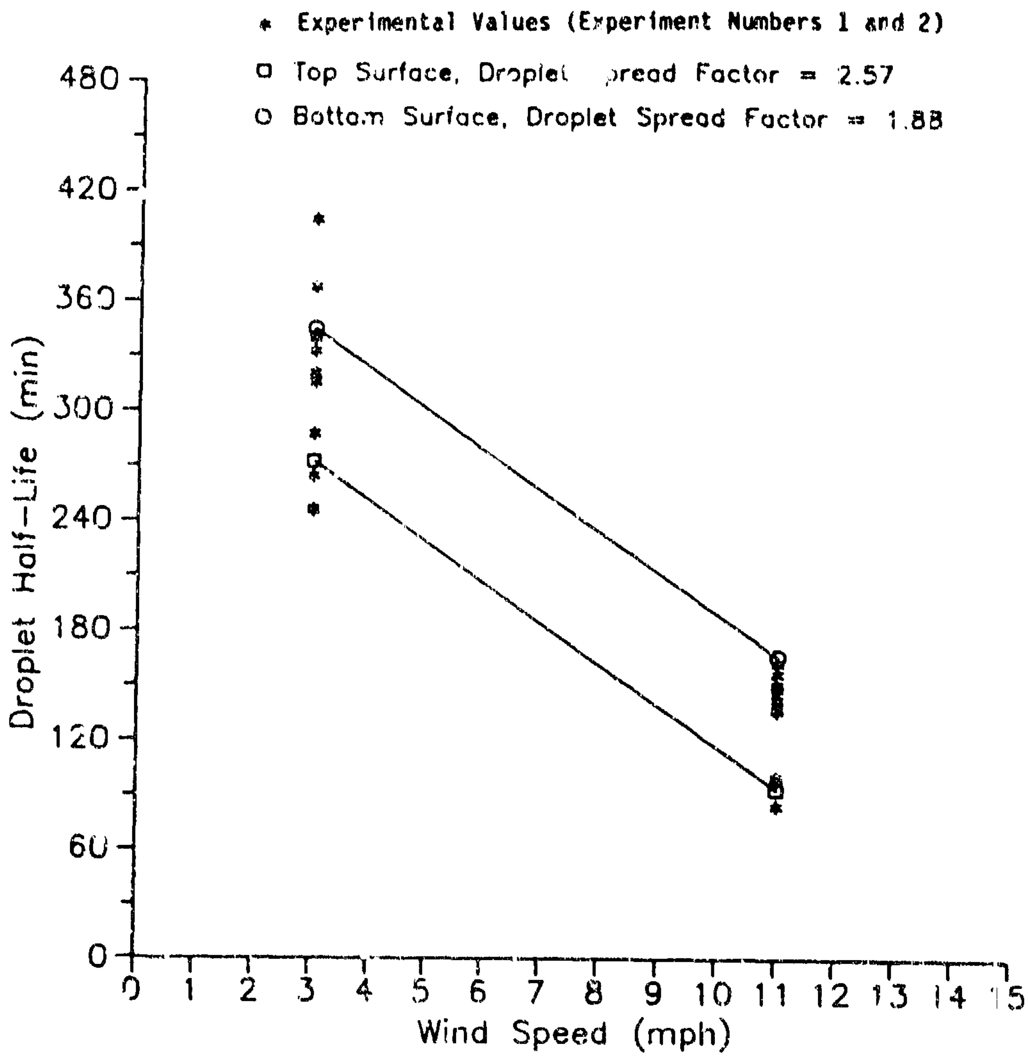


Figure 7. Model 1 Predictions of the Half-Life of a 2 mm Diameter DEM Droplet Deposited on Leaf Foliage

factor of the droplet. At a constant wind speed, the difference in droplet half-life estimates between the top and bottom surfaces of the leaf is explained reasonably well by the difference in droplet spread factor. For example, at 3 mph, the ratio of the estimate droplet half-life on the top leaf surface to the bottom leaf surface is 0.79 and the ratio of the droplet spread factors is 0.73.

In Figure 8, a similiar two-way plot for droplet half-life predictions based on Model 2 indicates that droplet half-life prediction may be complicated by some other chemical/physical leaf properties that are not completely related to the droplet spread factor. For a given month (September/October), the ratio of droplet half-life estimates for the top and bottom leaf surfaces is predicted reasonably well by the inverse ratio of the droplet spread factors. However, even though the spread factors of the green September oak leaf are larger than those of the red October oak leaf for both surfaces, the estimated half-lives of the green September oak leaf are also greater than that of the red October oak leaf. This explains the need for the interaction term between leaf surface and leaf condition or age in predicting droplet half-life. Figure 8 also indicates that the half-life for droplets deposited on the top surface of the red September oak leaf, with a spread factor of 2.27, is practically the same as for droplets deposited on the bottom surface of the green October oak leaf, with a spread factor of 1.79. Obviously, the similarities and differences in droplet evaporation on leaf foliage cannot be explained by the droplet spread factor alone.

Figures 9 and 10 show a comparison of the experimental and Model 1B predictions of simulant agent droplet half-life for thickened simulant droplets of 100 and 1,000 cP deposited on the top and bottom surfaces of the Northern Red Oak and Shagbark Hickory. Model 1B is an extension of Model 1 and includes the effects attributed to liquid viscosity (A = +11.1875), the leaf species (D = +12.6875), and an interacton effect (BC = -11.4375) between the wind speed and the leaf surface. Depending on the wind speed, droplet half-life estimates from this model indicate that droplet half-life is approximately 60-90 min longer on the bottom leaf surface than on the top leaf surface for both leaf types. There is also a slight increase in half-life expectancy for droplets with a viscosity of 1,000 cP (30 min) and for droplets deposited on the oak leaf (30 min) as well. However, the increased sensitivity of Model 1B is based on a limited amount of evaporation and spread factor data. The increase in droplet half-life expectancy does not appear to be warranted by small differences in droplet spread factors for 100 and 1,000 cP liquid droplets deposited on both the oak and hickory leaf surfaces (Figures 9 and 10). Additional droplet evaporation and spread factor data are needed to corroborate these findings. A 30-60 min refinement in predicting the half-life of droplets is probably not important to military operations in the field. Therefore, the more simple model for estimating droplet half-life is probably satisfactory for predicting the persistency of droplets on leaf foliage when corrected for temperature and droplet size.

In summary, the simple first order mathematical expression is adequate for representing the disappearance of a thickened liquid agent simulant droplet from a contaminated leaf foliage surface during the evaporation of the thin liquid film formed on the leaf surface. Although the comparison of experimental data and model predictions are somewhat limited due to the

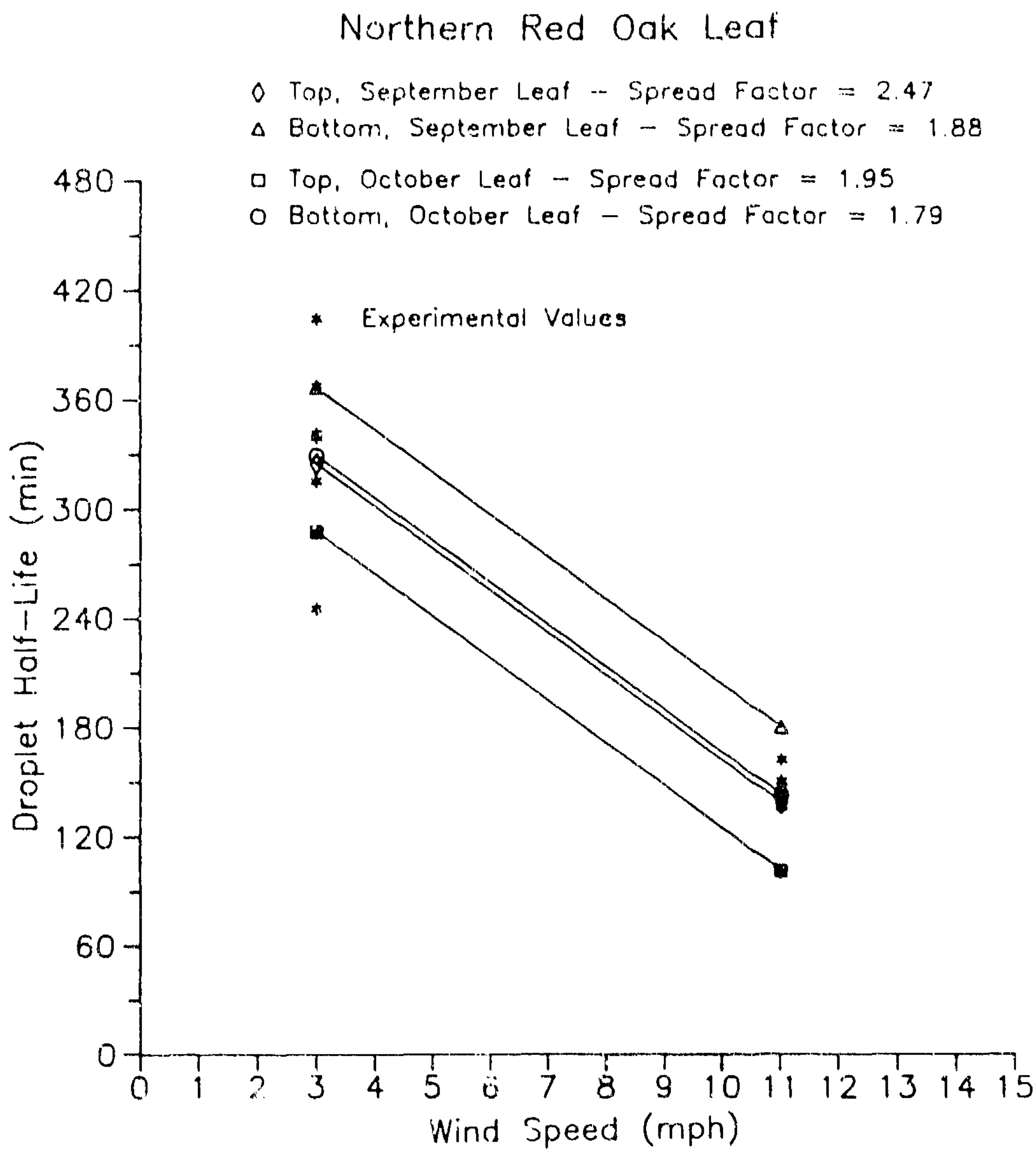


Figure 8. Model 2 Predictions of the Half-Life of a 2 mm Diameter DEM Droplet Deposited on Leaf Foliage

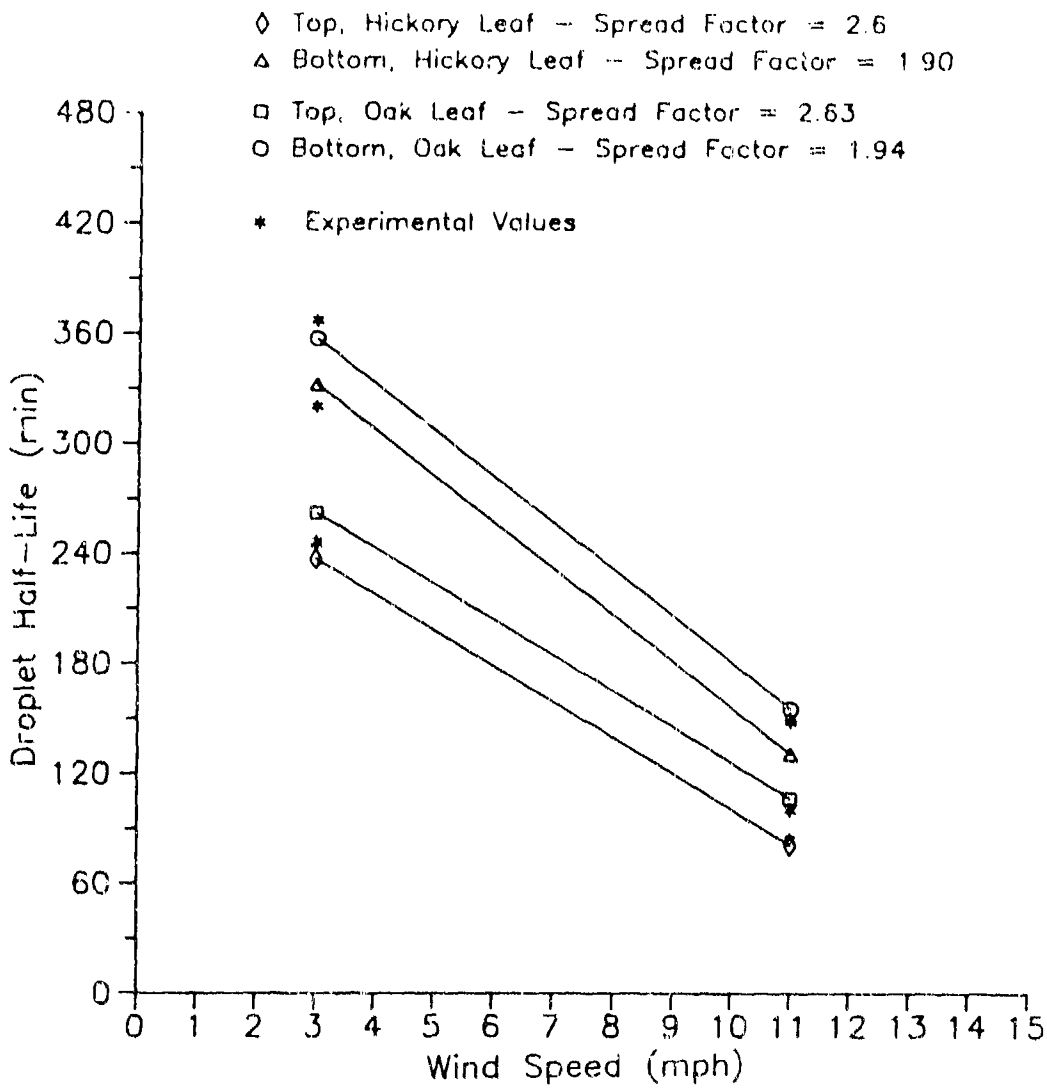


Figure 9. Model 1B Predictions of the Half-Life of a 100 cP, 2 mm Diameter DEM Droplet Deposited on Leaf Foliage

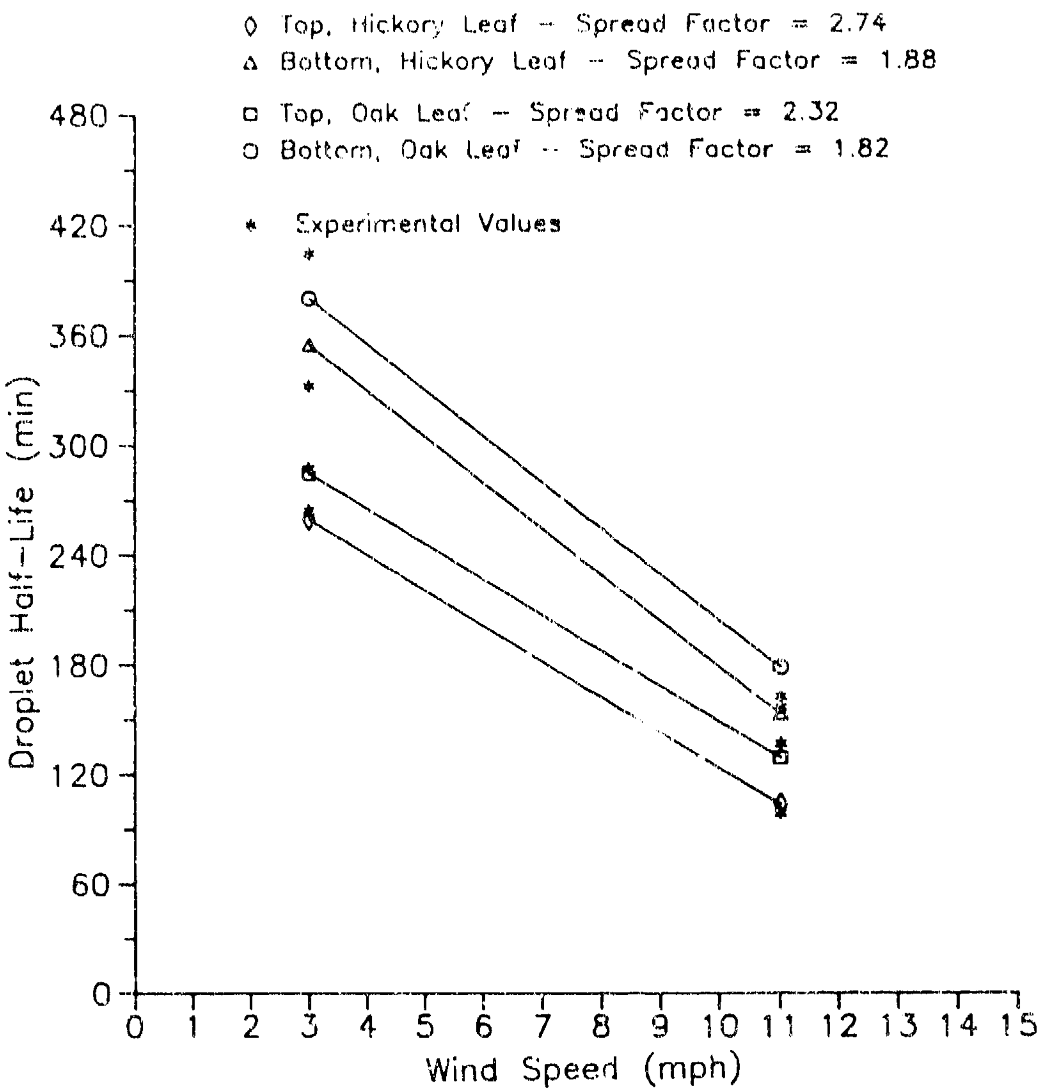


Figure 10. Model 1B Predictions of the Half-Life of a 1000 cP, 2 mm Diameter DEM Droplet Deposited on Leaf Foliage

limited scope of this study [2 mm diameter droplet of 100 and 1,000 cP thickened DEM deposited on only two varities of leaf surfaces (Northern Red Oak and Shagbark Hickory) at only one ambient temperature, 60 °F], it is expected that the half-life model will also hold for other conditions (i.e., droplet size, ambient temperature, etc.) where evaporation is occurring from a thin shrinking film of liquid on a relatively nonabsorbing surface. Predictions of the half-life of deposited droplets on leaf foliage in these experiments depend primarily on the wind speed and the leaf surface (top/bottom) and, to a lesser extent, on type of the leaf (oak/hickory) and leaf condition or age (September oak/October oak). The influence of the leaf foliage is manifested to a large extent by the spreading of the deposited liquid droplet mass and the liquid surface area assumed. Unfortunately, the spreading of agents on surfaces is difficult to predict because of the sensitivity of spreading on the chemical and the physical state of the leaf foliage. In general, of the most critical factors that affect agent droplet volatilization (i.e. wind speed droplet size, and droplet spreadability), the spreadability of the deposited droplets on surfaces is the one that is largely unknown. This is an area that needs to be explored further because the rate of sorption and biotransformation of the liquid agent droplets are probably also affected by the spreadability of the deposited droplet.

## 8. CONCLUSIONS

A clearer understanding of the effects of liquid viscosity of deposited droplets (100 cP versus 1,000 cP), the wind speed (3 mph versus 11 mph), and particularly the properties of contaminated leaf foliage (namely leaf surface top versus bottom), leaf type (oak versus hickory) and the condition or age (green September leaf versus red October leaf) on the evaporation and spreading characteristics of deposited droplets of thickened diethyl malonate (DEM) has been obtained.

A simple first order mathematical expression is adequate for representing the disappearance of a thickened liquid agent simulant droplet from contaminated leaf foliage surface during the evaporation of the thin liquid film that is formed on the leaf surface.

Wind speed is the most dominant factor affecting the amount, rate of return, and duration of the hazard for 2 mm diameter droplets of thickened DEM deposited on a leaf surface at 60 °F ambient temperature. The effect produced by wind speed is predominantly a direct effect, and the wind speed factor alone can explain most of the total variation (80 and 88%) in the droplet evaporation characteristics studied in the two factorial experiments. Only one exception was found. In Experiment 2, the the total percentage of contamination recovered is also strongly dependent on the viscosity of the deposited liquid droplet and the condition or age of the oak leaf.

The differences in droplet weathering on contaminated leafy surfaces at 3 and 11 mph are significant. Initially (0-3 hr), the average droplet evaporation rate of the deposited 2 mm diameter droplets at 3 mph is one-half the evaporation rate of the deposited droplets exposed to 11 mph wind speed. However, after 6 hr, the average droplet evaporation rate at 3 mph is nearly two-thirds the droplet evaporation rate at 11 mph. The difference in lifetime of the deposited droplets at 3 and 11 mph is approximately 10 hr, and there is a 3-hr difference in the half-life of the 2-mm droplets.

The leaf surface (top versus bottom) is the second most important factor affecting the evaporation behavior of the deposited DEM droplets. The DEM droplets spread substantially more on the top surfaces of the oak and hickory leaves than on the bottom surfaces. This in turn affects the initial rate of evaporation of the deposited droplet, especially at the higher wind speed, up to 6 hr (the last time increment in the analysis) after contamination. However, the differences in the percent of contamination recovered from the top and bottom leaf surfaces are negligible (approximately 10 and 5%) in Experiments 1 and 2. The long-term yields associated with the droplet contamination (i.e., the total amount of contamination that evolves and, surprisingly, the lifetime of the deposited droplets) are not dependent on the leaf surface. Thus, the leaf surface does not have to be considered to predict the persistency of the hazard in these experiments.

The leaf type (Northern Red Oak versus Shagbark Hickory) has only a minor effect on the evaporation of deposited DEM droplets. The differences in droplet evaporation behavior for droplets deposited on oak and hickory leaves are not considered to be operationally significant.

The condition or age of the oak leaf primarily affects the percent of the liquid droplet contamination that eventually evolves. However, the final amount of liquid agent that is recovered as vapor from the oak leaf is strongly dependent on the initial viscosity of the liquid droplet, as well as the condition or age of the leaf.

The spread factor of a thickened DEM droplet deposited on a leaf surface is affected mainly by the leaf surface and the condition or age of the leaf. The leaf surface (top versus bottom) is the most dominant factor. Surprisingly, the difference in spreading of a deposited droplet is greater between the top and bottom surfaces of the leaves investigated than between the leaf types. Liquid droplets spread to a greater extent on the top surface than on the bottom surface of both leaf species that were tested. The average spread factor for a deposited droplet is estimated to be 2.56 (+/-0.236 SD) on the top surface and 1.88 (+/-0.052 SD) on the bottom surfaces of both the oak and hickory leaves.

However, there is also evidence that the condition or age of the leaf affects the the spreading of the droplet on the leaf surface. A significant difference in spreading of droplets deposited on the green September oak leaf and the red October oak leaf was detected. This is revealed by the interaction effect between leaf surface and leaf condition in Experiment 2. The average spread factor for a droplet deposited on the top surface of a green September oak leaf is 2.47 (+/-0.292 SD) compared to 1.95 (+/-0.062 SD) on the top surface of a red October oak leaf. However, the average spread factors for the bottom surface of the green and red oak leaves are similar [1.88 (+/-0.004 SD) and 1.79 (+/-0.052 SD)].

The viscosity of thickened DEM (100/1,000 cP) and the wind speed (3-11 mph) over the ranges tested had no detectable effect on the extent of spreading of a droplet deposited on the oak and hickory leaves.

## 9. RECOMMENDATION

Experimental droplet evaporation and spread factor studies should be continued with DEM and other persistent liquid CW agent/simulants deposited on other natural and man-made surfaces that have not been investigated in this research project to better quantify their spreadability, volatilization, persistency, and expected recoveries. These studies should be accomplished in order to ascertain and classify the liquid/vapor threats posed by droplets of the agent on these surfaces under a variety of atmospheric and surface conditions.

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APPENDIX A

A COMPUTER PROGRAM
FOR TRANSFORMING MIRAN IA VAPOR ANALYZER VOLTAGE READINGS
ON AN IBM PC/AT

D Line# 1       7                          Microsoft FORTRAN77 V3.31 August 1985

```
      PROGRAM MIRAN
C     ********** PROGRAM TO ANALYZE MIRAN VAPOR ANALYZER DATA *********
C     ******** FROM WINDTUNNEL DROPLET EVAPORATION EXPERIMENTS ********
C
C
C     WINDTUNNEL CONDITION:
C     DYNAMIC AREA = 10.25 X 3.75 SQ INCHES (NOMINAL)
C     AREAH=10.5 X 4.0 SQ INCHES (UPPER BOUND)
C     AREAL=10.0 X 3.0 SQ INCHES (LOWER BOUND)
C
C
C
C     PROGRAM OUTPUT REPORT:
C
C     (1)  OUTPUT VOLTAGE DATA FROM MIRAN 1A ANALYZER.
C
C     (2)  VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED
C     DROPLETS, (PPM/AB BASED ON MIRAN MASS BALANCE).
C
C     (3)  VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED
C     DROPLETS, (PPM/AB BASED ON MIRAN CALIBRATION DATA).
C
C     (4)  CUMULATIVE DOSAGE DERIVED FROM A UNIFORM ARRAY OF DEPOSITED,
C     (PPM/AB BASED ON MASS BALANCE).
C
C     (5)  CUMULATIVE DOSAGE DERIVED FROM A UNIFORM ARRAY OF DEPOSITED,
C     (PPM/AB BASED ON MIRAN CALIBRATION DATA).
C
C     (6)  EVAPORATION HISTORY OF TEST DROPLET MEASURED & THEORETICAL.
C
C     (7)  EVAPORATION HISTORY OF DEPOSITED TEST DROPLET.
C
C     (8)  SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION.C
C
C     (9)  EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY.
C
C     (10) CHECK OF INPUT AND OUTPUT PARAMETER VALUES.
C
C     (11) EFFECTIVE WINDSPEEDS FOR TEST TO ACHIEVE PPM/AB OF MIRAN
C     CALIBRATION FOR ASSUMED WINDTUNNEL DYNAMINC CROSS-SECTIONAL AREAS.
C
C
C
      CHARACTER*1 ANSWER,DASH
      CHARACTER*14 FNAME
      CHARACTER*72 LL1,LL2,LL3,LL4
      INTEGER NQ,NSLT,HTBL,DISPLAY,NOPTS
      REAL ENDV,ENDVT
C
      DIMENSION VOLT(45),TMEAC(40),VPPMT(40),VCDT(40),VPPMD(40),
     &VCDD(40),CPMT(40),CCDT(40),CPMD(40),CCDD(40),CUMDT(40),CUMDD(40),
     &CCUMT(40),CCUMD(40),SUMVS(40),EVAPN(40),EVAPM(40),IVOL(45),
     &VOLTN(40),EVPN5(40),EVPM5(40),EVPRN(40),EVPRM(40),TIMER(40),
     &XSQMT(40),XGSQM(40),CSQMT(40),CGSQM(40),FRMT(40),FRTM(40)
C
C
```

```
    1   CONTINUE
        DATA VOLT,TMEAC,VPPMT,VCDT,VPPMD,
       &VCDD,CPMT,CCDT,CPMD,CCDD,CUMDT,CUMDD,
       &CCUMT,CCUMD,SUMVS,EVAPN,EVAPM,
       &VOLTN,EVPN5,EVPM5,EVPRN,EVPRM,TIMER,
       &FRTM,XSQMT,XGSQM,CSQMT,CGSQM,FRHT,IVOL/1165*0.0,45*0/
  C
        DASH = '-'
  C
  C     READ EXPERIMENTAL CONDITIONS AND VALUES FROM DATA FILE ON DRIVE B
  C
        WRITE(*,1500)
        WRITE(*,1510)
        WRITE(*,1515)
        WRITE(*,1520)
        READ(*,30) FNAME
  C
   1519 WRITE(*,1521)
        WRITE(*,1522)
        WRITE(*,1523)
        WRITE(*,1524)
        WRITE(*,1525)
        WRITE(*,1526)
        READ(*,1529) NSLT
        IF((NSLT .NE. 1) .AND. (NSLT .NE. 2) .AND. (NSLT .NE. 3) .AND. (N
       &SLT .NE. 4)) GOTO 1519
  C
        WRITE(*,1531)
        WRITE(*,1532)
        WRITE(*,1533)
        READ(*,1529) DISPLAY
  C
  C     READ FILE USES UNIT 5
  C
        OPEN(5,FILE=FNAME,STATUS='OLD')
        READ(5,30) LL1
        READ(5,30) LL2
        READ(5,30) LL3
        READ(5,30) LL4
  C
        READ(5,35) GM1TP,GM2TP,GM3TP,DPPT,NCODE,CODEL,AIRSP,CAL
  C
  C     ENTER TEST INFORMATION PERTAINING TO MIRAN ANALYZER RECORD TO BE
  C     ANALYZED:
  C
        READ(5,40) ABPV,MINV,NOPTS,ENDVT
        ENDV = ENDVT
  C
  C     ENTER VALUES FROM VOLT VERSUS TIME CURVE **AS MILLIVOLT**
  C
        READ(5,45) (IVOL(I),I=1,NOPTS)
        CLOSE(5)
  C
  C     CONVERT INPUT COLUMN MATRIX IVOL (MILLIVOLTS) TO COLUMN MATRIX
  C     VOLT (VOLTS) E.G. 40 TO .040
  C
```

```
      DO 50 I = 1,NOPTS
      VOLT(I) = IVOL(I)/1000.0
   50 CONTINUE
      WRITE(*,51)
      DO 60 I = 1,15
      WRITE(*,52) I,IVOL(I),VOLT(I),I+15,IVOL(I+15),VOLT(I+15),I+30,IVOL
     &(I+30),VOLT(I+30)
   60 CONTINUE
      WRITE(*,53)
      WRITE(*,55)
      WRITE(*,57)
   70 READ(*,30) ANSWER
      IF((ANSWER .NE. 'Y') .AND. (ANSWER .NE. 'y') .AND. (ANSWER .NE. 'N
     &') .AND. (ANSWER .NE. 'n')) GOTO 70
      IF((ANSWER .EQ. 'N') .OR. (ANSWER .EQ. 'n')) GOTO 1550
      IF((ANSWER .EQ. 'Y') .OR. (ANSWER .EQ. 'y')) CONTINUE
C
C     COMPUTE CONTAMINATION DENSITY LEVEL PER TRAY (GRAMS/SQ METER)
C
      GPM21 = (GM1TP/.169) + .00
      GPM22 = (GM2TP/.169) + .05
      GPM23 = (GM3TP/.169) + .05
      GPM24 = ((GM2TP + GM3TP)/.3387) + .05
C
C     ASSIGN LIQUID DENSITY TO LIQUIDS (DIETHYL MALONATE = 1.05
C     METHYL SALICYLATE = 1.18 G/CC)
C
      DENL1 = 1.05
      DENL2 = 1.18
C
C     ASSIGN PERCENT COPOLYMER THICKENER
C
      CPD1L = 2.8
      CPD1H = 4.8
      CPM2L = 2.0
      CPM2H = 4.5
C
C     ASSIGN LIQUID CONVERSION FACTOR FOR CONVERTING PPM TO MICROGRAMS
C     PER CUBIC METER FOR MIRAN OPERATING TEMERATURE OF 100 DEG F.
C
      COVL1 = 6.278E3
      COVL2 = 5.963E3
C
C     CALIBRATION INFORMATION FOR MIRAN RELATING PPM TO ABSORBANCE
C     VALUE
C
      IF(CODEL .EQ. 100.) GO TO 100
      IF(CODEL .EQ. 1000.) GO TO 110
      IF(CODEL .EQ. 200.) GO TO 120
      IF(CODEL .EQ. 2000.) GO TO 130
  100 PERCP =CPD1L
  105 DENLQ = DENL1
      COVLQ = COVL1
      PRPAB = CAL
      GO TO 150
  110 PERCP = CPD1H
```

```
      GO TO 105
 120  PERCP = CPM2L
 125  DENLQ = DENL2
      COVLQ = COVL2
      PRPAB = CAL
      GO TO 150
 130  PERCP = CPM2H
      GO TO 125
 150  CONTINUE
C
C     COMPUTE DROPLET MASS FROM LIQUID MASS AND NUMBER OF DROPLETS
C     ON EACH TRAY (GRAMS)
C
      TM1 = GM1TP/DPPT
      TM2 = GM2TP/DPPT
      TM3 = GM3TP/DPPT
      TTMT = TM1 + TM2 + TM3
C
C     COMPUTE AVERAGE VALUE OF TEST DROPLET MASS (GRAMS)
C
      IF(NCODE .GE. 6) GO TO 160
      ETDPM = TTMT/3.0
C
C     COMPUTE STANDARD DEVIATION OF TEST DROPLET MASS
C
      SDMAS = (((TM1-ETDPM)**2+(TM2-ETDPM)**2+(TM3-ETDPM)**2)/2.0)** .5
C
C
C     COMPUTE STANDARD ERROR OF MEAN TEST DROP MASS
C
      SEMAS = SDMAS/1.73205
C
C     COMPUTE EQUIVALENT DROPLET DIAMETER FOR MEAN MASS (MM)
C
      EQDPD = (((1.90985*ETDPM)/DENLQ)**.33333)*10
C
C     DETERMINE THE APPROPRIATE CONVERSION FACTOR FOR SUBSTRATE
C     ANALYZED CORRESPONDING TO VOLT MATRIX... INFORMATION
C
      IF(NCODE .LT. 6) GO TO 165
 160  ETDPM = TTMT/2.0
      SDMAS = (((TM2-ETDPM)**2 +(TM3-ETDPM)**2)/1.0)**.5
      EQDPD = (((1.90985*ETDPM)/DENLQ)**.33333)*10
 165  IF(NCODE .EQ. 1) GO TO 200
      IF(NCODE .EQ. 2) GO TO 220
      IF(NCODE .EQ. 3) GO TO 240
      IF(NCODE .EQ. 4) GO TO 260
      IF(NCODE .EQ. 5) GO TO 280
      IF(NCODE .EQ. 6) GO TO 285
C
C     DATA FROM THREE SUBSTRATES REDUCED TO SINGLE TRAY EQUIVALENT
C
 200  TVCF3 = GM3TP/(GM1TP + GM2TP + GM3TP)
      VGPT = GPM23
      NTRAY = 3
      TRAYM = GM3TP
```

```
      NSET = 3
      EXPGM = GM1TP + GM2TP + GM3TP
      GO TO 290
C
C     VGPT IS A CONVERSION FACTOR USED TO CONVERT DATA TO GRAM/SQ METER
C     BASIS.
C     NTRAY IS ID NUMBER BY POSITION IN WINDTUNNEL TEST 1 UPSTREAM ETC.
C     NSET IS NUMBER OF SUBSTRATES USED FOR VOLT INPUT DATA.
C
C     DATA INPUT CORRESPONDS TO 2 AND 3 SUBSTRATES REDUCED TO SINGLE
C     TRAY EQUIVALENT
C
  220 TVCF3 = GM3TP/(GM3TP + GM2TP)
      VGPT = GPM23
      NTRAY = 3
      TRAYM = GM3TP
      NSET = 2
      EXPGM = GM3TP + GM2TP
      GO TO 290
C
C     DATA INPUT CORRESPONDS TO 3 AND 1 SUBSTRATES REDUCED TO SINGLE
C     TRAY EQUIVALENT
C
  240 TVCF3 = GM3TP/(GM3TP + GM1TP)
      VGPT = GPM23
      NTRAY = 3
      TRAYM = GM3TP
      NSET = 2
      EXPGM = GM3TP + GM1TP
      GO TO 290
C
C     DATA INPUT CORRESPONDS TO 1 SUBSTRATE AT POSITION 3 IN TUNNEL
C
  260 TVCF3 = 1.0
      VGPT = GPM23
      NTRAY = 3
      TRAYM = GM3TP
      NSET = 1
      EXPGM = GM3TP
      GO TO 290
C
C     DATA INPUT CORRESPONDS TO 1 SUBSTRATE AT POSITION 1 IN TUNNEL
C
  280 TVCF3 = 1.0
      VGPT = GPM21
      NTRAY = 1
      TRAYM = GM1TP
      NSET = 1
      EXPGM = GM1TP
      GO TO 290
C
C     DATA INPUT CORRESPONDS TO TWO SUBSTRATES AT POSITIONS 2 & 3
C
  285 TVCF3 = 1.0
      VGPT = GPM24
      NTRAY = 4
```

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D Line# 1      7                     Microsoft FORTRAN77 V3.31 August 1985
               TRAYM = GM3TP + GM2TP
               NSET = 6
               EXPGM = TRAYM
               DPPT = DPPT*2
               GO TO 290
         C
         C     SELECT APPROPRIATE TEST MASS
         C
          290  CONTINUE
         C
               IF(NTRAY - 2) 300,310,315
          300  TMASS = TM1
               GOTO 330
          310  TMASS = TM2
               GOTO 330
          315  IF(NTRAY - 4) 320,325,325
          320  TMASS = TM3
               GOTO 330
          325  TMASS = (TM2 + TM3)/2
         C
         C     CORRECT THE LIQUID DROP MASS ON SUBSTRATE TO ACCOUNT FOR PERCENT
         C     POLYMER THICKENER WHICH IS ASSUMED TO BE NON-VOLITILE INGREDIENT
         C
          330  CMASS = TMASS*(100. - PERCP)/100.0
         C
         C     DETERMINE THE CUMULATIVE DISTRIBUTION (VOLT.MIN) FOR SINGLE
         C     SUBSTRATE USING TRAPEZOIDAL RULE
         C
               SUMVS(1) = 0.0
               VOLTM = 0.0
               DO 400 I = 2,NOPTS
1        C
1        C     TVCF3 PRODUCES THE OUTPUT DATA EQUIVALENT TO A SINGLE SUBSTRATE
1        C
1              VOLTM = ((VOLT(I)+VOLT(I-1))/2)*TMINV*TVCF3
1              SUMVS(I) = SUMVS(I-1) + VOLTM
1        C
1        C     TIME INCREMENT FOR CORRESPONDING CUMULATIVE VOLT.MIN FOR
1        C     TABULATING
1        C
1              TMEAC(I) = (TMINV * I) - TMINV
1         400  CONTINUE
         C
         C     ASSIGN THE TOTAL VALUE OF CUMULATIVE DISTRIBUTION
         C
               IF((NCODE .GE. 6) .AND. (ENDVT .EQ. 1.0)) GOTO 654
               GOTO 420
          405  CONTINUE
         C
         C     ASSIGN A VALUE TO TOTAL CUMULATIVE VOLT.MIN FOR MIRAN VOLTAGE DAT
         C
               ACVTM = (((100.-PERCP)/100.)*EXPGM*1E6)/(ABPV*PRPAB*COVLQ*Y)
               IF((NCODE .GE. 6) .OR. (ENDVT .EQ. 1.0)) GOTO 422
          420  ACVTM = SUMVS(NOPTS)
          422  CONTINUE
         C
```

```
D Line# 1      7                             Microsoft FORTRAN77 V3.31 August 1985
                NSET = 7
                ENDVT = 0.0
           C
           C    CALCULATE THE HALF-LIFE FOR EVAPORATION USING CUMULATIVE VOLTAGE
           C    READINGS, SUMVS(I)
           C
                N = NOPTS - 1
                DO 500 I = 1,N
   1            HAFVT = SUMVS(I)/ACVTM
   1            IF (HAFVT .LT. .5) GO TO 500
   1            IF (HAFVT .EQ. .5) GO TO 520
   1            T2 = TMEAC(I)
   1            T1 = TMEAC(I-1)
   1            V2 = SUMVS(I)/ACVTM
   1            V1 = SUMVS(I-1)/ACVTM
   1       C
   1       C    COMPUTE TIME VALUE BY LINEAR INTERPOLATION METHOD
   1       C
   1            HAFTM = ((((T2 - T1) * (.5 - V1))/(V2 - V1)) + T1)
   1            GO TO 530
   1        500 CONTINUE
            520 HAFTM = TMEAC(I)
            530 CONTINUE
           C
           C    EVAPORATION RATE AVERAGED OVER ONE HALF-LIFE (MICROGRAMS/MIN)
           C
                ERHLF = ((CMASS/(-2.))/HAFTM)*1E6
           C
           C    CALCULATE NORMALIZED EVAPORATION CURVE FOR SINGLE DROPLET OF
           C    SPECIFIED SIZE
           C
                DO 550 I = 1,NOPTS
   1            VOLTN(I) = SUMVS(I)/ACVTM
   1            EVAPN(I) = 1 - VOLTN(I)
   1       C
   1       C    CALCULATE THE MASS OF DROPLET REMAINING AS A FUNCTION OF
   1       C    EVAPORATION TIME, EXCLUDING NON-VOLATILE POLYMER CONTENT
   1       C
   1            EVAPM(I) = EVAPN(I)*CMASS
   1        550 CONTINUE
           C
           C    CALCULATE THE EVAPORATION HISTORY OF THE TEST DROPLET ASSUMING
           C    FIRST ORDER MODEL USING HALF-LIFE TIME
           C
                CK = ALOG(2.0)/HAFTM
                DO 600 I = 1,NOPTS
   1            TK = CK*TMEAC(I)
   1       C
   1       C    NORMALIZED VALUES
   1       C
   1            EVPN5(I) = EXP(-TK)*1.0
   1       C
   1       C    LIQUID MASS REMAINING (GRAMS)
   1       C
   1            EVPM5(I) = EVPN5(I)*CMASS
   1        600 CONTINUE
```

```
D Line# 1      7                          Microsoft FORTRAN77 V3.31 August 1985
        C      PRINTOUT MIRAN ANALYZER VALUES
        C      //////////// TABLE 1 ////////////
        C
               NTBL=1
               DO 610 IT=1,NSLT
1              IF(IT .EQ. 1) THEN
1              OPEN(6,FILE='CON')
1              ELSEIF((IT .EQ. 2) .AND. ((NSLT .EQ. 2) .OR. (NSLT .EQ. 3))) THEN
1              OPEN(6,FILE='TABLE.1',STATUS='NEW')
1              ELSEIF((IT .EQ. 2) .AND. ((NSLT .NE. 2) .OR. (NSLT .NE. 3))) THEN
1              GOTO 610
1              ELSEIF((IT .EQ. 3) .AND. (NSLT .EQ. 3)) THEN
1              OPEN(6,FILE='PRN')
1              ELSEIF((IT .EQ. 3) .AND. (NSLT .NE. 3)) THEN
1              GOTO 610
1              ELSEIF((IT .EQ. 4) .AND. (NSLT .EQ. 4)) THEN
1              OPEN(6,FILE='PRN')
1              ENDIF
1              IF(IT .EQ. 1) THEN
1              WRITE(6,804) NTBL
1              ELSE
1              WRITE(6,805)
1              ENDIF
1              IF(IT .EQ. 1) THEN
1              WRITE(6,30) LL1
1              WRITE(6,30) LL2
1              WRITE(6,30) LL3
1              WRITE(6,30) LL4
1              ELSE
1              WRITE(6,810) LL1
1              WRITE(6,810) LL2
1              WRITE(6,810) LL3
1              WRITE(6,811) LL4
1              ENDIF
1              IF(IT .EQ. 1) THEN
1              WRITE(6,919)
1              WRITE(6,923)
1              WRITE(6,931)
1              WRITE(6,936)
1              ELSE
1              WRITE(6,918)
1              WRITE(6,922)
1              WRITE(6,930)
1              WRITE(6,935)
1              ENDIF
1              DO 650 I = 1,NOPTS
2              TIM = ((TMINV*I) - TMINV)
2              V = VOLT(I)
2              CV = SUMVS(I)
2              VN = VOLTN(I)
2              IF(IT .EQ. 1) THEN
2              WRITE(6,941) TIM,V,TIM,CV,VN
2              ELSE
2              WRITE(6,940) TIM,V,TIM,CV,VN
2              ENDIF
2        650   CONTINUE
```

```
      IF(IT .EQ. 1) THEN
      WRITE(6,921) ABPV
      ELSE
      WRITE(6,920) ABPV
      ENDIF
      CLOSE(6)
      IF((IT .EQ. 1) .AND. (DISPLAY .EQ. 1)) PAUSE
  610 CONTINUE
C
C     COMPUTE CONVERSION FACTOR **CPMAB** PPM/AB TO FIT ANALYZED DATA
C     ABPV EQUALS ABSORBANCE PER VOLT AND COVLQ IS LIQUID CONVERSION
C     FACTOR IN MG PER CUBIC METER
C
      X = ACVTM * ABPV * COVLQ * 1E-6
C
C     AIRSP EQUALS WINDSPEED FOR TEST RUN IN MPH FOR 10.25 INCHES
C     (TUNNEL WIDTH) AND 3.75 INCHES (TUNNEL HEIGHT)
C
  654 CONTINUE
C
      IF (AIRSP .LT. 5.0) GO TO 655
      DARTN = 10.25 * 3.75
      WDTUN = AIRSP
      GO TO 660
  655 DARTN = 10.25 * 3.75
      WDTUN = AIRSP
  660 Y = AIRSP * DARTN * .02832 * 88/144
C
      IF ((NSET .EQ. 6) .OR. (ENDVT .EQ. 1.0)) GO TO 405
C
      Z = X * Y
C
      CPMAB = (TRAYM * (100. - PERCP)/100.)/Z
      CCVR1 = ABPV * CPMAB * TVCF3
C
C     COMPUTE VAPOR CONCENTRATION PRODUCED BY DEPOSITED DROPLETS
C     ON ONE SUBSTRATE
C
C     CONVERSION USING CALCULATED PPM/AB FROM MASS BALANCE OF
C     WINDTUNNEL DATA
C     //////////// TABLE 2 ///////////
C
      NTBL=2
      DO 676 IT=1,NSLT
      IF(IT .EQ. 1) THEN
      OPEN(6,FILE='CON')
      ELSEIF((IT .EQ. 2) .AND. ((NSLT .EQ. 2) .OR. (NSLT .EQ. 3))) THEN
      OPEN(6,FILE='TABLE.2',STATUS='NEW')
      ELSEIF((IT .EQ. 2) .AND. ((NSLT .NE. 2) .OR. (NSLT .NE. 3))) THEN
      GOTO 676
      ELSEIF((IT .EQ. 3) .AND. (NSLT .EQ. 3)) THEN
      OPEN(6,FILE='PRN')
      ELSEIF((IT .EQ. 3) .AND. (NSLT .NE. 3)) THEN
      GOTO 676
      ELSEIF((IT .EQ. 4) .AND. (NSLT .EQ. 4)) THEN
      OPEN(6,FILE='PRN')
```

```
1          ENDIF
1          IF(IT .EQ. 1) THEN
1          WRITE(6,804) NTBL
1          ELSE
1          WRITE(6,805)
1          ENDIF
1          IF(IT .EQ. 1) THEN
1          WRITE(6,30) LL1
1          WRITE(6,30) LL2
1          WRITE(6,30) LL3
1          WRITE(6,30) LL4
1          ELSE
1          WRITE(6,810) LL1
1          WRITE(6,810) LL2
1          WRITE(6,810) LL3
1          WRITE(6,811) LL4
1          ENDIF
1          IF(IT .EQ. 1) THEN
1          WRITE(6,944)
1          WRITE(6,951)
1          WRITE(6,971)
1          WRITE(6,981)
1          WRITE(6,991)
1          WRITE(6,1001)
1          ELSE
1          WRITE(6,945)
1          WRITE(6,950)
1          WRITE(6,970)
1          WRITE(6,980)
1          WRITE(6,990)
1          WRITE(6,1000)
1          ENDIF
1          DO 675 I = 1,NOPTS
2     C
2     C    CONCENTRATION IN PPM
2     C
2          VPPMT(I) = VOLT(I) * CCVR1
2     C
2     C    CONCENTRATION IN MICROGRAM/CUBIC METER OR NANOGRAMS PER CC
2     C
2          VCDT(I) = VPPMT(I) * COVLQ
2     C
2     C    MICRIGRAMS PER CUBIC METER PER METERED SQUARED
2     C
2          VCPMS = VCDT(I)/.3387
2     C
2     C    MICROGRAMS PER CUBIC METER PER GRAM/METER SQUARED
2     C
2          VCPGM = VCDT(I)/VGPT
2     C
2     C    VAPOR CONCENTRATION PRODUCED BY SINGLE DROPLET EVAPORATING
2     C    FROM THE SUBSTRATE (PPM)
2     C
2          VPPMD(I) = VPPMT(I)/DFPT
2     C
2     C    VAPOR CONCENTRATION PRODUCED BY SINGLE DROPLET EVAPORATING
```

```
2 C      FROM THE SUBSTRATE (MICROGRAMS PER CUBIC METER)
2 C
2        VCDD(I) = VCDT(I)/DPPT
2        TIM = ((TMINV * I) - TMINV)
2        A = VPPMT(I)
2        B = VCDT(I)
2        C = VPPMD(I)
2        D = VCDD(I)
2        IF(IT .EQ. 1) THEN
2        WRITE(6,1041) TIM,A,B,VCPMS,VCPGM,C,D
2        ELSE
2        WRITE(6,1040) TIM,A,B,VCPMS,VCPGM,C,D
2        ENDIF
2   675  CONTINUE
1        IF(IT .EQ. 1) THEN
1        WRITE(6,1889)
1        ELSE
1        WRITE(6,1888)
1        ENDIF
1        CLOSE(6)
1        IF((IT .EQ. 1) .AND. (DISPLAY .EQ. 1)) PAUSE
1   676  CONTINUE
  C
  C      VAPOR CONCENTRATION PRODUCED BY DEPOSITED DROPS ON SUBSTRATE
  C      USES THE MIRAN CALIBRATION FACTOR FOR CONVERSION TO PPM/AB
  C      //////////// TABLE 3 ////////////
  C
         NTBL=3
         DO 691 IT=1,NSLT
1        IF(IT .EQ. 1) THEN
1        OPEN(6,FILE='CON')
1        ELSEIF((IT .EQ. 2) .AND. ((NSLT .EQ. 2) .OR. (NSLT .EQ. 3))) THEN
1        OPEN(6,FILE='TABLE.3',STATUS='NEW')
1        ELSEIF((IT .EQ. 2) .AND. ((NSLT .NE. 2) .OR. (NSLT .NE. 3))) THEN
1        GOTO 691
1        ELSEIF((IT .EQ. 3) .AND. (NSLT .EQ. 3)) THEN
1        OPEN(6,FILE='PRN')
1        ELSEIF((IT .EQ. 3) .AND. (NSLT .NE. 3)) THEN
1        GOTO 691
1        ELSEIF((IT .EQ. 4) .AND. (NSLT .EQ. 4)) THEN
1        OPEN(6,FILE='PRN')
1        ENDIF
1        IF(IT .EQ. 1) THEN
1        WRITE(6,804) NTBL
1        ELSE
1        WRITE(6,805)
1        ENDIF
1        IF(IT .EQ. 1) THEN
1        WRITE(6,30) LL1
1        WRITE(6,30) LL2
1        WRITE(6,30) LL3
1        WRITE(6,30) LL4
1        ELSE
1        WRITE(6,810) LL1
1        WRITE(6,810) LL2
1        WRITE(6,810) LL3
```

APPENDIX A

```
D Line# 1      7
1              WRITE(6,811) LL4
1              ENDIF
1              IF(IT .EQ.1) THEN
1              WRITE(6,944)
1              WRITE(6,956)
1              WRITE(6,971)
1              WRITE(6,981)
1              WRITE(6,991)
1              WRITE(6,1001)
1              ELSE
1         680  WRITE(6,945)
1              WRITE(6,955)
1              WRITE(6,970)
1              WRITE(6,980)
1              WRITE(6,990)
1              WRITE(6,1000)
1              ENDIF
1              DO 690 I = 1,NOPTS
2        C
2        C     ANSWER (PPM)
2        C
2              CPMT(I) = VOLT(I) * ABPV * PRPAB * TVCF3
2        C
2        C     ANSWER (MICROGRAMS PER CUBIC METER OR NANOGRAMS PER CC)
2        C
2              CCDT(I) = CPMT(I) * COVLQ
2        C
2        C     (MICROGRAMS PER CUBIC METER PER METER SQUARED)
2        C
2              VCPMS = CCDT(I)/.3387
2        C
2        C     (MICROGRAMS PER CUBIC METER PER GRAM METER SQUARED)
2        C
2              VCPGM = CCDT(I)/VGPT
2        C
2        C     VAPOR CONCENTRATION PRODUCED BY SINGLE DROPLET EVAPORATING
2        C     FROM THE SUBSTRATE (PPM)
2        C
2              CPMD(I) = CPMT(I)/DPPT
2        C
2        C     ANSWER (MICROGRAMS PER CUBIC METER)
2        C
2              CCDD(I) = CCDT(I)/DPPT
2              TIM = ((TMINV * I) - TMINV)
2              A = CPMT(I)
2              B = CCDT(I)
2              C = CPMD(I)
2              D = CCDD(I)
2              IF(IT .EQ. 1) THEN
2              WRITE(6,1041) TIM,A,B,VCPMS,VCPGM,C,D,
2              ELSE
2              WRITE(6,1040) TIM,A,B,VCPMS,VCPGM,C,D,
2              ENDIF
2         690  CONTINUE
1              IF(IT .EQ. 1) THEN
1              WRITE(6,1889)
```

```
1            ELSE
1            WRITE(6,1888)
1            ENDIF
1            CLOSE(6)
1            IF((IT .EQ. 1) .AND. (DISPLAY .EQ.1)) PAUSE
1      691   CONTINUE
       C
       C     COMPUTE CUMULATIVE MASS DISTRIBUTION
       C     ////////// TABLE 4 //////////
       C
             NTBL=4
             DO 756 IT=1,NSLT
1            IF(IT .EQ. 1) THEN
1            OPEN(6,FILE='CON')
1            ELSEIF((IT .EQ. 2) .AND. ((NSLT .EQ. 2) .OR. (NSLT .EQ. 3))) THEN
1            OPEN(6,FILE='TABLE.4',STATUS='NEW')
1            ELSEIF((IT .EQ. 2) .AND. ((NSLT .NE. 2) .OR. (NSLT .NE. 3))) THEN
1            GOTO 756
1            ELSEIF((IT .EQ. 3) .AND. (NSLT .EQ. 3)) THEN
1            OPEN(6,FILE='PRN')
1            ELSEIF((IT .EQ. 3) .AND. (NSLT .NE. 3)) THEN
1            GOTO 756
1            ELSEIF((IT .EQ. 4) .AND. (NSLT .EQ. 4)) THEN
1            OPEN(6,FILE='PRN')
1            ENDIF
1            IF(IT .EQ. 1) THEN
1            WRITE(6,804) NTBL
1            ELSE
1            WRITE(6,805)
1            ENDIF
1            IF(IT .EQ. 1) THEN
1            WRITE(6,30) LL1
1            WRITE(6,30) LL2
1            WRITE(6,30) LL3
1            WRITE(6,30) LL4
1            ELSE
1            WRITE(6,810) LL1
1            WRITE(6,810) LL2
1            WRITE(6,810) LL3
1            WRITE(6,811) LL4
1            ENDIF
1            IF(IT .EQ. 1) THEN
1            WRITE(6,947)
1            WRITE(6,951)
1            WRITE(6,976)
1            WRITE(6,1051)
1            ELSE
1            WRITE(6,946)
1            WRITE(6,950)
1            WRITE(6,975)
1            WRITE(6,1050)
1            ENDIF
1      C
1            CUMDT(1) = 0.0
1            CSOMT(1) = 0.0
1            CGSOM(1) = 0.0
```

APPENDIX A

```
D         1     7
1               CUMDD(1) = 0.0
1         C
1               DO 750 I = 1,NOPTS
2         C
2         C     CALCULATE DOSAGE USING PPM/AB FROM MASS BALANCE FOR A
2         C     SINGLE SUBSTRATE (MILLIGRAM MINUTES PER CUBIC METER)
2         C
2               DOSGT = (((VCDT(I) + VCDT(I-1))/2.0) * TMINV/1000.0)
2               CUMDT(I) = CUMDT(I-1) + DOSGT
2         C
2         C     DOSAGE ANSWER PER SQUARE METER
2         C
2               CSQMT(I) = CUMDT(I)/.3387
2         C
2         C     DOSAGE ANSWER PER GRAM PER SQUARE METER
2         C
2               CGSQM(I) = CUMDT(I)/VGPT
2         C
2         C     DOSAGE ANSWER PER DROPLET
2         C
2               DOSGD = (((VCDD(I) + VCDD(I-1))/2.0) * TMINV/1000.0)
2               CUMDD(I) = CUMDD(I-1) + DOSGD
2           750 CONTINUE
1         C
1               DO 755 I = 1,NOPTS
2               A = CUMDT(I)
2               B = CSQMT(I)
2               C = CGSQM(I)
2               D = CUMDD(I)
2               TIM = TMEAC(I)
2               IF(IT .EQ. 1) THEN
2               WRITE(6,1061) TIM,A,B,C,D
2               ELSE
2               WRITE(6,1060) TIM,A,B,C,D
2               ENDIF
2           755 CONTINUE
1               TIMT = TMEAC(NOPTS)
1               CLOSE(6)
1               IF((IT .EQ. 1) .AND. (DISPLAY .EQ. 1)) PAUSE
1           756 CONTINUE
          C
          C     PRINOUT CUMULATIVE DISTRIBUTION BASED ON PPM/AB CONVERSION FACTOR
          C     OBTAINED FROM CALIBRATION OF MIRAN ANALYZER
          C     ////////// TABLE 5 //////////
          C
                NTBL=5
                DO 771 IT=1,NSLT
1               IF(IT .EQ. 1) THEN
1               OPEN(6,FILE='CON')
1               ELSEIF((IT .EQ. 2) .AND. ((NSLT .EQ. 2) .OR. (NSLT .EQ. 3))) THEN
1               OPEN(6,FILE='TABLE.5',STATUS='NEW')
1               ELSEIF((IT .EQ. 2) .AND. ((NSLT .NE. 2) .OR. (NSLT .NE. 3))) THEN
1               GOTO 771
1               ELSEIF((IT .EQ. 3) .AND. (NSLT .EQ. 3)) THEN
1               OPEN(6,FILE='PRN')
1               ELSEIF((IT .EQ. 3) .AND. (NSLT .NE. 3)) THEN
```

```
      GOTO 771
      ELSEIF((IT .EQ. 4) .AND. (NSLT .EQ. 4)) THEN
      OPEN(6,FILE='PRN')
      ENDIF
      IF(IT .EQ. 1) THEN
      WRITE(6,804) NTSL
      ELSE
      WRITE(6,805)
      ENDIF
      IF(IT .EQ. 1) THEN
      WRITE(6,30) LL1
      WRITE(6,30) LL2
      WRITE(6,30) LL3
      WRITE(6,30) LL4
      ELSE
      WRITE(6,810) LL1
      WRITE(6,810) LL2
      WRITE(6,810) LL3
      WRITE(6,811) LL4
      ENDIF
      IF(IT .EQ. 1) THEN
      WRITE(6,947)
      WRITE(6,956)
      WRITE(6,976)
      WRITE(6,1051)
      ELSE
      WRITE(6,946)
      WRITE(6,955)
      WRITE(6,975)
      WRITE(6,1050)
      ENDIF
C
      CCUMT(1) = 0.0
      XSQMT(1) = 0.0
      XGSQM(1) = 0.0
      CCUMD(1) = 0.0
C
      DO 770 I = 2,NOPTS
C
C     CALCULATE DOASAGE USING PPM/AB FROM CALIBRATION OF MIRAN ANALYZER
C     (MILLIGRAM MINUTES PER CUBIC METER)
C
      DOSXT = ((CCDT(I) + CCDT(I-1))/2.0) * TMINV/1000.0
      CCUMT(I) = CCUMT(I-1) + DOSXT
C
C     DOSAGE ANSWER PER SQUARE METER OF CONTAMINATION
C
      XSQMT(I) = CCUMT(I)/.3387
C
C     DOSAGE ANSWER PER GRAM PER SQUARE METER OF CONTAMINATION
C
      XGSQM(I) = CCUMT(I)/VGPT
C
C     DOSAGE ANSWER PER DROPLET
C
      DOSXD = (((CCDD(I) + CCDD(I-1))/2.0) * TMINV/1000.0)
```

```
D Line# 1      7                              Microsoft FORTRAN77 V3.31 August 1985
2              CCUMD(I) = CCUMD(I-1) + DOSXD
2        770   CONTINUE
1          C
1              DO 775 I = 1,NOPTS
2              A = CCUMT(I)
2              B = XSQMT(I)
2              C = XGSQM(I)
2              D = CCUMD(I)
2              TIM = TMEAC(I)
2              IF(IT .EQ. 1) THEN
2              WRITE(6,1061) TIM,A,B,C,D
2              ELSE
2              WRITE(6,1060) TIM,A,B,C,D
2              ENDIF
2        775   CONTINUE
1              CLOSE(6)
1              IF((IT .EQ. 1) .AND. (DISPLAY .EQ. 1)) PAUSE
1        771   CONTINUE
           C
           C   CALCULATE AND PRINTOUT DROPLET EVAPORATION HISTORY
           C   CONVERT MASS OF DROPLET IN GRAMS TO MILLIGRAMS
           C   /////////// TABLE 6 ///////////
           C
               NTBL=6
               XMASD = CMASS * 1000.0
               DO 772 IT=1,NSLT
1              IF(IT .EQ. 1) THEN
1              OPEN(6,FILE='CON')
1              ELSEIF((IT .EQ. 2) .AND. ((NSLT .EQ. 2) .OR. (NSLT .EQ. 3))) THEN
1              OPEN(6,FILE='TABLE.6',STATUS='NEW')
1              ELSEIF((IT .EQ. 2) .AND. ((NSLT .NE. 2) .OR. (NSLT .NE. 3))) THEN
1              GOTO 772
1              ELSEIF((IT .EQ. 3) .AND. (NSLT .EQ. 3)) THEN
1              OPEN(6,FILE='PRN')
1              ELSEIF((IT .EQ. 3) .AND. (NSLT .NE. 3)) THEN
1              GOTO 772
1              ELSEIF((IT .EQ. 4) .AND. (NSLT .EQ. 4)) THEN
1              OPEN(6,FILE='PRN')
1              ENDIF
1              IF(IT .EQ. 1) THEN
1              WRITE(6,804) NTBL
1              ELSE
1              WRITE(6,805)
1              ENDIF
1              IF(IT .EQ. 1) THEN
1              WRITE(6,30) LL1
1              WRITE(6,30) LL2
1              WRITE(6,30) LL3
1              WRITE(6,30) LL4
1              ELSE
1              WRITE(6,810) LL1
1              WRITE(6,810) LL2
1              WRITE(6,810) LL3
1              WRITE(6,811) LL4
1              ENDIF
1              IF(IT .EQ. 1) THEN
```

```
1          WRITE(6,1111)
1          WRITE(6,1121)
1          WRITE(6,1141)
1          WRITE(6,1151)
1          ELSE
1          WRITE(6,1110)
1          WRITE(6,1120)
1          WRITE(6,1140)
1          WRITE(6,1150)
1          ENDIF
1          DO 785 I = 1,NOPTS
2    C
2          TIM = TMEAC(I)
2          AX = EVAPN(I)
2          ACDMG = (EVAPM(1) - EVAPM(I)) * 1000.0
2          ACDMF = EVAPN(1) - EVAPN(I)
2          BX = EVAPM(I) * 1000.0
2          CX = EVPM5(I) * 1000.0
2          DY = EVPN5(I)
2          FRT = TMEAC(I)/TIMT
2          FRHT(I) = TMEAC(I)/HAFTM
2          FHL = FRHT(I)
2    C
2          IF((VOLTN(NOPTS) .GE. .5) .AND. (IT .EQ. 1)) THEN
2          WRITE(6,1169) TIM,BX,AX,ACDMG,ACDMF,CX,DY,FRT,FHL
2          ELSEIF((VOLTN(NOPTS) .GE. .5) .AND. (IT .NE. 1 )) THEN
2          WRITE(6,1170) TIM,BX,AX,ACDMG,ACDMF,CX,DY,FRT,FHL
2          ELSEIF((VOLTN(NOPTS) .LT. .5) .AND. (IT .EQ. 1)) THEN
2          WRITE(6,1172) TIM,BX,AX,ACDMG,ACDMF,CX,DY,FRT,DASH
2          ELSEIF((VOLTN(NOPTS) .LT. .5) .AND. (IT .NE. 1)) THEN
2          WRITE(6,1171) TIM,BX,AX,ACDMG,ACDMF,CX,DY,FRT,DASH
2          ENDIF
2     785  CONTINUE
1          CLOSE(6)
1          IF((IT .EQ. 1) .AND. (DISPLAY .EQ. 1)) PAUSE
1     772  CONTINUE
     C
     C     PRINTOUT EVAPORATION HISTORY OF DEPOSITED DROPLET
     C     ////////// TABLE 7 /////////
     C
           NTBL=7
           DO 778 IT=1,NSLT
1          IF(IT .EQ. 1) THEN
1          OPEN(6,FILE='CON')
1          ELSEIF((IT .EQ. 2) .AND. ((NSLT .EQ. 2) .OR. (NSLT .EQ. 3))) THEN
1          OPEN(6,FILE='TABLE.7',STATUS='NEW')
1          ELSEIF((IT .EQ. 2) .AND. ((NSLT .NE. 2) .OR. (NSLT .NE. 3))) THEN
1          GOTO 778
1          ELSEIF((IT .EQ. 3) .AND. (NSLT .EQ. 3)) THEN
1          OPEN(6,FILE='PRN')
1          ELSEIF((IT .EQ. 3) .AND. (NSLT .NE. 3)) THEN
1          GOTO 778
1          ELSEIF((IT .EQ. 4) .AND. (NSLT .EQ. 4)) THEN
1          OPEN(6,FILE='PRN')
1          ENDIF
1          IF(IT .EQ. 1) THEN
```

```
D Line# 1      7                    Microsoft FORTRAN77 V3.31 August 1985
1                     WRITE(6,804) NTBL
1                     ELSE
1                     WRITE(6,805)
1                     ENDIF
1                     IF(IT .EQ. 1) THEN
1                     WRITE(6,30) LL1
1                     WRITE(6,30) LL2
1                     WRITE(6,30) LL3
1                     WRITE(6,30) LL4
1                     ELSE
1                     WRITE(6,810) LL1
1                     WRITE(6,810) LL2
1                     WRITE(6,810) LL3
1                     WRITE(6,811) LL4
1                     ENDIF
1                     IF(IT .EQ.1) THEN
1                     WRITE(6,1114)
1                     WRITE(6,1126)
1                     WRITE(6,1117)
1                     ELSE
1                     WRITE(6,1115)
1                     WRITE(6,1125)
1                     WRITE(6,1116)
1                     ENDIF
1                     DO 777 I = 1,NOPTS
2             C
2                     TIM = TMEAC(I)
2                     AX = EVAPN(I)
2                     BX = EVAPM(I) * 1000.0
2                     ACDMG = (EVAPM(1) - EVAPM(I)) * 1000.0
2                     ACDMF = EVAPN(1) - EVAPN(I)
2                     ACDMN = ACDMF/(1 - EVAPN(NOPTS))
2                     FRT = TMEAC(I)/TIMT
2                     FRHT(I) = TMEAC(I)/HAFTM
2                     FHL = FRHT(I)
2             C
2                     IF((VOLTN(NOPTS) .GE. .5) .AND.(IT .EQ. 1)) THEN
2                     WRITE(6,1174) TIM,FRT,FHL,BX,AX,ACDMG,ACDMF,ACDMN
2                     ELSEIF((VOLTN(NOPTS) .GE. .5) .AND. (IT .NE. 1)) THEN
2                     WRITE(6,1175) TIM,FRT,FHL,BX,AX,ACDMG,ACDMF,ACDMN
2                     ELSEIF((VOLTN(NOPTS) .LT. .5) .AND. (IT .EQ. 1)) THEN
2                     WRITE(6,1177) TIM,FRT,DASH,BX,AX,ACDMG,ACDMF,ACDMN
2                     ELSEIF((VOLTN(NOPTS) .LT. .5) .AND. (IT .NE. 1)) THEN
2                     WRITE(6,1176) TIM,FRT,DASH,BX,AX,ACDMG,ACDMF,ACDMN
2                     ENDIF
2              777    CONTINUE
1                     IF(IT .EQ.1) THEN
1                     WRITE(6,1213)
1                     ELSE
1                     WRITE(6,1212)
1                     ENDIF
1                     CLOSE(6)
1                     IF((IT .EQ. 1) .AND. (DISPLAY .EQ. 1)) PAUSE
1              778    CONTINUE
              C
              C
```

```
C     PRINTOUT DROPLET MASS INFORMATION FROM TRAY MASS LOADING
C     AND NUMBER OF DROPLETS ON EACH SUBSTRATE
C     /////////// TABLE B ///////////
C
      NTBL=8
      DPPO = 0.0000
      DO 788 IT=1,NSLT
      IF(IT .EQ. 1) THEN
      OPEN(6,FILE='CON')
      ELSEIF((IT .EQ. 2) .AND. ((NSLT .EQ. 2) .OR. (NSLT .EQ. 3))) THEN
      OPEN(6,FILE='TABLE.8',STATUS='NEW')
      ELSEIF((IT .EQ. 2) .AND. ((NSLT .NE. 2) .OR. (NSLT .NE. 3))) THEN
      GOTO 788
      ELSEIF((IT .EQ. 3) .AND. (NSLT .EQ. 3)) THEN
      OPEN(6,FILE='PRN')
      ELSEIF((IT .EQ. 3) .AND. (NSLT .NE. 3)) THEN
      GOTO 788
      ELSEIF((IT .EQ. 4) .AND. (NSLT .EQ. 4)) THEN
      OPEN(6,FILE='PRN')
      ENDIF
      IF(IT .EQ. 1) THEN
      WRITE(6,804) NTBL
      ELSE
      WRITE(6,805)
      ENDIF
      IF(IT .EQ. 1) THEN
      WRITE(6,30) LL1
      WRITE(6.30) LL2
      WRITE(6,30) LL3
      WRITE(6,30) LL4
      ELSE
      WRITE(6,810) LL1
      WRITE(6,810) LL2
      WRITE(6,810) LL3
      WRITE(6,811) LL4
      ENDIF
      IF(IT .EQ. 1) THEN
      WRITE(6,821)
      WRITE(6,831)
      WRITE(6,841) GM1TP,GM2TP,GM3TP
      ELSE
      WRITE(6,820)
      WRITE(6,830)
      WRITE(6,840) GM1TP,GM2TP,GM3TP
      ENDIF
C
      IF (NCODE .GE. 6) GOTO 786
C
      IF(IT .EQ. 1) THEN
      WRITE(6,851) DPPO,DPPT,DPPT
      ELSE
      WRITE(6,850) DPPO,DPPT,DPPT
      ENDIF
C
      IF (NCODE .LT. 6) GOTO 787
C
```

```
1     786  CONTINUE
1          DPP3 = DPPT/2.0
1          DPP2 = DPP3
1          IF(IT .EQ. 1) THEN
1          WRITE(6,851) DPPO,DPP2,DPP3
1          ELSE
1          WRITE(6,850) DPPO,DPP2,DPP3
1          ENDIF
1     C
1     787  CONTINUE
1          IF(IT .EQ. 1) THEN
1          WRITE(6,861) GPM21,GPM22,GPM23
1          WRITE(6,871) TM1,TM2,TM3
1          WRITE(6,881) ETDPM
1          WRITE(6,891) SDMAS
1          WRITE(6,901) SEMAS
1          WRITE(6,911) EQDPD
1          ELSE
1          WRITE(6,860) GPM21,GPM22,GPM23
1          WRITE(6,870) TM1,TM2,TM3
1          WRITE(6,880) ETDPM
1          WRITE(6,890) SDMAS
1          WRITE(6,900) SEMAS
1          WRITE(6,910) EQDPD
1          ENDIF
1     C
1     C    CALCUALTE MASS SAMPLED BY MIRAN ON SUBSTRATE BASIS
1     C
1          SMAS = CUMDT(NOPTS) * 7.5E-5
1          XSMAS = CCUMT(NOPTS) * 7.5E-5
1     C
1     C    COMPARE WITH SUBSTRATE MASS ANS EXPRESS AS PERCENT
1     C
1          RMAS = (SMAS/(CMASS * DPPT)) * 100.0
1          XRMAS = (XSMAS/(CMASS * DPPT)) * 100.0
1     C
1     C    CALCULATE THE DIFFERENCE BETWEEN MIRAN SAMPLED MASS FOR
1     C    CALCUALTED AND CALIBRATED PPM/AB CONVERSION FACTOR
1     C
1          DIFMS = SMAS - XSMAS
1          IF(IT .EQ. 1) THEN
1          WRITE(6,1101) DIFMS
1          WRITE(6,1081) CPMAB
1          WRITE(6,1091) PRPAB
1          WRITE(6,1071)
1          WRITE(6,1073) RMAS
1          WRITE(6,1075) XRMAS
1          ELSE
1          WRITE(6,1100) DIFMS
1          WRITE(6,1080) CPMAB
1          WRITE(6,1090) PRPAB
1          WRITE(6,1070)
1          WRITE(6,1072) RMAS
1          WRITE(6,1074) XRMAS
1          ENDIF
1          CLOSE(6)
```

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D Line# 1      7                                   Microsoft FORTRAN77 V3.31 August 1985
1                IF((IT .EQ. 1) .AND. (DISPLAY .EQ. 1)) PAUSE
1         788    CONTINUE
        C
        C        FORMAT STATMENTS FOR INPUT DATA
        C
        C
        C
        C        CALCULATE EVAPORATION RATE FOR SINGLE DROPLET
        C
                 N = NOPTS - 1
        C
        C        ANSWER MICROGRAMS PER MINUTE
        C
                 EVPRM(1) = (EVAPM(1) - CMASS)/TMINV
        C
        C        ANSWER FRACTIONAL AMOUNT PER MINUTE
        C
                 EVPRN(1) = EVPRM(1) * CMASS/EVAPM(1)
                 TIMER(1) = TMEAC(1)
                 FRTM(1) = TIMER(1)/TIMT
        C
                 DO 790 I = 2,NOPTS
1       C
1       C        ANSWER MICROGRAMS PER MINUTE
1       C
1                EVPRM(I) = (EVAPM(I) - EVAPM(I-1))/TMINV
1       C
1       C        ANSWER FRACTIONAL AMOUNT PER MINUTE
1       C
1                EVPRN(I) = EVPRM(I) * CMASS/EVAPM(I)
1       C
1                TIMER(I) = TMEAC(I)
1                FRTM(I) = TIMER(I)/TIMT
1         790    CONTINUE
        C
        C        EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY
        C        //////////// TABLE 9 //////////
        C
                 NTBL=9
                 DO 796 IT=1,NSLT
1                IF(IT .EQ. 1) THEN
1                OPEN(6,FILE='CON')
1                ELSEIF((IT .EQ. 2) .AND. ((NSLT .EQ.     .OR. (NSLT .EQ. 3))) THEN
1                OPEN(6,FILE='TABLE.9',STATUS='NEW')
1                ELSEIF((IT .EQ. 2) .AND. ((NSLT .NE. 2) .OR. (NSLT .NE. 3))) THEN
1                GOTO 796
1                ELSEIF((IT .EQ. 3) .AND. (NSLT .EQ. 3)) THEN
1                OPEN(6,FILE='PRN')
1                ELSEIF((IT .EQ. 3) .AND. (NSLT .NE. 3)) THEN
1                GOTO 796
1                ELSEIF((IT .EQ. 4) .AND. (NSLT .EQ. 4)) THEN
1                OPEN(6,FILE='PRN')
1                ENDIF
1                IF(IT .EQ. 1) THEN
1                WRITE(6,804) NTBL
1                ELSE
```

```
1         WRITE(6,805)
1         ENDIF
1         IF(IT .EQ. 1) THEN
1         WRITE(6,30) LL1
1         WRITE(6,30) LL2
1         WRITE(6,30) LL3
1         WRITE(6,30) LL4
1         ELSE
1         WRITE(6,810) LL1
1         WRITE(6,810) LL2
1         WRITE(6,810) LL3
1         WRITE(6,811) LL4
1         ENDIF
1         IF(IT .EQ. 1) THEN
1         WRITE(6,1181)
1         WRITE(6,1191)
1         WRITE(6,1201)
1         ELSE
1         WRITE(6,1180)
1         WRITE(6,1190)
1         WRITE(6,1200)
1         ENDIF
1    C
1         SUMEV = 0.0
1    C
1         DO 795 I = 1,NOPTS
2         TIM = TIMER(I)
2         FRT = FRTM(I)
2         FHL = FRHT(I)
2         XX = EVPRN(I) * 1E6
2         YY = EVPRM(I) * 1E6
2         SUMEV = SUMEV + YY
2    C
2         IF((VOLTN(NOPTS) .GE. .5) .AND. (IT .EQ. 1)) THEN
2         WRITE(6,1209) TIM,FRT,FHL,YY,XX
2         ELSEIF((VOLTN(NOPTS) .GE. .5) .AND. (IT .NE. 1 )) THEN
2         WRITE(6,1210) TIM,FRT,FHL,YY,XX
2         ELSEIF((VOLTN(NOPTS) .LT. .5) .AND. (IT .EQ. 1)) THEN
2         WRITE(6,1214) TIM,FRT,DASH,YY,XX
2         ELSEIF((VOLTN(NOPTS) .LT. .5) .AND. (IT .NE. 1)) THEN
2         WRITE(6,1211) TIM,FRT,DASH,YY,XX
2         ENDIF
2    C
2     795 CONTINUE
1         IF(IT .EQ. 1) THEN
1         WRITE(6,1213)
1         ELSE
1         WRITE(6,1212)
1         ENDIF
1         CLOSE(6)
1    C
1    C    EVAPORATION RATE AVERGED OVER DURATION OF TEST, MICROGRAMS/MIN
1    C
1         ERTMX =SUMEV/NOPTS
1    C
1         IF((IT .EQ. 1) .AND. (DISPLAY .EQ. 1)) PAUSE
```

```
1   796 CONTINUE
      C
      C
      C     CHECK OF INPUT AND OUTPUT PARAMETER VALUES
      C     ///////// TABLE 10 /////////
      C
            NTBL=10
            DO 792 IT=1,NSLT
1           IF(IT .EQ. 1) THEN
1           OPEN(6,FILE='CON')
1           ELSEIF((IT .EQ. 2) .AND. ((NSLT .EQ. 2) .OR. (NSLT .EQ. 3))) THEN
1           OPEN(6,FILE='TABLE.10',STATUS='NEW')
1           ELSEIF((IT .EQ. 2) .AND. ((NSLT .NE. 2) .OR. (NSLT .NE. 3))) THEN
1           GOTO 792
1           ELSEIF((IT .EQ. 3) .AND. (NSLT .EQ. 3)) THEN
1           OPEN(6,FILE='PRN')
1           ELSEIF((IT .EQ. 3) .AND. (NSLT .NE. 3)) THEN
1           GOTO 792
1           ELSEIF((IT .EQ. 4) .AND. (NSLT .EQ. 4)) THEN
1           OPEN(6,FILE='PRN')
1           ENDIF
1           IF(IT .EQ. 1) THEN
1           WRITE(6,804) NTBL
1           ELSE
1           WRITE(6,805)
1           ENDIF
1           IF(IT .EQ. 1) THEN
1           WRITE(6,30) LL1
1           WRITE(6,30) LL2
1           WRITE(6,30) LL3
1           WRITE(6,30) LL4
1           ELSE
1           WRITE(6,810) LL1
1           WRITE(6,810) LL2
1           WRITE(6,810) LL3
1           WRITE(6,811) LL4
1           ENDIF
1           IF(IT .EQ. 1) THEN
1           WRITE(6,1218)
1           WRITE(6,1202) PRPAB
1           WRITE(6,1204) COVLQ
1           WRITE(6,1206) PERCP
1           WRITE(6,1216) Z
1           WRITE(6,1221) X
1           WRITE(6,1231) Y
1           WRITE(6,1237) DARTN
1           WRITE(6,1241) TRAYM
1           WRITE(6,1243) NCODE
1           WRITE(6,124[illegible]) CODEL
1           WRITE(6,124[illegible]) TMASS
1           WRITE(6,124[illegible]) CMASS
1           WRITE(6,12[illegible]) CK
1           WRITE(6,12[illegible]) CPMAB
1           WRITE(6,12[illegible]) [illegible]
1           WRITE(6,12[illegible]) CCV[illegible]
1           WRITE(6,12[illegible]) ACV[illegible]
```

```
      ELSE
      WRITE(6,1217)
      WRITE(6,1207) PRPAB
      WRITE(6,1203) COVLQ
      WRITE(6,1205) PERCP
      WRITE(6,1215) Z
      WRITE(6,1220) X
      WRITE(6,1230) Y
      WRITE(6,1236) DARTN
      WRITE(6,1240) TRAYM
      WRITE(6,1242) NCODE
      WRITE(6,1244) CODEL
      WRITE(6,1246) TMASS
      WRITE(6,1248) CMASS
      WRITE(6,1292) CK
      WRITE(6,1250) CPMAB
      WRITE(6,1260) TVCF3
      WRITE(6,1270) CCVR1
      WRITE(6,1280) ACVTM
      ENDIF
C
      IF((VOLTN(NOPTS) .GE. .5) .AND. (IT .EQ. 1)) THEN
      WRITE(6,1289) HAFTM
      ELSEIF((VOLTN(NOPTS) .GE. .5) .AND. (IT .NE. 1)) THEN
      WRITE(6,1290) HAFTM
      ELSEIF((VOLTN(NOPTS) .LT. .5) .AND. (IT .EQ. 1)) THEN
      WRITE(6,1288) DASH
      ELSEIF((VOLTN(NOPTS) .LT. .5) .AND. (IT .NE. 1)) THEN
      WRITE(6,1291) DASH
      ENDIF
C
      IF(IT .EQ. 1) THEN
      WRITE(6,1301) T2
      WRITE(6,1311) T1
      WRITE(6,1321) V2
      WRITE(6,1329) V1
      ELSE
      WRITE(6,1300) T2
      WRITE(6,1310) T1
      WRITE(6,1320) V2
      WRITE(6,1330) V1
      ENDIF
C
      IF((VOLTN(NOPTS) .GE. .5) .AND. (IT .EQ. 1)) THEN
      WRITE(6,1328) ERHLF
      WRITE(6,1327) ERTMX
      ELSEIF((VOLTN(NOPTS) .GE. .5) .AND. (IT .NE. 1)) THEN
      WRITE(6,1331) ERHLF
      WRITE(6,1332) ERTMX
      ELSEIF((VOLTN(NOPTS) .LT. .5) .AND. (IT .EQ. 1)) THEN
      WRITE(6,1326) DASH
      WRITE(6,1336) DASH
      ELSEIF((VOLTN(NOPTS) .LT. .5) .AND. (IT .NE. 1)) THEN
      WRITE(6,1333) DASH
      WRITE(6,1335) DASH
      ENDIF
```

```
C
C      IF((VOLTN(NOPTS) .GE. .5) .AND. (IT .EQ. 1)) THEN
C      WRITE(6,1327) ERTMX
C      ELSEIF((VOLTN(NOPTS) .GE .5) .AND. (IT .NE. 1)) THEN
C      WRITE(6,1332) ERTMX
C      ELSEIF((VOLTN(NOPTS) .LT. .5) .AND. (IT .EQ. 1)) THEN
C      WRITE(6,1336) DASH
C      ELSEIF((VOLTN(NOPTS) .LT. .5) .AND. (IT .NE. 1)) THEN
C      WRITE(6,1335) DASH
C      ENDIF
C
      IF(IT .EQ. 1) THEN
      WRITE(6,1325) ENDV
      ELSE
      WRITE(6,1334) ENDV
      ENDIF
      CLOSE(6)
      IF((IT .EQ. 1) .AND. (DISPLAY .EQ. 1)) PAUSE
  792 CONTINUE
C
C     CALCULATE THE EFFECTIVE WINDSPEEDS TO ACHIEVE PPM/AB CALIBRATION
C     VALUE PRPAB FROM TEST DATA
C
      IF (WDTUN .LT. 5.0) GO TO 798
C     FOR HIGH WIND SPEED TESTS
      AREAH = 10.5 * 4.0
      AREAL = 10.0 * 3.5
      GO TO 799
C     FOR LOW WIND SPEED TESTS
  798 AREAH = 10.5 * 4.0
      AREAL = 10.0 * 3.5
  799 ARCR1 = DARTN/AREAH
      ARCR2 = DARTN/AREAL
C
C     ASSUME DYNAMIC CROSS-SECTIONAL AREA OF 10.25 BY 3.75 SQ INCHES
C     WINDSPEED IN MPH
C
      WMPH1 = (CPMAB/PRPAB) * AIRSP
C
C     EQUIVALENT WINDSPEED IN FPM
C
      WFPM1 = WMPH1 * 88.0 + .5
C
C     ASSUME DYNAMIC CROSS-SECTIONAL AREA OF 10.5 BY 4.0 SQ INCHES
C     WINDSPEED IN MPH
C
      WMPH2 = WMPH1 * ARCR1
C
C     EQUIVALENT WINDSPEED IN FPM
C
      WFPM2 = WMPH2 * 88.0 + .5
C
C     ASSUME DYNAMIC CROSS-SECTIONAL AREA OF 10.0 BY 3.5 SQUARE INCHES
C     WINDSPEED IN MPH
C
      WMPH3 = WMPH1 * ARCR2
```

```
C
C     EQUIVALENT WINDSPEED IN FPM
C
      WFPM3 = WMPH3 * 88.0 + .5
C
C
C     CALCULATE THE EFFECTIVE WINDSPEEDS TO ACHIEVE PPM/AB CALIBRATION
C     VALUE = PRPAB + 3 SIGMA
C     ASSUME DYNAMIC CROSS-SECTIONAL AREA OF 10.25 BY 3.75 SQ INCHES
C
      AHPRA = PRPAB + 7.5
C
C     WINDSPEED IN MPH
C
      SMPH1 = (WMPH1 * PRPAB)/AHPRA
C
C     EQUIVALENT WINDSPEED IN FPM
C
      SFPM1 = SMPH1 * 88.0 + .5
C
C     ASSUME DYNAMIC CROSS-SECTINAL AREA OF 10.5 BY 4.0
C     WINDSPEED IN MPH
C
      SMPH2 = SMPH1 * ARCR1
C
C     EQUIVALENT WINDSPEED IN FPM
C
      SFPM2 = SMPH2 * 88.0 + .5
C
C     ASSUME DYNAMIC CROSS-SECTIONAL AREA OF 10.0 BY 3.5 SQ INCHES
C     WINDSPEED IN MPH
C
      SMPH3 = SMPH1 * ARCR2
C
C     EQUIVALENT WINDSPEED IN FPM
C
      SFPM3 = SMPH3 * 88.0 + .5
C
C     CALCULATE THE EFFECTIVE WINDSPEEDS TO ACHIEVE PPM/AB CALIBRATION
C     VALUE = PRPAB -3 SIGMA
C
      ALPRA = PRPAB - 7.5
C
C     ASSUME DYNAMIC CROSS-SECTIONAL AREA OF 10.25 BY 3,75 SQ INCHES
C     WINDSPEED IN MPH
C
      AMPH1 = (WMPH1 * PRPAB)/ALPRA
C
C     EQUIVALENT WINDSPEED IN FPM
C
      AFPM1 = AMPH1 * 88.0 + .5
C
C     ASSUME DYNAMIC CROSS-SECTIONAL AREA OF 10.5 BY 4.0 SQ INCHES
C     WINDSPEED IN MPH
C
      AMPH2 = AMPH1 * ARCR1
```

```
C
C     EQUIVALENT WINDSPEED IN FPM
C
      AFPM2 = AMPH2 * 88.0 + .5
C
C     ASSUME DYNAMIC CROSS-SECTIONAL AREA OF 10.0 BY 3.5 SQ INCHES
C     WINDSPEED IN MPH
C
      AMPH3 = AMPH1 * ARCR2
C
C     EQUIVALENT IN FPM
C
      AFPM3 = AMPH3 * 88.0 + .5
C
C     EFFECTIVE WINDSPEEDS FOR TEST TO ACHIEVE PPM/AB OF MIRAN
C     CALIBRATION FOR THE TEST DATA
C     /////////// TABLE 11 ///////////
C
      NTBL=11
      DO 793 IT=1,NSLT
      IF(IT .EQ. 1) THEN
      OPEN(6,FILE='CON')
      ELSEIF((IT .EQ. 2) .AND. ((NSLT .EQ. 2) .OR. (NSLT .EQ. 3))) THEN
      OPEN(6,FILE='TABLE.11',STATUS='NEW')
      ELSEIF((IT .EQ. 2) .AND. ((NSLT .NE. 2) .OR. (NSLT .NE. 3))) THEN
      GOTO 793
      ELSEIF((IT .EQ. 3) .AND. (NSLT .EQ. 3)) THEN
      OPEN(6,FILE='PRN')
      ELSEIF((IT .EQ. 3) .AND. (NSLT .NE. 3)) THEN
      GOTO 793
      ELSEIF((IT .EQ. 4) .AND. (NSLT .EQ. 4)) THEN
      OPEN(6,FILE='PRN')
      ENDIF
      IF(IT .EQ.1) THEN
      WRITE(6,804) NTBL
      ELSE
      WRITE(6,805)
      ENDIF
      IF(IT .EQ. 1) THEN
      WRITE(6,30) LL1
      WRITE(6,30) LL2
      WRITE(6,30) LL3
      WRITE(6,30) LL4
      ELSE
      WRITE(6,810) LL1
      WRITE(6,810) LL2
      WRITE(6,810) LL3
      WRITE(6,811) LL4
      ENDIF
      IF(IT .EQ. 1) THEN
      WRITE(6,1401)
      WRITE(6,1411)
      ELSE
      WRITE(6,1400)
      WRITE(6,1410)
      ENDIF
```

```
1       C
1             IF(WOTUR .GT. 5.0) GO TO 7000
1       C
1             IF(IT .EQ. 1) THEN
1             WRITE(6,1421)
1             ELSE
1             WRITE(6,1420)
1             ENDIF
1             GO TO 7050
1        7000 CONTINUE
1             IF(IT .EQ. 1) THEN
1             WRITE(6,1426)
1             ELSE
1             WRITE(6,1425)
1             ENDIF
1        7050 CONTINUE
1             IF(IT .EQ. 1) THEN
1             WRITE(6,1431)
1             WRITE(6,1441) ALPRA,AMPH2,AFPM2,AMPH1,AFPM1,AMPH3,AFPM3
1             WRITE(6,1441) PRPAB,WMPH2,WFPM2,WMPH1,WFPM1,WMPH3,WFPM3
1             WRITE(6,1441) AHPRA,SMPH2,SFPM2,SMPH1,SFPM1,SMPH3,SFPM3
1             ELSE
1             WRITE(6,1430)
1             WRITE(6,1440) ALPRA,AMPH2,AFPM2,AMPH1,AFPM1,AMPH3,AFPM3
1             WRITE(6,1440) PRPAB,WMPH2,WFPM2,WMPH1,WFPM1,WMPH3,WFPM3
1             WRITE(6,1440) AHPRA,SMPH2,SFPM2,SMPH1,SFPM1,SMPH3,SFPM3
1             ENDIF
1             WRITE(6,2000)
1             CLOSE(6)
1             IF((IT .EQ. 1) .AND. (DISPLAY .EQ. 1)) PAUSE
1         793 CONTINUE
        C
        C

        C
        C     OPTION TO RUN THE PROGRAM AGAIN WITH ANOTHER DATA FILE
        C
         1550 ANSWER=' '
              WRITE(*,1500)
              WRITE(*,1530)
              WRITE(*,1540)
              READ(*,30) ANSWER
              IF((ANSWER .NE. 'Y') .AND. (ANSWER .NE. 'y') .AND. (ANSWER .NE. 'N
             &') .AND. (ANSWER .NE. 'n')) GOTO 1550
              IF((ANSWER .EQ. 'Y') .OR. (ANSWER .EQ. 'y')) GOTO 1
              IF((ANSWER .EQ. 'N') .OR. (ANSWER .EQ. 'n')) GOTO 9999
        C
        C     FORMAT STATEMENTS FOR PROGRAM
        C
           30 FORMAT(A)
           35 FORMAT(F7.2,F7.2,F7.2,F8.1,I5,F8.1,F7.2,F8.2)
           40 FORMAT(F7.3,F7.1,I5,F7.2)
           45 FORMAT(I4)
           51 FORMAT(1H0,'INDEX MILLIVOLT  VOLT        INDEX MILLIVOLT  VOLT
             &  INDEX MILLIVOLT  VOLT'/)
           52 FORMAT(1H ,I4,3X,I4,3X,F8.4,7X,I4,3X,I4,2X,F8.4,7X,I4,2X,I4,2X,F8.
```

```
D Line# 1      7                              Microsoft FORTRAN77 V3 31 August 1985
          &4)
     53    FORMAT(/1X,'THIS IS THE MIRAN VOLTAGE DATA IN THE SELECTED FILE')
     55    FORMAT(1H ,'DO YOU WISH TO CONTINUE WITH THE ANALYSIS USING THIS D
          &ATA?')
     57    FORMAT(1H0,'ANSWER Y FOR YES OR N FOR NO.....THEN PRESS ENTER')
     804   FORMAT(1H1/,37X,'TABLE',I3/)
     805   FORMAT(1H1//,61X,'TABLE'/)
     810   FORMAT(28X,A)
     811   FORMAT(28X,A/)
     820   FORMAT(1H ,37X,'SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSIT
          &ION')
     821   FORMAT(8X,'SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION')
     830   FORMAT(//49X,'SUBSTRATE 1',8X,'SUBSTRATE 2',8X,'SUBSTRATE 3'//)
     831   FORMAT(//29X,'SUBSTRATE 1',8X,'SUBSTRATE 2',8X,'SUBSTRATE 3'//)
     840   FORMAT(1H ,25X,' CONTAMINATION, GRAMS',4X,F7.3,14X,F5.3,14X,F5.3,
     841   FORMAT(1H ,' CONTAMINATION, GRAMS',4X,F14.6,5X,F14.6,5X,F14.6)
     850   FORMAT(1H ,25X,' NUMBER OF DROPLETS',5X,F8.3,11X,F8.3,11X,F8.3)
     851   FORMAT(1H ,' NUMBER OF DROPLETS',6X,F14.6,5X,F14.6,5X,F14.6)
     860   FORMAT(1H ,25X,' GRAMS PER SQ METER',5X,F8.3,11X,F8.3,11X,F8.3)
     861   FORMAT(1H ,' GRAMS PER SQ METER',6X,F14.6,5X,F14.6,5X,F14.6)
     870   FORMAT(1H ,25X,' GRAMS PER DROPLET',10X,F6.5,13X,F6.5,13X,F6.5//)
     871   FORMAT(1H ,' GRAMS PER DROPLET',7X,F14.6,5X,F14.6,5X,F14.6//)
     880   FORMAT(1H ,25X,' ESTIMATED MEAN DROPLET MASS',12X,F8.5,' GRAMS')
     881   FORMAT(1H ,' ESTIMATED MEAN DROPLET MASS',12X,F8.5,' GRAMS')
     890   FORMAT(1H ,25X,' STANDARD DEVIATION OF TEST DROPLET MASS',F8.5,' G
          &RAMS')
     891   FORMAT(1H ,' STANDARD DEVIATION OF TEST DROPLET MASS',F8.5,' GRAMS
          &')
     900   FORMAT(1H ,25X,' STANDARD ERROR OF MEAN MASS ESTIMANT',3X,F8.5,' G
          &RAMS'/)
     901   FORMAT(1H ,' STANDARD ERROR OF MEAN MASS ESTIMANT',3X,F8.5,' GRAMS
          &'/)
     910   FORMAT(1H ,26X,'EQUIVALENT DROPLET DIAMETER',11X,F6.2,' MILLIMETER
          &S'//)
     911   FORMAT(1H ,' EQUIVALENT DROPLET DIAMETER',12X,F6.2,' MILLIMETERS
          &'//)
     918   FORMAT(1H ,40X,'OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER'/
          &)
     919   FORMAT(1H0,16X,'OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER'/
          &)
     920   FORMAT(/30X,'MIRAN VAPOR ANALYZER',F6.2,2X,'ABSORBANCE UNITS PER V
          &OLT')
     921   FORMAT(6X,' MIRAN VAPOR ANALYZER',F6.2,2X,'ABSORBANCE UNITS PER VO
          &LT')
     922   FORMAT(31X,'ANALYZER',4X,'OUTPUT',12X,'CUMULATIVE DISTRIBUTION FOR
          & TWO SUBSTRATES')
     923   FORMAT(6X,' ANALYZER',5X,'OUTPUT',12X,'CUMULATIVE DISTRIBUTION   T
              SUBSTRATES')
     93    FORMAT(1H ,32X,'TIME',4X,'ABSORBANCE',10X,'ELAPSED TIME',6X,'TOTAL
          &',8X,'TOTAL')
     931   FORMAT(1H ,8X,' TIME',4X,'ABSORBANCE',10X,'ELAPSED TIME',4X,'TOTAL
          &',8X,'TOTAL')
     35    FORMAT(1H ,31X,'MINUTES',4X,'VOLTS',15X,'MINUTES',7X,'VOLT.MIN',5X
          &,'NORMALIZED'/)
     936   FORMAT(1H ,7X,' MINUTES',4X,'VOLTS',15X,'MINUTES',5X,'VOLT.MIN',5X
          &,'NORMALIZED'/)
```

```
 940  FORMAT(29X,F8.1,5X,F6.4,15X,F7.1,8X,F6.3,6X,F8.6)
 941  FORMAT(6X,F8.1,3X,F8.4,13X,F7.1,8X,F6.3,6X,F8.6)
 944  FORMAT(1H0,6X,'VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSIT
     &ED DROPLETS')
 945  FORMAT(1H ,37X,'VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSI
     &TED DROPLETS')
 946  FORMAT(1H ,29X,'CUMULATIVE DOSAGE DERIVED FROM UNIFORM ARRAY OF DE
     &POSITED DROPLETS')
 947  FORMAT(1H0,2X,'CUMULATIVE DOSAGE DERIVED FROM UNIFORM ARRAY OF DEP
     &OSITED DROPLETS')
 950  FORMAT(1H ,49X,'(PPM/AB BASED ON MASS BALANCE)')
 951  FORMAT(1H0,17X,'(PPM/AB BASED ON MASS BALANCE)')
 955  FORMAT(1H ,47X,'(PPM/AB BASED ON MIRAN CALIBRATION DATA)')
 956  FORMAT(1H0,17X,'(PPM/AB BASED ON MIRAN CALIBRATION DATA)')
 970  FORMAT(27X,'ELAPSED',4X,'PPM',6X,'MICROGRAMS',8X,'*',13X,'*',10X,
     &'PPM',6X,'MICROGRAMS')
 971  FORMAT(1X,'ELAPSED',4X,'PPM',3X,'MICROGRAMS',6X,'*',12X,'*',8X,'PP
     &M',6X,'MICROGRAMS')
 975  FORMAT(1H ,28X,'TIME',3X,'************ MILLIGRAM.MINUTES PER CUBIC
     & METER *****************')
 976  FORMAT(1H ,4X,'TIME',3X,'************ MILLIGRAM.MINUTES PER CUBIC
     & METER *****************')
 980  FORMAT(28X,'TIME',18X,'PER',11X,'PER',11X,'PER',22X,'PER')
 981  FORMAT(2X,'TIME',15X,'PER',9X,'PER',10X,'PER',19X,'PER')
 990  FORMAT(49X,'CUBIC',9X,'METER',10X,'GRAM/',10X,'PER',4X,'CUBIC METE
     &R')
 991  FORMAT(20X,'CUBIC',7X,'METER',7X,'GRAM/',7X,'PER',5X,'CUBIC METER
     &')
1000  FORMAT(27X,'MINUTES',15X,'METER',8X,'SQUARED',6X,'METER SQD',5X,'
     &DROP',6X,'PER DROP'/)
1001  FORMAT(1X,'MINUTES',12X,'METER',6X,'SQUARED',4X,'METER SQD',3X,'
     &DROP',6X,'PER DROP'/)
1030  FORMAT(1H ,98X,'METER'//)
1040  FORMAT(27X,F6.1,3X,F8.3,3X,F10.3,5X,F10.3,3X,F10.3,4X,F8.5,4X,
     &F8.3)
1041  FORMAT(1X,F7.1,F7.3,F11.2,1X,F12.3,F10.3,3X,F10.6,F11.3)
1050  FORMAT(1H ,27X,'MINUTES',3X,'DOSAGE',4X,'PER SQUARE METER',2X,
     &'PER GRAM/SQ METER',6X,'PER DROPLET'/)
1051  FORMAT(1H ,3X,'MINUTES',3X,'DOSAGE',4X,'PER SQUARE METER',2X,
     &'PER GRAM/SQ METER',6X,'PER DROPLET'/)
1060  FORMAT(27X,F6.1,3X,F8.3,8X,F10.3,8X,F9.5,11X,F9.5)
1061  FORMAT(3X,F6.1,3X,F8.3,6X,F10.3,6X,F12.4,9X,F12.4)
1070  FORMAT(1H ,26X,'RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT
     & 75 LITER PER MINUTE TO TOTAL MASS'/)
1071  FORMAT(1H ,1X,'RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT
     &75 L/MIN TO TOTAL MASS'/)
1072  FORMAT(1H ,26X,'BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) ',
     &F10.5,2X,'PERCENT'/)
1073  FORMAT(1H ,1X,'BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) ',
     &F10.5,2X,'PERCENT'/)
1074  FORMAT(1H ,26X,'BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) ',
     &F10.5,2X,'PERCENT'/)
1075  FORMAT(1H ,1X,'BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) ',
     &F10.5,2X,'PERCENT'/)
1080  FORMAT(1H ,26X,'FOR CONVERSION FACTOR PPM/AB * CALCULATION * ',
     &F8.3/)
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APPENDIX A

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1081 FORMAT(1H ,1X,'FOR CONVERSION FACTOR PPM/AB * CALCULATION * ',
    &F8.3/)
1090 FORMAT(1H ,26X,'FOR CONVERSION FACTOR PPM/AB * CALIBRATION * ',
    &F8.3/)
1091 FORMAT(1H ,1X,'FOR CONVERSION FACTOR PPM/AB * CALIBRATION * ',
    &F8.3/)
1100 FORMAT(1H ,26X,'DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES',F10.7,
    &2X,'GRAMS'/)
1101 FORMAT(1H ,1X,'DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES',F10.7,2X
    &,'GRAMS'/)
1110 FORMAT(1H ,32X,'EVAPORATION HISTORY OF TEST DROPLET MEASURED AND T
    &HEORETICAL'/)
1111 FORMAT(1H0,6X,'EVAPORATION HISTORY OF TEST DROP MEASURED AND THEOR
    &ETICAL')
1114 FORMAT(1H0,16X,'EVAPORATION HISTORY OF DEPOSITED TEST DROPLET')
1115 FORMAT(1H ,40X,'EVAPORATION HISTORY OF DEPOSITED TEST DROPLET')
1116 FORMAT(1H ,14X,'MINUTES',3X,'FRACTION',3X,'HALF-LIFES',5X,'MILLIGR
    &AMS',3X,'FRACTIONAL',5X,'MILLIGRAMS',3X,'FRACTIONAL'3X,
    &'NORMALIZED'/)
1117 FORMAT(1H ,1X,'MINUTES',4X,'FRACTION',2X,'HALF-LIFES',3X,'MG',5X
    &,'FRACTION',5X,'MG',3X,'FRACTION',2X,'NORMALIZED'/)
1120 FORMAT(1H0,25X,'EXPERIMENTAL EVAPORATION DATA',18X,'THEORETICAL',
    &1X,'HALF LIFE MODEL DATA')
1121 FORMAT(1H0,1X,'EXPERIMENTAL EVAPORATION DATA',15X,'THEORETICAL',
    &1X,'HALF LIFE MODEL DATA')
1125 FORMAT(1H ,14X,'*************** TIME **************',5X,
    &'***** RESIDUAL MASS *****',5X,'*********** CUMULATIVE MASS *********
    &')
1126 FORMAT(1H ,1X,'************* TIME **************',1X,'RESIDUAL MASS
    &***',5X,'CUMULATIVE MASS *********')
1140 FORMAT(1H ,9X,'TIME',9X,'RESIDUAL MASS',12X,'CUMULATIVE MASS',9X,
    &'MASS',9X,'MASS',8X,'TIME',8X,'TIME')
1141 FORMAT(1H ,3X,'TIME',2X,'RESIDUAL MASS',5X,'CUMULATIVE MASS',2X,
    &' RESIDUAL MASS',4X,'***** TIME *****')
1150 FORMAT(1H ,9X,'MINUTES',3X,'MILLIGRAMS',2X,'FRACTIONAL',2X,'MILLIG
    &RAMS',3X,'FRACTIONAL',3X,'MILLIGRAMS',3X,'FRACTIONAL',3X,'FRACTION
    &AL',3X,'HALF-LIFES'/)
1151 FORMAT(1H ,2X,'MIN',5X,'MG',5X,'FRACTION',3X,'MG',5X,'FRACTION',2X
    &,'MG',3X,'FRACTION',2X,'FRACTION',2X,'HALF-LIFES'/)
1169 FORMAT(1X,F7.1,2X,F6.3,3X,F6.3,2X,F6.3,1X,F6.3,4X,F7.3,2X,F6.3,2X,
    &F6.3,4X,F6.3)
1170 FORMAT(9X,F7.1,3X,F10.5,4X,F8.6,3X,F10.6,3X,F9.5,1X,F11.5,5X,
    &F8.6,4X,F6.4,5X,F9.5)
1171 FORMAT(9X,F7.1,3X,F10.5,4X,F8.6,3X,F10.6,3X,F9.5,1X,F11.5,5X,
    &F8.6,4X,F6.4,10X,A)
1172 FORMAT(1X,F7.1,2X,F6.3,3X,F6.3,2X,F6.3,1X,F6.3,4X,F7.3,2X,F6.3,2X,
    &F6.3,4X,A)
1174 FORMAT(1X,F7.1,4X,F6.3,4X,F6.3,7X,F6.3,2X,F6.3,5X,F6.3,3X,F6.3,3X,
    &F6.3)
1175 FORMAT(15X,F7.1,5X,F6.4,5X,F9.4,3X,F13.5,4X,F8.5,6X,F10.5,3X,F10.4
    &,3X,F10.4)
1176 FORMAT(15X,F7.1,5X,F6.4,10X,A6,6X,F13.5,4X,F8.5,6X,F10.5,3X,F10.4,
    &3X,F10.4)
1177 FORMAT(1X,F7.1,4X,F6.3,4X,A,12X,F6.3,2X,F6.3,5X,F6.3,3X,F6.3,3X,F6
    &.3)
1180 FORMAT(1H ,40X,'EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY
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D Line# 1      7                              Microsoft FORTRAN77 V3.31 August 1985
      &'/)
 1181 FORMAT(1H0,16X,'EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY
      &')
 1190 FORMAT(1H ,25X,'************ TIME *************',12X,'   ***** EVA
      &PORATION RATE *****')
 1191 FORMAT(1H0,1X,'************ TIME *************',9X,'   ***** EVAPO
      &RATION RATE *****')
 1200 FORMAT(26X,'MINUTES',3X,'FRACTIONAL',3X,'HALF-LIFES',5X,'MICROGRAM
      &S PER MINUTE',6X,'NORMALIZED')
 1201 FORMAT(2X,'MINUTES',3X,'FRACTIONAL',3X,'HALF-LIFES',10X,'MMG PER M
      &IN',6X,'NORMALIZED')
 1202 FORMAT(1H ,2X,'PRPAB = CONVERSION FACTOR, CALIBRATION PPM/AB',15X,
      &F12.5)
 1203 FORMAT(1H ,26X,'COVLQ = CONVERSION FACTOR, CALIBRATION MICROGRAMS/
      &PPM',7X,F14.5/)
 1204 FORMAT(1H ,2X,'COVLQ = CONVERSION FACTOR, CALIBRATION MICROGRAMS/P
      &PM',7X,F12.5)
 1205 FORMAT(1H ,26X,'PERCP = PERCENT COPOLYMER THICKENER IN LIQUID SIMU
      &LANT',6X,F14.5/)
 1206 FORMAT(1H ,2X,'PERCP = PERCENT COPOLYMER THICKENER IN LIQUID SIMUL
      &ANT',6X,F12.5)
 1207 FORMAT(1H ,26X,'PRPAB = CONVERSION FACTOR, CALIBRATION PP/AB',15X,
      &F14.5/)
 1209 FORMAT(1X,F7.1,5X,F6.3,6X,F6.3,14X,F9.3,8X,F9.3)
 1210 FORMAT(26X,F6.1,5X,F6.4,5X,F9.5,10X,F14.5,8X,F12.5)
 1211 FORMAT(26X,F6.1.5X,F6.4,8X,A6,10X,F14.5,8X,F12.5)
 1212 FORMAT(/26X,'NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQ
      &UID CONTAMINATION REMAINING.')
 1213 FORMAT(1H0,1X,'NORMALIZED: MMG PER MIN PER FRACTION OF LIQUID DROP
      &LET CONTAMINATION REMAINING')
 1214 FORMAT(2X,F6.1,5X,F6.3,8X,A,14X,F9.3,8X,F9.3)
 1215 FORMAT(1H ,26X,'Z = X*Y',53X,F14.5/)
 1216 FORMAT(1H ,2X,'Z = X*Y',53X,F12.5)
 1217 FORMAT(1H ,52X,'PARAMETERS'/)
 1218 FORMAT(1H0,28X,'PARAMETERS')
 1220 FORMAT(1H ,26X,'X =     ACVTM*ABPV*COVLQ*1E-6',32X,F14.5/)
 1221 FORMAT(1H ,2X,'X =      ACVTM*ABPV*COVLQ*1E-6',31X,F12.5)
 1230 FORMAT(1H ,26X,'Y =     AIRSP*DARTN*.02832*88/144',28X,F14.5/)
 1231 FORMAT(1H ,2X,'Y =      AIRSP*DARTN*.02832*88/144',27X,F12.5)
 1236 FORMAT(1H ,26X,'DARTN = ASSUMED DYNAMIC CROSS-SECTIONAL AREA OF TU
      &NNEL SQIN',1X,F14.5/)
 1237 FORMAT(1H ,2X,'DARTN = ASSUMED DYNAMIC CROSS-SECTIONAL AREA OF TUN
      &NEL SQIN',1X,F12.5)
 1240 FORMAT(1H ,26X,'TRAYM = TOTAL MASS ON TEST SUBSTRATES, GRAMS',16X,
      &F14.5/)
 1241 FORMAT(1H ,2X,'TRAYM = TOTAL MASS ON TEST SUBSTRATES, GRAMS',16X,F
      &12.5)
 1242 FORMAT(1H ,26X,'NCODE = TEST CONFIGURATION OF SUBSTRATES',23X,I5/)
 1243 FORMAT(1H ,2X,'NCODE = TEST CONFIGURATION OF SUBSTRATES',21X,I5)
 1244 FORMAT(1H ,26X,'CODEL = LIQUID SIMULANT CODE',32X,F14.5/)
 1245 FORMAT(1H ,2X,'CODEL = LIQUID SIMULANT CODE',32X,F12.5)
 1246 FORMAT(1H ,26X,'TMASS = TEST DROPLET MASS, GRAMS',28X,F14.5/)
 1247 FORMAT(1H ,2X,'TMASS = TEST DROPLET MASS, GRAMS',28X,F12.5)
 1248 FORMAT(1H ,26X,'CMASS = TEST DROPLET MASS CORRECTED FOR COPLOYMER,
      & GRAMS',4X,F14.5/)
 1249 FORMAT(1H ,2X,'CMASS = TEST DROPLET MASS CORRECTED FOR COPLOYMER,
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      &GRAMS',4X,F12.5)
 1250 FORMAT(1H ,26X,'CPMAB = CONVERSION FACTOR, MASS BALANCE PPM/AB',14
      &X,F14.5/)
 1251 FORMAT(1H ,2X,'CPMAB = CONVERSION FACTOR, MASS BALANCE PPM/AB',F1
      &2.5)
 1260 FORMAT(1H ,26X,'TVCF3 = CORRECTION FACTOR FOR NUMBER OF SUBSTRATES
      &',10X,F14.5/)
 1261 FORMAT(1H ,2X,'TVCF3 = CORRECTION FACTOR FOR NUMBER OF SUBSTRATES'
      &,10X,F12.5)
 1270 FORMAT(1H ,26X,'CCVR1 = ABPV*CPMAB*TVCF3, PPM/VOLT',26X,F14.5/)
 1271 FORMAT(1H ,2X,'CCVR1 = ABPV*CPMAB*TVCF3, PPM/VOLT',26X,F12.5)
 1280 FORMAT(1H ,26X,'ACVTM = TOTAL ACCUMULATIVE VOLT.MIN',25X,F14.5/)
 1281 FORMAT(1H ,2X,'ACVTM = TOTAL ACCUMULATIVE VOLT.MIN',25X,F12.5)
 1288 FORMAT(1H ,2X,'HAFTM = HALF-LIFE OF DROPLET, MINUTES',30X,A)
 1289 FORMAT(1H ,2X,'HAFTM = HALF-LIFE OF DROPLET, MINUTES',23X,F12.5)
 1290 FORMAT(1H ,26X,'HAFTM = HALF-LIFE OF DROPLET, MINUTES',23X,F14.5)
 1291 FORMAT(1H ,26X,'HAFTM = HALF-LIFE OF DROPLET, MINUTES',30X,A)
 1292 FORMAT(1H ,26X,'CK    = LN2/HAFTM, USED IN DEFINING TK',22X,F14.5/
      &)
 1293 FORMAT(1H ,2X,'CK    = LN2/HAFTM, USED IN DEFINING TK',22X,F12.5)
 1300 FORMAT(1H ,26X,'T2    = VALUE USED IN INTERPOLATION FOR HALF-LIFE
      &, MIN',5X,F14.5)
 1301 FORMAT(1H ,5X,'T2 = VALUE USED IN INTERPOLATION FOR HALF-LIFE, MIN
      &',6X,F12.5)
 1310 FORMAT(1H ,26X,'T     = VALUE USED IN INTERPOLATION FOR HALF-LIFE
      &, MIN',5X,F14.5)
 1311 FORMAT(1H ,5X,'T1 = VALUE USED IN INTERPOLATION FOR HALF-LIFE, MIN
      &',6X,F12.5)
 1320 FORMAT(1H ,26X,'V     = VALUE USED IN INTERPOLATION FOR HALF-LIFE'
      &,11X,F14.5)
 1321 FORMAT(1H ,5X,'V2 = VALUE USED IN INTERPOLATION FOR HALF-LIFE',11X
      &,F12.5)
 1325 FORMAT(1H ,2X,'ENDVT MONITORS WHETHER EVAPORATION IS COMPLETE (0.0
      &) OR NOT (1.0):',2X,F3.1)
 1326 FORMAT(/2X,'ERHLF = EVAPORATION RATE AVERAGED OVER ONE-HALF-LIFE,
      &MMG/MIN',7X,A)
 1327 FORMAT(1H ,2X,'ERTMX = EVAPORATION RATE AVERAGED OVER DURATION OF
      &TEST:MMG/MIN',F9.5)
 1328 FORMAT(3X,'ERHLF = EVAPORATION RATE AVERAGED OVER ONE-HALF-LIFE,
      &MMG/MIN',F10.5)
 1329 FORMAT(1H ,5X,'V1 = VALUE USED IN INTERPOLATION FOR HALF-LIFE',11X
      &,F12.5)
 1330 FORMAT(1H ,26X,'V1    = VALUE USED IN INTERPOLATION FOR HALF-LIFE'
      &,11X,F14.5/)
 1331 FORMAT(1H ,26X,'ERHLF = EVAPORATION RATE AVERAGED OVER ONE-HALF-LI
      &FE, MMG/MIN',F13.5/)
 1332 FORMAT(1H ,26X,'ERTMX = EVAPORATION RATE AVERAGED OVER DURATION OF
      & TEST:MMG/MIN',F11.5/)
 1333 FORMAT(1H ,26X,'ERHLF = EVAPORATION RATE AVERAGED OVER ONE-HALF-
      &LIFE, MMG/MIN',9X,A/)
 1334 FORMAT(1H ,26X,'ENDVT=MONITORS WHETHER EVAPORATION IS COMPLETE (0.
      &0) OR NOT (1.0):',2X,F3.1)
 1335 FORMAT(1H ,26X,'ERTMX = EVAPORATION RATE AVERAGED OVER DURATION OF
      & TEST;MMG/MIN',6X,A/)
 1336 FORMAT(1H ,2X,'ERTMX = EVAPORATION RATE AVERAGED OVER DURATION OF
      &TEST MMG/MIN',6X,A)
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 1400 FORMAT(1H ,27X,'EFFECTIVE WINDSPEED FOR TEST TO ACHIEVE PPM/AB OF
     &CALIBRATION FOR TEST DATA'/)
 1401 FORMAT(1X,'EFFECTIVE WINDSPEED FOR TEST TO ACHIEVE PPM/AB OF CALIB
     &RATION FOR TEST DATA'/)
 1410 FORMAT(1H ,37X,'ASSUMED WINDSPEED FOR DYNAMIC CROSS-SECTIONAL AREA
     & SQ INCHES'/)
 1411 FORMAT(1H0,8X,'ASSUMED WINDSPEED FOR DYNAMIC CROSS SECTIONAL AREA
     &SQ INCHES')
 1420 FORMAT(1H ,28X,'PPM/AB',5X,'10.5 X 4.0 SQ IN',6X,'10.25 X 3.75 SQ
     & IN',6X,'10.0 X 3.5 SQ IN'/)
 1421 FORMAT(1H0,3X,'PPM/AB',5X,'10.5 X 4.0 SQ IN',6X,'10.25 X 3.75 SQ I
     &N',5X,'10.0 X 3.5 SQ IN')
 1425 FORMAT(1H ,28X,'PPM/AB',5X,'10.5 X 4.0 SQ IN',6X,'10.25 X 3.75 SQ
     & IN',6X,'10.0 X 3.5 SQ IN'/)
 1426 FORMAT(1H0,3X,'PPM/AB',5X,'10.5 X 4.0 SQ IN',6X,'10.25 X 3.75 SQ I
     &N',5X,'10.0 X 3.5 SQ IN')
 1430 FORMAT(1H ,30X,'+/-',8X,'MPH',7X,'FPM',9X,'MPH',9X,'FPM',10X,'MPH'
     &,7X,'FPM'/)
 1431 FORMAT(1H0,4X,'+/-',9X,'MPH',6X,'FPM',9X,'MPH',8X,'FPM',9X,'MPH',8
     &X,'FPM')
 1440 FORMAT(1H ,28X,F6.1,3X,F8.2,F10.0,4X,F8.2,4X,F8.0,5X,F8.2,F10.0/)
 1441 FORMAT(1H0,2X,F6.1,4X,F8.2,1X,F8.0,4X,F8.2,3X,F8.0,4X,F8.2,F11.0)
 1500 FORMAT(1H1,///////////////////////////)
 1510 FORMAT(1H1,////,3X,'THE DATA FILE TO BE READ MUST BE IN DRIVE B')
 1515 FORMAT(1H ,2X,'DATA FILES HAVE ASSIGNED NAMES SUCH AS - GLF1.DAT')
 1520 FORMAT(1H ,2X,'INPUT - NAME OF DATA FILE TO READ'/)
 1521 FORMAT(1H0,'********************** TABLE PRINT OPTIONS ************
     &***********')
 1522 FORMAT(1H ,3X,'FOUR OPTIONS ARE AVAILABLE FOR VIEWING OR PRINTING
     &THE TABLES')
 1523 FORMAT(1H ,10X,'PRINT TABLES ON SCREEN, ONLY                 -OPTION
     & -1?')
 1524 FORMAT(1H ,10X,'PRINT TABLES ON SCREEN & IN  A FILE       -OPTION
     & -2?')
 1525 FORMAT(1H ,10X,'PRINT TABLES ON SCREEN, IN FILE & PRINTER -OPTION
     & -3?')
 1526 FORMAT(1H ,10X,'PRINT TABLES ON SCREEN & ON THE PRINTER    -OPTION
     & -4?')
 1529 FORMAT(I1)
 1530 FORMAT(1H0,20X,'DO YOU WISH TO RUN THE PROGRAM AGAIN?')
 1531 FORMAT(1H0,'PAUSE AFTER DISPLAYING EACH TABLE ON THE SCREEN?')
 1532 FORMAT(1H ,'FOR A PAUSE              ENTER OPTION - 1 -')
 1533 FORMAT(1H ,'FOR CONTINUOUS DISPLAY ENTER OPTION - 2 -')
 1540 FORMAT(1H0,13X,'ANSWER Y FOR YES OR N FOR NO....THEN PRESS ENTER')
 1548 FORMAT(1H ,F10.2)
 1888 FORMAT(/27X,'* MICROGRAMS PER CUBIC METER')
 1889 FORMAT(1H0,3X,'* MICROGRAMS PER CUBIC METER')
 2000 FORMAT(1H1)
 9900 FORMAT(1H1,'DATA ERROR IN INPUT')
C
 9000 WRITE(*,9900)
      STOP
 9999 CONTINUE
      END
```

| Name | Type | Offset | P | Class |
|---|---|---|---|---|
| A | REAL | 5506 | | |
| ABPV | REAL | 5204 | | |
| ACDMF | REAL | 5594 | | |
| ACDMG | REAL | 5590 | | |
| ACDMN | REAL | 5626 | | |
| ACVTM | REAL | 5374 | | |
| AFPM1 | REAL | 5774 | | |
| AFPM2 | REAL | 5782 | | |
| AFPM3 | REAL | 5790 | | |
| AHPRA | REAL | 5738 | | |
| AIRSP | REAL | 5196 | | |
| ALOG | | | | INTRINSIC |
| ALPRA | REAL | 5766 | | |
| AMPH1 | REAL | 5770 | | |
| AMPH2 | REAL | 5778 | | |
| AMPH3 | REAL | 5786 | | |
| ANSWER | CHAR*1 | 5236 | | |
| ARCR1 | REAL | 5706 | | |
| ARCR2 | REAL | 5710 | | |
| AREAH | REAL | 5698 | | |
| AREAL | REAL | 5702 | | |
| AX | REAL | 5586 | | |
| B | REAL | 5510 | | |
| BX | REAL | 5598 | | |
| C | REAL | 5514 | | |
| CAL | REAL | 5200 | | |
| CCDD | REAL | 4700 | | |
| CCDT | REAL | 3900 | | |
| CCUMD | REAL | 4540 | | |
| CCUMT | REAL | 4220 | | |
| CCVR1 | REAL | 5486 | | |
| CGSQM | REAL | 4380 | | |
| CK | REAL | 5422 | | |
| CMASS | REAL | 5362 | | |
| CODEL | REAL | 5192 | | |
| COVL1 | REAL | 5278 | | |
| COVL2 | REAL | 5282 | | |
| COVLQ | REAL | 5294 | | |
| CPD1H | REAL | 5266 | | |
| CPD1L | REAL | 5262 | | |
| CPM2H | REAL | 5274 | | |
| CPM2L | REAL | 5270 | | |
| CPMAB | REAL | 5482 | | |
| CPMD | REAL | 4060 | | |
| CPMT | REAL | 3260 | | |
| CSQMT | REAL | 3740 | | |
| CUMDD | REAL | 3580 | | |
| CUMDT | REAL | 3420 | | |
| CV | REAL | 5458 | | |
| CX | REAL | 5602 | | |
| D | REAL | 5518 | | |
| DARIN | REAL | 5470 | | |
| DASR | CHAR*1 | 4860 | | |

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D Line# 1       7
DENL1   REAL           5254
DENL2   REAL           5258
DENLQ   REAL           5290
DIFMS   REAL           5362
DISPLA  INTEGER*4      4880
DOSGD   REAL           5542
DOSGT   REAL           5538
DOSXD   REAL           5566
DOSXT   REAL           5562
DPP2    REAL           5642
DPP3    REAL           5638
DPPO    REAL           5630
DPPT    REAL           5184
DY      REAL           5606
ENDV    REAL           5220
ENDVT   REAL           5216
EODPD   REAL           5330
ERHLF   REAL           5414
ERTMX   REAL           5690
ETDPM   REAL           5318
EVAPM   REAL           3100
EVAPN   REAL           2300
EVPM5   REAL           2940
EVPN5   REAL           2460
EVPRM   REAL           2780
EVPRN   REAL           2620
EXP                           INTRINSIC
EXPGM   REAL           5354
FHL     REAL           5614
FNAME   CHAR*14        4861
FRHT    REAL           1980
FRT     REAL           5610
FRTM    REAL           2140
GM1TP   REAL           5172
GM2TP   REAL           5176
GM3TP   REAL           5180
GPM21   REAL           5238
GPM22   REAL           5242
GPM23   REAL           5246
GPM24   REAL           5250
HAFTM   REAL           5410
HAFVT   REAL           5390
HTBL    INTEGER*4     *****
I       INTEGER*4      5224
II      INTEGER*4      5438
IVOL    INTEGER*4      1800
LL1     CHAR*72        4884
LL2     CHAR*72        4956
LL3     CHAR*72        5028
LL4     CHAR*72        5100
N       INTEGER*4      5382
NCODE   INTEGER*4      5188
NOPTS   INTEGER*4      5212
NQ      INTEGER*4     *****
NSET    INTEGER*4      5350
NSET    INTEGER*4      4876
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| | | |
|---|---|---|
| NTBL | INTEGER*4 | 5434 |
| NTRAY | INTEGER*4 | 5342 |
| PERCP | REAL | 5286 |
| PRPAB | REAL | 5298 |
| RMAS | REAL | 5654 |
| SDMAS | REAL | 5322 |
| SEMAS | REAL | 5326 |
| SFPM1 | REAL | 5746 |
| SFPM2 | REAL | 5754 |
| SFPM3 | REAL | 5762 |
| SMAS | REAL | 5646 |
| SMPH1 | REAL | 5742 |
| SMPH2 | REAL | 5750 |
| SMPH3 | REAL | 5758 |
| SUMEV | REAL | 5674 |
| SUMVS | REAL | 1480 |
| T1 | REAL | 5398 |
| T2 | REAL | 5394 |
| TIM | REAL | 5450 |
| TIMER | REAL | 1640 |
| TIMT | REAL | 5550 |
| TK | REAL | 5430 |
| TM1 | REAL | 5302 |
| TM2 | REAL | 5306 |
| TM3 | REAL | 5310 |
| TMASS | REAL | 5358 |
| TMEAC | REAL | 1000 |
| TMINV | REAL | 5208 |
| TRAYM | REAL | 5346 |
| TTMT | REAL | 5314 |
| TVCF3 | REAL | 5334 |
| V | REAL | 5454 |
| V1 | REAL | 5406 |
| V2 | REAL | 5402 |
| VCDD | REAL | 1320 |
| VCDT | REAL | 1160 |
| VCPGM | REAL | 5502 |
| VCPMS | REAL | 5498 |
| VGPT | REAL | 5338 |
| VN | REAL | 5462 |
| VOLT | REAL | 20 |
| VOLTM | REAL | 5366 |
| VOLTN | REAL | 840 |
| VPPMD | REAL | [illegible] |
| VPPMT | REAL | [illegible] |
| WDTUN | REAL | 5474 |
| WFPM1 | REAL | 5718 |
| WFPM2 | REAL | 5726 |
| WFPM3 | REAL | 5734 |
| WMPH1 | REAL | 5714 |
| WMPH2 | REAL | 5722 |
| WMPH3 | REAL | 5730 |
| X | REAL | 5466 |
| XGSQM | REAL | 520 |
| XMASD | REAL | 5574 |
| XRMAS | REAL | 5658 |

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XSMAS  REAL      5650
XSQMT  REAL       360
XX     REAL      5682
Y      REAL      5378
YY     REAL      5686
Z      REAL      5478


Name   Type      Size   Class

MIRAN                   PROGRAM


 Pass One    No Errors Detected
          1902 Source Lines
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Blank

APPENDIX B

OUTPUT VOLTAGE DATA FROM A MIRAN IA VAPOR ANALYZER

# TABLE B-1

EVAPORATION EXPERIMENT NO. GLF1 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 45%

OUTPUT VOLTAGE DATA FROM MIRAN 1A VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES: ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .1280 | .0 | .000 | .000000 |
| 30.0 | .1160 | 30.0 | 3.660 | .086574 |
| 60.0 | .1010 | 60.0 | 6.915 | .163568 |
| 90.0 | .0920 | 90.0 | 9.810 | .232047 |
| 120.0 | .0840 | 120.0 | 12.450 | .294493 |
| 150.0 | .0770 | 150.0 | 14.865 | .351618 |
| 180.0 | .0680 | 180.0 | 17.040 | .403066 |
| 210.0 | .0630 | 210.0 | 19.005 | .449546 |
| 240.0 | .0570 | 240.0 | 20.805 | .492123 |
| 270.0 | .0510 | 270.0 | 22.425 | .530443 |
| 300.0 | .0460 | 300.0 | 23.880 | .564859 |
| 330.0 | .0410 | 330.0 | 25.185 | .595728 |
| 360.0 | .0360 | 360.0 | 26.340 | .623049 |
| 390.0 | .0320 | 390.0 | 27.360 | .647176 |
| 420.0 | .0280 | 420.0 | 28.260 | .668464 |
| 450.0 | .0230 | 450.0 | 29.025 | .686560 |
| 480.0 | .0190 | 480.0 | 29.655 | .701462 |
| 510.0 | .0150 | 510.0 | 30.165 | .713525 |
| 540.0 | .0120 | 540.0 | 30.570 | .723105 |
| 570.0 | .0100 | 570.0 | 30.900 | .730911 |
| 600.0 | .0080 | 600.0 | 31.170 | .737298 |
| 630.0 | .0060 | 630.0 | 31.380 | .742265 |
| 660.0 | .0050 | 660.0 | 31.545 | .746168 |
| 690.0 | .0040 | 690.0 | 31.680 | .749361 |
| 720.0 | .0030 | 720.0 | 31.785 | .751845 |
| 750.0 | .0020 | 750.0 | 31.860 | .753619 |
| 780.0 | .0020 | 780.0 | 31.920 | .755038 |
| 810.0 | .0010 | 810.0 | 31.965 | .756103 |
| 840.0 | .0010 | 840.0 | 31.995 | .756812 |
| 870.0 | .0000 | 870.0 | 32.010 | .757167 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-2

EVAPORATION EXPERIMENT NO. GLF2 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .1130 | .0 | .000 | .000000 |
| 30.0 | .1050 | 30.0 | 3.270 | .074235 |
| 60.0 | .0970 | 60.0 | 6.300 | .143022 |
| 90.0 | .0900 | 90.0 | 9.105 | .206701 |
| 120.0 | .0840 | 120.0 | 11.715 | .265953 |
| 150.0 | .0790 | 150.0 | 14.160 | .321460 |
| 180.0 | .0730 | 180.0 | 16.440 | .373220 |
| 210.0 | .0680 | 210.0 | 18.555 | .421235 |
| 240.0 | .0640 | 240.0 | 20.535 | .466185 |
| 270.0 | .0590 | 270.0 | 22.380 | .508070 |
| 300.0 | .0540 | 300.0 | 24.075 | .546550 |
| 330.0 | .0500 | 330.0 | 25.635 | .581965 |
| 360.0 | .0460 | 360.0 | 27.075 | .614655 |
| 390.0 | .0420 | 390.0 | 28.395 | .644622 |
| 420.0 | .0380 | 420.0 | 29.595 | .671864 |
| 450.0 | .0340 | 450.0 | 30.675 | .696382 |
| 480.0 | .0300 | 480.0 | 31.635 | .718176 |
| 510.0 | .0260 | 510.0 | 32.475 | .737246 |
| 540.0 | .0220 | 540.0 | 33.195 | .753591 |
| 570.0 | .0190 | 570.0 | 33.810 | .767553 |
| 600.0 | .0160 | 600.0 | 34.335 | .779472 |
| 630.0 | .0130 | 630.0 | 34.770 | .789347 |
| 660.0 | .0110 | 660.0 | 35.130 | .797520 |
| 690.0 | .0100 | 690.0 | 35.445 | .804671 |
| 720.0 | .0080 | 720.0 | 35.715 | .810800 |
| 750.0 | .0070 | 750.0 | 35.940 | .815903 |
| 780.0 | .0070 | 780.0 | 36.150 | .820676 |
| 810.0 | .0060 | 810.0 | 36.345 | .825103 |
| 840.0 | .0050 | 840.0 | 36.510 | .828848 |
| 870.0 | .0040 | 870.0 | 36.645 | .831913 |
| 900.0 | .0030 | 900.0 | 36.750 | .834297 |
| 930.0 | .0020 | 930.0 | 36.825 | .836000 |
| 960.0 | .0010 | 960.0 | 36.870 | .837021 |
| 990.0 | .0010 | 990.0 | 36.900 | .837702 |
| 1020.0 | .0000 | 1020.0 | 36.915 | .838043 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

## TABLE B-3

EVAPORATION EXPERIMENT NO. GLF3 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0860 | .0 | .000 | .000000 |
| 15.0 | .0750 | 15.0 | 1.208 | .117196 |
| 30.0 | .0660 | 30.0 | 2.265 | .219834 |
| 45.0 | .0590 | 45.0 | 3.203 | .310825 |
| 60.0 | .0520 | 60.0 | 4.035 | .391624 |
| 75.0 | .0460 | 75.0 | 4.770 | .462961 |
| 90.0 | .0410 | 90.0 | 5.423 | .526291 |
| 105.0 | .0360 | 105.0 | 6.000 | .582341 |
| 120.0 | .0310 | 120.0 | 6.503 | .631112 |
| 135.0 | .0260 | 135.0 | 6.930 | .672604 |
| 150.0 | .0210 | 150.0 | 7.283 | .706816 |
| 165.0 | .0180 | 165.0 | 7.575 | .735206 |
| 180.0 | .0150 | 180.0 | 7.823 | .759227 |
| 195.0 | .0120 | 195.0 | 8.025 | .778881 |
| 210.0 | .0090 | 210.0 | 8.183 | .794168 |
| 225.0 | .0070 | 225.0 | 8.303 | .805814 |
| 240.0 | .0050 | 240.0 | 8.393 | .814550 |
| 255.0 | .0040 | 255.0 | 8.460 | .821101 |
| 270.0 | .0040 | 270.0 | 8.520 | .826924 |
| 285.0 | .0030 | 285.0 | 8.573 | .832020 |
| 300.0 | .0030 | 300.0 | 8.618 | .836387 |
| 315.0 | .0020 | 315.0 | 8.655 | .840027 |
| 330.0 | .0010 | 330.0 | 8.678 | .842211 |
| 345.0 | .0010 | 345.0 | 8.693 | .843667 |
| 360.0 | .0000 | 360.0 | 8.700 | .844395 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-4

EVAPORATION EXPERIMENT NO. GLF4 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

OUTPUT VOLTAGE DATA FROM MIRAN 1A VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0730 | .0 | .000 | .000000 |
| 10.0 | .0720 | 10.0 | .725 | .060349 |
| 20.0 | .0710 | 20.0 | 1.440 | .119866 |
| 30.0 | .0680 | 30.0 | 2.135 | .177718 |
| 40.0 | .0640 | 40.0 | 2.795 | .232657 |
| 50.0 | .0600 | 50.0 | 3.415 | .284266 |
| 60.0 | .0580 | 60.0 | 4.005 | .333378 |
| 70.0 | .0550 | 70.0 | 4.570 | .380409 |
| 80.0 | .0520 | 80.0 | 5.105 | .424943 |
| 90.0 | .0490 | 90.0 | 5.610 | .466979 |
| 100.0 | .0470 | 100.0 | 6.090 | .506935 |
| 110.0 | .0440 | 110.0 | 6.545 | .544809 |
| 120.0 | .0410 | 120.0 | 6.970 | .580186 |
| 130.0 | .0390 | 130.0 | 7.370 | .613483 |
| 140.0 | .0370 | 140.0 | 7.750 | .645114 |
| 150.0 | .0340 | 150.0 | 8.105 | .674664 |
| 160.0 | .0320 | 160.0 | 8.435 | .702134 |
| 170.0 | .0300 | 170.0 | 8.745 | .727938 |
| 180.0 | .0280 | 180.0 | 9.035 | .752078 |
| 190.0 | .0260 | 190.0 | 9.305 | .774553 |
| 200.0 | .0240 | 200.0 | 9.555 | .795363 |
| 210.0 | .0220 | 210.0 | 9.785 | .814508 |
| 220.0 | .0200 | 220.0 | 9.995 | .831989 |
| 230.0 | .0180 | 230.0 | 10.185 | .847805 |
| 240.0 | .0160 | 240.0 | 10.355 | .861955 |
| 250.0 | .0140 | 250.0 | 10.505 | .874442 |
| 260.0 | .0130 | 260.0 | 10.640 | .885679 |
| 270.0 | .0110 | 270.0 | 10.760 | .895668 |
| 280.0 | .0090 | 280.0 | 10.860 | .903992 |
| 290.0 | .0080 | 290.0 | 10.945 | .911067 |
| 300.0 | .0070 | 300.0 | 11.020 | .917310 |
| 310.0 | .0060 | 310.0 | 11.085 | .922721 |
| 320.0 | .0050 | 320.0 | 11.140 | .927299 |
| 330.0 | .0040 | 330.0 | 11.185 | .931045 |
| 340.0 | .0020 | 340.0 | 11.215 | .933542 |
| 350.0 | .0020 | 350.0 | 11.235 | .935207 |
| 360.0 | .0010 | 360.0 | 11.250 | .936456 |
| 370.0 | .0000 | 370.0 | 11.255 | .936872 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

## TABLE B-5

EVAPORATION EXPERIMENT NO. GLF5 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED [illegible].0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 58%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0780 | .0 | .000 | .000000 |
| 30.0 | .0740 | 30.0 | 2.280 | .060352 |
| 60.0 | .0710 | 60.0 | 4.455 | .117924 |
| 90.0 | .0670 | 90.0 | 6.525 | .172717 |
| 120.0 | .0630 | 120.0 | 8.475 | .224334 |
| 150.0 | .0600 | 150.0 | 10.320 | .273171 |
| 180.0 | .0560 | 180.0 | 12.060 | .319229 |
| 210.0 | .0530 | 210.0 | 13.695 | .362507 |
| 240.0 | .0500 | 240.0 | 15.240 | .403404 |
| 270.0 | .0470 | 270.0 | 16.695 | .441917 |
| 300.0 | .0440 | 300.0 | 18.060 | .478049 |
| 330.0 | .0400 | 330.0 | 19.320 | .511401 |
| 360.0 | .0360 | 360.0 | 20.460 | .541577 |
| 390.0 | .0330 | 390.0 | 21.495 | .568974 |
| 420.0 | .0300 | 420.0 | 22.440 | .593988 |
| 450.0 | .0280 | 450.0 | 23.310 | .617017 |
| 480.0 | .0250 | 480.0 | 24.105 | .638060 |
| 510.0 | .0230 | 510.0 | 24.825 | .657119 |
| 540.0 | .0210 | 540.0 | 25.485 | .674589 |
| 570.0 | .0180 | 570.0 | 26.070 | .690074 |
| 600.0 | .0160 | 600.0 | 26.580 | .703574 |
| 630.0 | .0130 | 630.0 | 27.015 | .715088 |
| 660.0 | .0110 | 660.0 | 27.375 | .724617 |
| 690.0 | .0080 | 690.0 | 27.660 | .732161 |
| 720.0 | .0060 | 720.0 | 27.870 | .737720 |
| 750.0 | .0040 | 750.0 | 28.020 | .741691 |
| 780.0 | .0030 | 780.0 | 28.125 | .744470 |
| 810.0 | .0020 | 810.0 | 28.200 | .746455 |
| 840.0 | .0010 | 840.0 | 28.245 | .747646 |
| 870.0 | .0000 | 870.0 | 28.260 | .748043 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-6

EVAPORATION EXPERIMENT NO. GLF6 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 55%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0750 | .0 | .000 | .000000 |
| 30.0 | .0740 | 30.0 | 2.250 | .054340 |
| 60.0 | .0710 | 60.0 | 4.425 | .106868 |
| 90.0 | .0700 | 90.0 | 6.540 | .157948 |
| 120.0 | .0660 | 120.0 | 8.580 | .207216 |
| 150.0 | .0640 | 150.0 | 10.530 | .254310 |
| 180.0 | .0620 | 180.0 | 12.420 | .299956 |
| 210.0 | .0590 | 210.0 | 14.235 | .343790 |
| 240.0 | .0560 | 240.0 | 15.960 | .385450 |
| 270.0 | .0530 | 270.0 | 17.595 | .424937 |
| 300.0 | .0500 | 300.0 | 19.140 | .462250 |
| 330.0 | .0470 | 330.0 | 20.595 | .497390 |
| 360.0 | .0440 | 360.0 | 21.960 | .530356 |
| 390.0 | .0410 | 390.0 | 23.235 | .561149 |
| 420.0 | .0380 | 420.0 | 24.420 | .589768 |
| 450.0 | .0350 | 450.0 | 25.515 | .616213 |
| 480.0 | .0320 | 480.0 | 26.520 | .640485 |
| 510.0 | .0290 | 510.0 | 27.435 | .662583 |
| 540.0 | .0260 | 540.0 | 28.260 | .682508 |
| 570.0 | .0230 | 570.0 | 28.995 | .700259 |
| 600.0 | .0200 | 600.0 | 29.640 | .715836 |
| 630.0 | .0170 | 630.0 | 30.195 | .729240 |
| 660.0 | .0140 | 660.0 | 30.660 | .740470 |
| 690.0 | .0110 | 690.0 | 31.035 | .749527 |
| 720.0 | .0080 | 720.0 | 31.320 | .756410 |
| 750.0 | .0060 | 750.0 | 31.530 | .761482 |
| 780.0 | .0050 | 780.0 | 31.695 | .765466 |
| 810.0 | .0030 | 810.0 | 31.815 | .768365 |
| 840.0 | .0020 | 840.0 | 31.890 | .770176 |
| 870.0 | .0010 | 870.0 | 31.935 | .771265 |
| 900.0 | .0000 | 900.0 | 31.950 | .7716[illegible] |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-7

EVAPORATION EXPERIMENT NO. GLF7 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 58%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0480 | .0 | .000 | .000000 |
| 15.0 | .0450 | 15.0 | .697 | .060915 |
| 30.0 | .0430 | 30.0 | 1.358 | .118554 |
| 45.0 | .0420 | 45.0 | 1.995 | .174229 |
| 60.0 | .0400 | 60.0 | 2.610 | .227939 |
| 75.0 | .0380 | 75.0 | 3.195 | .279028 |
| 90.0 | .0370 | 90.0 | 3.758 | .328153 |
| 105.0 | .0350 | 105.0 | 4.298 | .375313 |
| 120.0 | .0340 | 120.0 | 4.815 | .420507 |
| 135.0 | .0320 | 135.0 | 5.310 | .463737 |
| 150.0 | .0310 | 150.0 | 5.782 | .505002 |
| 165.0 | .0290 | 165.0 | 6.232 | .544302 |
| 180.0 | .0270 | 180.0 | 6.652 | .580981 |
| 195.0 | .0260 | 195.0 | 7.050 | .615696 |
| 210.0 | .0240 | 210.0 | 7.425 | .648446 |
| 225.0 | .0220 | 225.0 | 7.770 | .678576 |
| 240.0 | .0200 | 240.0 | 8.085 | .706086 |
| 255.0 | .0180 | 255.0 | 8.370 | .730975 |
| 270.0 | .0160 | 270.0 | 8.625 | .753245 |
| 285.0 | .0140 | 285.0 | 8.850 | .772895 |
| 300.0 | .0130 | 300.0 | 9.052 | .790580 |
| 315.0 | .0110 | 315.0 | 9.233 | .806300 |
| 330.0 | .0090 | 330.0 | 9.382 | .819400 |
| 345.0 | .0070 | 345.0 | 9.502 | .829880 |
| 360.0 | .0060 | 360.0 | 9.600 | .838395 |
| 375.0 | .0050 | 375.0 | 9.682 | .845609 |
| 390.0 | .0040 | 390.0 | 9.750 | .851495 |
| 405.0 | .0030 | 405.0 | 9.802 | .856080 |
| 420.0 | .0020 | 420.0 | 9.840 | .859355 |
| 435.0 | .0020 | 435.0 | 9.870 | .861975 |
| 450.0 | .0010 | 450.0 | 9.892 | .863940 |
| 465.0 | .0010 | 465.0 | 9.908 | .865250 |
| 480.0 | .0000 | 480.0 | 9.915 | .865905 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

## TABLE B-8

EVAPORATION EXPERIMENT NO. GLF8 SERIES 1D 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 50%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0450 | .0 | .000 | .000000 |
| 15.0 | .0430 | 15.0 | .660 | .056531 |
| 30.0 | .0420 | 30.0 | 1.298 | .111135 |
| 45.0 | .0410 | 45.0 | 1.920 | .164454 |
| 60.0 | .0390 | 60.0 | 2.520 | .215846 |
| 75.0 | .0380 | 75.0 | 3.097 | .265311 |
| 90.0 | .0360 | 90.0 | 3.652 | .312849 |
| 105.0 | .0350 | 105.0 | 4.185 | .358459 |
| 120.0 | .0340 | 120.0 | 4.702 | .402784 |
| 135.0 | .0320 | 135.0 | 5.197 | .445183 |
| 150.0 | .0310 | 150.0 | 5.670 | .4856[illegible]4 |
| 165.0 | .0290 | 165.0 | 6.120 | .524198 |
| 180.0 | .0280 | 180.0 | 6.547 | .560815 |
| 195.0 | .0260 | 195.0 | 6.952 | .595504 |
| 210.0 | .0250 | 210.0 | 7.335 | .628[illegible]67 |
| 225.0 | .0230 | 225.0 | 7.695 | .659102 |
| 240.0 | .0220 | 240.0 | 8.033 | .688010 |
| 255.0 | .0200 | 255.0 | 8.347 | 714991 |
| 270.0 | .0190 | 270.0 | 8.640 | .740044 |
| 285.0 | .0170 | 285.0 | 8.910 | .763171 |
| 300.0 | .0160 | 300.0 | 9.158 | .784370 |
| 315.0 | .0140 | 315.0 | 9.383 | .803642 |
| 330.0 | .0130 | 330.0 | 9.585 | .820987 |
| 345.0 | .01[illegible] | 345.0 | 9.765 | .836404 |
| 360 0 | .0090 | 360.0 | 9.915 | .849252 |
| 375.0 | .0080 | 375.0 | 10.043 | .860173 |
| 390.0 | .0060 | 390.0 | 10.148 | .869167 |
| 405.0 | 0050 | 405.0 | 10.230 | .876233 |
| 420.0 | .0030 | 420.0 | 10.290 | .881372 |
| 435.0 | .0020 | 435.0 | 10.328 | .884584 |
| 450.0 | .0010 | 450.0 | 10.350 | .886511 |
| 465.0 | .0010 | 465.0 | 10.365 | .887796 |
| 480.0 | .0000 | 480.0 | 10.373 | .888439 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-9

EVAPORATION EXPERIMENT NO. GLF9 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 44%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .1410 | .0 | .000 | .000000 |
| 30.0 | .0900 | 30.0 | 3.465 | .090853 |
| 60.0 | .0840 | 60.0 | 6.075 | .159288 |
| 90.0 | .0820 | 90.0 | 8.565 | .224576 |
| 120.0 | .0750 | 120.0 | 10.920 | .286325 |
| 150.0 | .0700 | 150.0 | 13.095 | .343353 |
| 180.0 | .0660 | 180.0 | 15.135 | .396843 |
| 210.0 | .0610 | 210.0 | 17.040 | .446792 |
| 240.0 | .0570 | 240.0 | 18.810 | .493202 |
| 270.0 | .0520 | 270.0 | 20.445 | .536072 |
| 300.0 | .0480 | 300.0 | 21.945 | .575402 |
| 330.0 | .0430 | 330.0 | 23.310 | .611193 |
| 360.0 | .0390 | 360.0 | 24.540 | .643444 |
| 390.0 | .0340 | 390.0 | 25.635 | .672155 |
| 420.0 | .0300 | 420.0 | 26.595 | .697326 |
| 450.0 | .0250 | 450.0 | 27.420 | .718958 |
| 480.0 | .0210 | 480.0 | 28.110 | .737050 |
| 510.0 | .0170 | 510.0 | 28.680 | .751995 |
| 540.0 | .0140 | 540.0 | 29.145 | .764188 |
| 570.0 | .0110 | 570.0 | 29.520 | .774020 |
| 600.0 | .0080 | 600.0 | 29.805 | .781493 |
| 630.0 | .0060 | 630.0 | 30.015 | .786999 |
| 660.0 | .0040 | 660.0 | 30.165 | .790932 |
| 690.0 | .0030 | 690.0 | 30.270 | .793685 |
| 720.0 | .0020 | 720.0 | 30.345 | .795652 |
| 750.0 | .0010 | 750.0 | 30.390 | .796832 |
| 780.0 | .0000 | 780.0 | 30.405 | .797225 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

TABLE B-10

EVAPORATION EXPERIMENT NO. GLF10 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 52%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER | OUTPUT | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES | | |
|---|---|---|---|---|
| TIME | ABSORBANCE | ELAPSED TIME | TOTAL | TOTAL |
| MINUTES | VOLTS | MINUTES | VOLT.MIN | NORMALIZED |
| .0 | .1350 | .0 | .000 | .000000 |
| 30.0 | .0970 | 30.0 | 3.480 | .073736 |
| 60.0 | .0910 | 60.0 | 6.300 | .133488 |
| 90.0 | .0860 | 90.0 | 8.955 | .189743 |
| 120.0 | .0830 | 120.0 | 11.490 | .243456 |
| 150.0 | .0790 | 150.0 | 13.920 | .294944 |
| 180.0 | .0750 | 180.0 | 16.230 | .343889 |
| 210.0 | .0720 | 210.0 | 18.435 | .390610 |
| 240.0 | .0680 | 240.0 | 20.535 | .435106 |
| 270.0 | .0650 | 270.0 | 22.530 | .477377 |
| 300.0 | .0600 | 300.0 | 24.405 | .517105 |
| 330.0 | .0570 | 330.0 | 26.160 | .554291 |
| 360.0 | .0530 | 360.0 | 27.810 | .589252 |
| 390.0 | .0490 | 390.0 | 29.340 | .621670 |
| 420.0 | .0450 | 420.0 | 30.750 | .651546 |
| 450.0 | .0400 | 450.0 | 32.025 | .678562 |
| 480.0 | .0350 | 480.0 | 33.150 | .702399 |
| 510.0 | .0310 | 510.0 | 34.140 | .723375 |
| 540.0 | .0270 | 540.0 | 35.010 | .741809 |
| 570.0 | .0230 | 570.0 | 35.760 | .757701 |
| 600.0 | .0200 | 600.0 | 36.405 | .771367 |
| 630.0 | .0160 | 630.0 | 36.945 | .782809 |
| 660.0 | .0140 | 660.0 | 37.395 | .792344 |
| 690.0 | .0120 | 690.0 | 37.785 | .800607 |
| 720.0 | .0100 | 720.0 | 38.115 | .807599 |
| 750.0 | .0080 | 750.0 | 38.385 | .813320 |
| 780.0 | .0060 | 780.0 | 38.595 | .817770 |
| 810.0 | .0050 | 810.0 | 38.760 | .821266 |
| 840.0 | .0040 | 840.0 | 38.895 | .824126 |
| 870.0 | .0030 | 870.0 | 39.000 | .826351 |
| 900.0 | .0010 | 900.0 | 39.060 | .827623 |
| 930.0 | .0010 | 930.0 | 39.090 | .828258 |
| 960.0 | .0000 | 960.0 | 39.105 | .828576 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-11

EVAPORATION EXPERIMENT NO. GLF11 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 50 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 55%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER | OUTPUT | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES | | |
|---|---|---|---|---|
| TIME MINUTES | ABSORBANCE VOLTS | ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
| .0 | .0650 | .0 | .000 | .000000 |
| 10.0 | .0620 | 10.0 | .635 | .061070 |
| 20.0 | .0590 | 20.0 | 1.240 | .119255 |
| 30.0 | .0570 | 30.0 | 1.820 | .175036 |
| 40.0 | .0540 | 40.0 | 2.375 | .228412 |
| 50.0 | .0520 | 50.0 | 2.905 | .279384 |
| 60.0 | .0490 | 60.0 | 3.410 | .327952 |
| 70.0 | .0470 | 70.0 | 3.890 | .374115 |
| 80.0 | .0450 | 80.0 | 4.350 | .418355 |
| 90.0 | .0430 | 90.0 | 4.790 | .460672 |
| 100.0 | .0400 | 100.0 | 5.205 | .500584 |
| 110.0 | .0380 | 110.0 | 5.595 | .538091 |
| 120.0 | .0350 | 120.0 | 5.960 | .573195 |
| 130.0 | .0330 | 130.0 | 6.300 | .605894 |
| 140.0 | .0310 | 140.0 | 6.620 | .636669 |
| 150.0 | .0280 | 150.0 | 6.915 | .665040 |
| 160.0 | .0260 | 160.0 | 7.185 | .691007 |
| 170.0 | .0240 | 170.0 | 7.435 | .715051 |
| 180.0 | .0220 | 180.0 | 7.665 | .737171 |
| 190.0 | .0190 | 190.0 | 7.870 | .756886 |
| 200.0 | .0170 | 200.0 | 8.050 | .774197 |
| 210.0 | .0150 | 210.0 | 8.210 | .789585 |
| 220.0 | .0130 | 220.0 | 8.350 | .803050 |
| 230.0 | .0120 | 230.0 | 8.475 | .815071 |
| 240.0 | .0100 | 240.0 | 8.585 | .825650 |
| 250.0 | .0090 | 250.0 | 8.680 | .834787 |
| 260.0 | .0080 | 260.0 | 8.765 | .842962 |
| 270.0 | .0070 | 270.0 | 8.840 | .850175 |
| 280.0 | .0060 | 280.0 | 8.905 | .856426 |
| 290.0 | .0050 | 290.0 | 8.960 | .861715 |
| 300.0 | .0040 | 300.0 | 9.005 | .866043 |
| 310.0 | .0030 | 310.0 | 9.040 | .869409 |
| 320.0 | .0030 | 320.0 | 9.070 | .872294 |
| 330.0 | .0020 | 330.0 | 9.095 | .874699 |
| 340.0 | .0010 | 340.0 | 9.110 | .876143 |
| 350.0 | .0010 | 350.0 | 9.120 | .877103 |
| 360.0 | .0000 | 360.0 | 9.125 | .877584 |

MIRAN VAPOR ANALYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-12

EVAPORATION EXPERIMENT NO. GLF12 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0540 | .0 | .000 | .000000 |
| 10.0 | .0520 | 10.0 | .530 | .044117 |
| 20.0 | .0510 | 20.0 | 1.045 | .086986 |
| 30.0 | .0490 | 30.0 | 1.545 | .128607 |
| 40.0 | .0470 | 40.0 | 2.025 | .168562 |
| 50.0 | .0460 | 50.0 | 2.490 | .207269 |
| 60.0 | .0450 | 60.0 | 2.945 | .245143 |
| 70.0 | .0430 | 70.0 | 3.385 | .281769 |
| 80.0 | .0420 | 80.0 | 3.810 | .317146 |
| 90.0 | .0410 | 90.0 | 4.225 | .351691 |
| 100.0 | .0400 | 100.0 | 4.630 | .385404 |
| 110.0 | .0390 | 110.0 | 5.025 | .418284 |
| 120.0 | .0380 | 120.0 | 5.410 | .450331 |
| 130.0 | .0360 | 130.0 | 5.780 | .481130 |
| 140.0 | .0350 | 140.0 | 6.135 | .510680 |
| 150.0 | .0340 | 150.0 | 6.480 | .539398 |
| 160.0 | .0330 | 160.0 | 6.815 | .567284 |
| 170.0 | .0320 | 170.0 | 7.140 | .594337 |
| 180.0 | .0300 | 180.0 | 7.450 | .620142 |
| 190.0 | .0290 | 190.0 | 7.745 | .644698 |
| 200.0 | .0280 | 200.0 | 8.030 | .668421 |
| 210.0 | .0270 | 210.0 | 8.305 | .691312 |
| 220.0 | .0250 | 220.0 | 8.565 | .712955 |
| 230.0 | .0240 | 230.0 | 8.810 | .733349 |
| 240.0 | .0220 | 240.0 | 9.040 | .752494 |
| 250.0 | .0210 | 250.0 | 9.255 | .770391 |
| 260.0 | .0190 | 260.0 | 9.455 | .787039 |
| 270.0 | .0180 | 270.0 | 9.640 | .802438 |
| 280.0 | .0170 | 280.0 | 9.815 | .817006 |
| 290.0 | .0150 | 290.0 | 9.975 | .830324 |
| 300.0 | .0140 | 300.0 | 10.120 | .842394 |
| 310.0 | .0120 | 310.0 | 10.250 | .853215 |
| 320.0 | .0100 | 320.0 | 10.360 | .862372 |
| 330.0 | .0090 | 330.0 | 10.455 | .870279 |
| 340.0 | .0080 | 340.0 | 10.540 | .877355 |
| 350.0 | .0060 | 350.0 | 10.610 | .883182 |
| 360.0 | .0050 | 360.0 | 10.665 | .887760 |
| 370.0 | .0030 | 370.0 | 10.705 | .891090 |
| 380.0 | .0020 | 380.0 | 10.730 | .893171 |
| 390.0 | .0000 | 390.0 | 10.740 | .894003 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-13

EVAPORATION EXPERIMENT NO. GLF13 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 44%

OUTPUT VOLTAGE DATA FROM MIRAN 1A VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES: ELAPSED TIME MINUTES | TOTAL VOLT MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0700 | .0 | .000 | .000000 |
| 40.0 | .0630 | 40.0 | 2.660 | .066343 |
| 80.0 | .0600 | 80.0 | 5.120 | .127699 |
| 120.0 | .0580 | 120.0 | 7.480 | .186560 |
| 160.0 | .0550 | 160.0 | 9.740 | .242927 |
| 200.0 | .0530 | 200.0 | 11.900 | .296800 |
| 240.0 | .0510 | 240.0 | 13.980 | .348677 |
| 280.0 | .0490 | 280.0 | 15.980 | .398560 |
| 320.0 | .0470 | 320.0 | 17.900 | .446447 |
| 360.0 | .0450 | 360.0 | 19.740 | .492339 |
| 400.0 | .0410 | 400.0 | 21.460 | .535237 |
| 440.0 | .0390 | 440.0 | 23.060 | .575143 |
| 480.0 | .0360 | 480.0 | 24.560 | .612555 |
| 520.0 | .0330 | 520.0 | 25.940 | .646974 |
| 560.0 | .0290 | 560.0 | 27.180 | .677901 |
| 600.0 | .0250 | 600.0 | 28.260 | .704837 |
| 640.0 | .0210 | 640.0 | 29.180 | .727783 |
| 680.0 | .0180 | 680.0 | 29.960 | .747237 |
| 720.0 | .0150 | 720.0 | 30.620 | .763698 |
| 760.0 | .0120 | 760.0 | 31.160 | .777167 |
| 800.0 | .0100 | 800.0 | 31.600 | .788141 |
| 840.0 | .0080 | 840.0 | 31.960 | .797120 |
| 880.0 | .0070 | 880.0 | 32.260 | .804602 |
| 920.0 | .0060 | 920.0 | 32.520 | .811087 |
| 960.0 | .0050 | 960.0 | 32.740 | .816574 |
| 1000.0 | .0040 | 1000.0 | 32.920 | .821063 |
| 1040.0 | .0030 | 1040.0 | 33.060 | .824555 |
| 1080.0 | .0020 | 1080.0 | 33.160 | .827049 |
| 1120.0 | .0020 | 1120.0 | 33.240 | .829044 |
| 1160.0 | .0020 | 1160.0 | 33.320 | .831040 |
| 1200.0 | .0010 | 1200.0 | 33.380 | .832536 |
| 1240.0 | .0010 | 1240.0 | 33.420 | .833534 |
| 1280.0 | .0000 | 1280.0 | 33.440 | .834033 |

MIRAN VAPOR ANALYZER [illegible] ABSORBANCE UNITS PER VOLT

# TABLE B-14

EVAPORATION EXPERIMENT NO. GLF14 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 43%

OUTPUT VOLTAGE DATA FROM MIRAN 1A VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0700 | .0 | .000 | .000000 |
| 40.0 | .0670 | 40.0 | 2.740 | .058898 |
| 80.0 | .0640 | 80.0 | 5.360 | .115216 |
| 120.0 | .0620 | 120.0 | 7.880 | .169385 |
| 160.0 | .0600 | 160.0 | 10.320 | .221834 |
| 200.0 | .0580 | 200.0 | 12.680 | .272564 |
| 240.0 | .0550 | 240.0 | 14.940 | .321144 |
| 280.0 | .0530 | 280.0 | 17.100 | .367574 |
| 320.0 | .0510 | 320.0 | 19.180 | .412285 |
| 360.0 | .0490 | 360.0 | 21.180 | .455276 |
| 400.0 | .0460 | 400.0 | 23.080 | .496118 |
| 440.0 | .0440 | 440.0 | 24.880 | .534810 |
| 480.0 | .0410 | 480.0 | 26.580 | .571352 |
| 520.0 | .0380 | 520.0 | 28.160 | .605315 |
| 560.0 | .0350 | 560.0 | 29.620 | .636699 |
| 600.0 | .0320 | 600.0 | 30.960 | .665503 |
| 640.0 | .0290 | 640.0 | 32.180 | .691727 |
| 680.0 | .0250 | 680.0 | 33.260 | .714943 |
| 720.0 | .0220 | 720.0 | 34.200 | .735148 |
| 760.0 | .0200 | 760.0 | 35.040 | .753205 |
| 800.0 | .0170 | 800.0 | 35.780 | .769112 |
| 840.0 | .0150 | 840.0 | 36.420 | .782869 |
| 880.0 | .0130 | 880.0 | 36.980 | .794906 |
| 920.0 | .0090 | 920.0 | 37.420 | .804364 |
| 960.0 | .0060 | 960.0 | 37.720 | .810813 |
| 1000.0 | .0050 | 1000.0 | 37.940 | .815542 |
| 1040.0 | .0050 | 1040.0 | 38.140 | .819841 |
| 1080.0 | .0030 | 1080.0 | 38.300 | .823280 |
| 1120.0 | .0020 | 1120.0 | 38.400 | .825430 |
| 1160.0 | .0000 | 1160.0 | 38.440 | .826290 |

IRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-15

EVAPORATION EXPERIMENT NO. GLF15 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.3 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0430 | .0 | .000 | .000000 |
| 15.0 | .0410 | 15.0 | .630 | .059574 |
| 30.0 | .0390 | 30.0 | 1.230 | .116312 |
| 45.0 | .0380 | 45.0 | 1.808 | .170922 |
| 60.0 | .0360 | 60.0 | 2.362 | .223404 |
| 75.0 | .0350 | 75.0 | 2.895 | .273758 |
| 90.0 | .0340 | 90.0 | 3.412 | .322694 |
| 105.0 | .0330 | 105.0 | 3.915 | .370212 |
| 120.0 | .0310 | 120.0 | 4.395 | .415602 |
| 135.0 | .0300 | 135.0 | 4.852 | .458864 |
| 150.0 | .0290 | 150.0 | 5.295 | .500708 |
| 165.0 | .0270 | 165.0 | 5.715 | .540424 |
| 180.0 | .0260 | 180.0 | 6.113 | .578013 |
| 195.0 | .0250 | 195.0 | 6.495 | .614183 |
| 210.0 | .0240 | 210.0 | 6.863 | .648934 |
| 225.0 | .0220 | 225.0 | 7.207 | .681558 |
| 240.0 | .0200 | 240.0 | 7.523 | .711346 |
| 255.0 | .0180 | 255.0 | 7.807 | .738296 |
| 270.0 | .0160 | 270.0 | 8.063 | .762409 |
| 285.0 | .0140 | 285.0 | 8.288 | .783686 |
| 300.0 | .0120 | 300.0 | 8.483 | .802125 |
| 315.0 | .0100 | 315.0 | 8.648 | .817728 |
| 330.0 | .0080 | 330.0 | 8.783 | .830494 |
| 345.0 | .0060 | 345.0 | 8.897 | .840423 |
| 360.0 | .0050 | 360.0 | 8.970 | .848225 |
| 375.0 | .0040 | 375.0 | 9.038 | .854608 |
| 390.0 | .0030 | 390.0 | 9.090 | .859572 |
| 405.0 | .0020 | 405.0 | 9.128 | .863118 |
| 420.0 | .0010 | 420.0 | 9.150 | .865246 |
| 435.0 | .0010 | 435.0 | 9.165 | .866664 |
| 450.0 | .0010 | 450.0 | 9.180 | .868083 |
| 465.0 | .0000 | 465.0 | 9.188 | .868792 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-16

EVAPORATION EXPERIMENT NO. GLF16 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.3 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0430 | .0 | .000 | .000000 |
| 15.0 | .0410 | 15.0 | .630 | .055303 |
| 30.0 | .0390 | 30.0 | 1.230 | .107973 |
| 45.0 | .0380 | 45.0 | 1.808 | .158667 |
| 60.0 | .0360 | 60.0 | 2.362 | .207387 |
| 75.0 | .0350 | 75.0 | 2.895 | .254131 |
| 90.0 | .0340 | 90.0 | 3.412 | .299559 |
| 105.0 | .0330 | 105.0 | 3.915 | .343669 |
| 120.0 | .0320 | 120.0 | 4.403 | .386463 |
| 135.0 | .0310 | 135.0 | 4.875 | .427941 |
| 150.0 | .0300 | 150.0 | 5.332 | .468101 |
| 165.0 | .0280 | 165.0 | 5.767 | .506287 |
| 180.0 | .0280 | 180.0 | 6.188 | .543156 |
| 195.0 | .0260 | 195.0 | 6.593 | .578708 |
| 210.0 | .0250 | 210.0 | 6.975 | .612284 |
| 225.0 | .0240 | 225.0 | 7.343 | .644545 |
| 240.0 | .0220 | 240.0 | 7.688 | .674839 |
| 255.0 | .0210 | 255.0 | 8.010 | .703140 |
| 270.0 | .0200 | 270.0 | 8.318 | .730133 |
| 285.0 | .0180 | 285.0 | 8.602 | .755151 |
| 300.0 | .0160 | 300.0 | 8.858 | .777535 |
| 315.0 | .0140 | 315.0 | 9.083 | .797287 |
| 330.0 | .0120 | 330.0 | 9.278 | .814404 |
| 345.0 | .0090 | 345.0 | 9.435 | .828230 |
| 360.0 | .0070 | 360.0 | 9.555 | .838764 |
| 375.0 | .0050 | 375.0 | 9.645 | .846664 |
| 390.0 | .0030 | 390.0 | 9.705 | .851931 |
| 405.0 | .0020 | 405.0 | 9.743 | .855223 |
| 420.0 | .0010 | 420.0 | 9.765 | .857198 |
| 435.0 | .0000 | 435.0 | 9.773 | .857857 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-17

EVAPORATION EXPERIMENT NO. BLF1 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

OUTPUT VOLTAGE DATA FROM MIRAN 1A VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0780 | .0 | .000 | .000000 |
| 45.0 | .0730 | 45.0 | 3.398 | .078690 |
| 90.0 | .0690 | 90.0 | 6.592 | .152691 |
| 135.0 | .0660 | 135.0 | 9.630 | .223043 |
| 180.0 | .0630 | 180.0 | 12.532 | .290269 |
| 225.0 | .0600 | 225.0 | 15.300 | .354368 |
| 270.0 | .0560 | 270.0 | 17.910 | .414819 |
| 315.0 | .0530 | 315.0 | 20.362 | .471622 |
| 360.0 | .0480 | 360.0 | 22.635 | .524256 |
| 405.0 | .0440 | 405.0 | 24.705 | .572200 |
| 450.0 | .0390 | 450.0 | 26.572 | .615453 |
| 495.0 | .0350 | 495.0 | 28.237 | .654017 |
| 540.0 | .0300 | 540.0 | 29.700 | .687890 |
| 585.0 | .0250 | 585.0 | 30.937 | .716552 |
| 630.0 | .0210 | 630.0 | 31.972 | .740524 |
| 675.0 | .0160 | 675.0 | 32.805 | .759806 |
| 720.0 | .0130 | 720.0 | 33.457 | .774919 |
| 765.0 | .0090 | 765.0 | 33.952 | .786384 |
| 810.0 | .0070 | 810.0 | 34.312 | .794722 |
| 855.0 | .0040 | 855.0 | 34.560 | .800454 |
| 900.0 | .0030 | 900.0 | 34.717 | .804102 |
| 945.0 | .0020 | 945.0 | 34.830 | .806708 |
| 990.0 | .0020 | 990.0 | 34.920 | .808792 |
| 1035.0 | .0010 | 1035.0 | 34.987 | .810356 |
| 1080.0 | .0010 | 1080.0 | 35.032 | .811398 |
| 1125.0 | .0010 | 1125.0 | 35.077 | .812440 |
| 1170.0 | .0010 | 1170.0 | 35.122 | .813482 |
| 1215.0 | .0000 | 1215.0 | 35.145 | .814003 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

## TABLE B-18

EVAPORATION EXPERIMENT NO. BEF2 SERIES 1B 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 2.9 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

OUTPUT VOLTAGE DATA FROM MIRAN 1A VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0890 | .0 | .000 | .000000 |
| 40.0 | .0840 | 40.0 | 3.460 | .073730 |
| 80.0 | .0800 | 80.0 | 6.740 | .143624 |
| 120.0 | .0770 | 120.0 | 9.880 | 210534 |
| 160.0 | .0740 | 160.0 | 12.900 | .274888 |
| 200.0 | .0710 | 200.0 | 15.800 | .336684 |
| 240.0 | .0680 | 240.0 | 18.580 | .395924 |
| 280.0 | .0650 | 280.0 | 21.240 | .452606 |
| 320.0 | .0620 | 320.0 | 23.780 | .506731 |
| 360.0 | .0590 | 360.0 | 26.200 | .558299 |
| 400.0 | .0560 | 400.0 | 28.500 | .607310 |
| 440.0 | .0520 | 440.0 | 30.660 | .653338 |
| 480.0 | .0490 | 480.0 | 32.680 | .696382 |
| 520.0 | .0450 | 520.0 | 34.560 | .736443 |
| 560.0 | .0400 | 560.0 | 36.260 | .772669 |
| 600.0 | .0360 | 600.0 | 37.780 | .805059 |
| 640.0 | .0320 | 640.0 | 39.140 | .834039 |
| 680.0 | .0280 | 680.0 | 40.340 | .859610 |
| 720.0 | .0240 | 720.0 | 41.380 | .881772 |
| 760.0 | .0200 | 760.0 | 42.260 | .900524 |
| 800.0 | .0170 | 800.0 | 43.000 | .916293 |
| 840.0 | .0140 | 840.0 | 43.620 | .929504 |
| 880.0 | .0120 | 880.0 | 44.140 | .940585 |
| 920.0 | .0090 | 920.0 | 44.560 | .949535 |
| 960.0 | .0080 | 960.0 | 44.900 | .956780 |
| 1000.0 | .0060 | 1000.0 | 45.180 | .962747 |
| 1040.0 | .0040 | 1040.0 | 45.380 | .967008 |
| 1080.0 | .0030 | 1080.0 | 45.520 | .969992 |
| 1120.0 | .0020 | 1120.0 | 45.620 | .972122 |
| 1160.0 | .0020 | 1160.0 | 45.700 | .973827 |
| 1200.0 | .0010 | 1200.0 | 45.760 | .975106 |
| 1240.0 | .0010 | 1240.0 | 45.800 | .975958 |
| 1280.0 | .0000 | 1280.0 | 45.820 | .976384 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-19

EVAPORATION EXPERIMENT NO. BLF3 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0520 | .0 | .000 | .000000 |
| 15.0 | .0490 | 15.0 | .757 | .064330 |
| 30.0 | .0470 | 30.0 | 1.477 | .125476 |
| 45.0 | .0440 | 45.0 | 2.160 | .183437 |
| 60.0 | .0420 | 60.0 | 2.805 | .238214 |
| 75.0 | .0410 | 75.0 | 3.427 | .291079 |
| 90.0 | .0390 | 90.0 | 4.027 | .342034 |
| 105.0 | .0370 | 105.0 | 4.597 | .390441 |
| 120.0 | .0350 | 120.0 | 5.137 | .436301 |
| 135.0 | .0340 | 135.0 | 5.655 | .480249 |
| 150.0 | .0320 | 150.0 | 6.150 | .522287 |
| 165.0 | .0310 | 165.0 | 6.622 | .562414 |
| 180.0 | .0290 | 180.0 | 7.072 | .600630 |
| 195.0 | .0270 | 195.0 | 7.492 | .636298 |
| 210.0 | .0250 | 210.0 | 7.882 | .669419 |
| 225.0 | .0230 | 225.0 | 8.242 | .699992 |
| 240.0 | .0200 | 240.0 | 8.565 | .727380 |
| 255.0 | .0180 | 255.0 | 8.850 | .751584 |
| 270.0 | .0160 | 270.0 | 9.105 | .773240 |
| 285.0 | .0140 | 285.0 | 9.330 | .792348 |
| 300.0 | .0120 | 300.0 | 9.525 | .808908 |
| 315.0 | .0100 | 315.0 | 9.690 | .822921 |
| 330.0 | .0080 | 330.0 | 9.825 | .834385 |
| 345.0 | .0060 | 345.0 | 9.930 | .843302 |
| 360.0 | .0040 | 360.0 | 10.005 | .849672 |
| 375.0 | .0030 | 375.0 | 10.057 | .854130 |
| 390.0 | .0020 | 390.0 | 10.095 | .857315 |
| 405.0 | .0020 | 405.0 | 10.125 | .859863 |
| 420.0 | .0010 | 420.0 | 10.147 | .861774 |
| 435.0 | .0010 | 435.0 | 10.162 | .863047 |
| 450.0 | .0000 | 450.0 | 10.170 | .863684 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-20

EVAPORATION EXPERIMENT NO. BLF4 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 20%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0510 | .0 | .000 | .000000 |
| 20.0 | .0500 | 20.0 | 1.010 | .080839 |
| 40.0 | .0480 | 40.0 | 1.990 | .159277 |
| 60.0 | .0460 | 60.0 | 2.930 | .234514 |
| 80.0 | .0450 | 80.0 | 3.840 | .307350 |
| 100.0 | .0430 | 100.0 | 4.720 | .377784 |
| 120.0 | .0400 | 120.0 | 5.550 | .444216 |
| 140.0 | .0380 | 140.0 | 6.330 | .506647 |
| 160.0 | .0360 | 160.0 | 7.070 | .565875 |
| 180.0 | .0340 | 180.0 | 7.770 | .621903 |
| 200.0 | .0310 | 200.0 | 8.420 | .673928 |
| 220.0 | .0290 | 220.0 | 9.020 | .721951 |
| 240.0 | .0260 | 240.0 | 9.570 | .765973 |
| 260.0 | .0240 | 260.0 | 10.070 | .805992 |
| 280.0 | .0210 | 280.0 | 10.520 | .842010 |
| 300.0 | .0180 | 300.0 | 10.910 | .873225 |
| 320.0 | .0150 | 320.0 | 11.240 | .899638 |
| 340.0 | .0120 | 340.0 | 11.510 | .921248 |
| 360.0 | .0090 | 360.0 | 11.720 | .938056 |
| 380.0 | .0060 | 380.0 | 11.870 | .950062 |
| 400.0 | .0040 | 400.0 | 11.970 | .958066 |
| 420.0 | .0030 | 420.0 | 12.040 | .963669 |
| 440.0 | .0020 | 440.0 | 12.090 | .967671 |
| 460.0 | .0020 | 460.0 | 12.130 | .970872 |
| 480.0 | .0010 | 480.0 | 12.160 | .973274 |
| 500.0 | .0010 | 500.0 | 12.180 | .974874 |
| 520.0 | .0010 | 520.0 | 12.200 | .976475 |
| 540.0 | .0010 | 540.0 | 12.220 | .978076 |
| 560.0 | .0000 | 560.0 | 12.230 | .978876 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-21

EVAPORATION EXPERIMENT NO. BLF5 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0790 | .0 | .000 | .000000 |
| 30.0 | .0720 | 30.0 | 2.265 | .054741 |
| 60.0 | .0670 | 60.0 | 4.350 | .105132 |
| 90.0 | .0650 | 90.0 | 6.330 | .152985 |
| 120.0 | .0630 | 120.0 | 8.250 | .199388 |
| 150.0 | .0610 | 150.0 | 10.110 | .244342 |
| 180.0 | .0600 | 180.0 | 11.925 | .288207 |
| 210.0 | .0580 | 210.0 | 13.695 | .330985 |
| 240.0 | .0560 | 240.0 | 15.405 | .372313 |
| 270.0 | .0540 | 270.0 | 17.055 | .412190 |
| 300.0 | .0520 | 300.0 | 18.645 | .450618 |
| 330.0 | .0500 | 330.0 | 20.175 | .487596 |
| 360.0 | .0470 | 360.0 | 21.630 | .522760 |
| 390.0 | .0440 | 390.0 | 22.995 | .555750 |
| 420.0 | .0410 | 420.0 | 24.270 | .586565 |
| 450.0 | .0380 | 450.0 | 25.455 | .615204 |
| 480.0 | .0350 | 480.0 | 26.550 | .641668 |
| 510.0 | .0320 | 510.0 | 27.555 | .665958 |
| 540.0 | .0300 | 540.0 | 28.485 | .688434 |
| 570.0 | .0270 | 570.0 | 29.340 | .709098 |
| 600.0 | .0240 | 600.0 | 30.105 | .727587 |
| 630.0 | .0210 | 630.0 | 30.780 | .743900 |
| 660.0 | .0180 | 660.0 | 31.365 | .758039 |
| 690.0 | .0150 | 690.0 | 31.860 | .770002 |
| 720.0 | .0120 | 720.0 | 32.265 | .779790 |
| 750.0 | .0100 | 750.0 | 32.595 | .787766 |
| 780.0 | .0090 | 780.0 | 32.880 | .794654 |
| 810.0 | .0080 | 810.0 | 33.135 | .800817 |
| 840.0 | .0070 | 840.0 | 33.360 | .806254 |
| 870.0 | .0060 | 870.0 | 33.555 | .810967 |
| 900.0 | .0050 | 900.0 | 33.720 | .814955 |
| 930.0 | .0030 | 930.0 | 33.840 | .817855 |
| 960.0 | .0030 | 960.0 | 33.930 | .820030 |
| 990.0 | .0030 | 990.0 | 34.020 | .822206 |
| 1020.0 | .0020 | 1020.0 | 34.095 | .824018 |
| 1050.0 | .0020 | 1050.0 | 34.155 | .825468 |
| 1080.0 | .0010 | 1080.0 | 34.200 | .826556 |
| 1110.0 | .0010 | 1110.0 | 34.230 | .827281 |
| 1140.0 | .0000 | 1140.0 | 34.245 | .827643 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

## TABLE B-22

EVAPORATION EXPERIMENT NO. BLF6 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 2.9 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0820 | .0 | .000 | .000000 |
| 40.0 | .0790 | 40.0 | 3.220 | .072106 |
| 80.0 | .0770 | 80.0 | 6.340 | .141972 |
| 120.0 | .0730 | 120.0 | 9.340 | .209151 |
| 160.0 | .0710 | 160.0 | 12.220 | .273643 |
| 200.0 | .0680 | 200.0 | 15.000 | .335896 |
| 240.0 | .0650 | 240.0 | 17.660 | .395462 |
| 280.0 | .0620 | 280.0 | 20.200 | .452340 |
| 320.0 | .0590 | 320.0 | 22.620 | .506532 |
| 360.0 | .0560 | 360.0 | 24.920 | .558036 |
| 400.0 | .0530 | 400.0 | 27.100 | .606853 |
| 440.0 | .0490 | 440.0 | 29.140 | .652534 |
| 480.0 | .0440 | 480.0 | 31.000 | .694186 |
| 520.0 | .0390 | 520.0 | 32.660 | .731358 |
| 560.0 | .0350 | 560.0 | 34.140 | .764500 |
| 600.0 | .0300 | 600.0 | 35.440 | .793611 |
| 640.0 | .0250 | 640.0 | 36.540 | .818243 |
| 680.0 | .0200 | 680.0 | 37.440 | .838397 |
| 720.0 | .0170 | 720.0 | 38.180 | .854968 |
| 760.0 | .0140 | 760.0 | 38.800 | .868852 |
| 800.0 | .0120 | 800.0 | 39.320 | .880496 |
| 840.0 | .0100 | 840.0 | 39.760 | .890349 |
| 880.0 | .0080 | 880.0 | 40.120 | .898411 |
| 920.0 | .0070 | 920.0 | 40.420 | .905128 |
| 960.0 | .0060 | 960.0 | 40.680 | .910951 |
| 1000.0 | .0050 | 1000.0 | 40.900 | .915877 |
| 1040.0 | .0040 | 1040.0 | 41.080 | .919908 |
| 1080.0 | .0030 | 1080.0 | 41.220 | .923043 |
| 1120.0 | .0020 | 1120.0 | 41.320 | .925282 |
| 1160.0 | .0020 | 1160.0 | 41.400 | .927074 |
| 1200.0 | .0010 | 1200.0 | 41.460 | .928417 |
| 1240.0 | .0000 | 1240.0 | 41.480 | .928865 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-23

EVAPORATION EXPERIMENT NO. BLF7 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER TIME MINUTES | OUTPUT ABSORBANCE VOLTS | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES ELAPSED TIME MINUTES | TOTAL VOLT.MIN | TOTAL NORMALIZED |
|---|---|---|---|---|
| .0 | .0440 | .0 | .000 | .000000 |
| 15.0 | .0430 | 15.0 | .653 | .060451 |
| 30.0 | .0410 | 30.0 | 1.283 | .118817 |
| 45.0 | .0400 | 45.0 | 1.890 | .175099 |
| 60.0 | .0390 | 60.0 | 2.483 | .229992 |
| 75.0 | .0370 | 75.0 | 3.053 | .282799 |
| 90.0 | .0350 | 90.0 | 3.592 | .332828 |
| 105.0 | .0340 | 105.0 | 4.110 | .380772 |
| 120.0 | .0320 | 120.0 | 4.605 | .426631 |
| 135.0 | .0310 | 135.0 | 5.077 | .470406 |
| 150.0 | .0300 | 150.0 | 5.535 | .512791 |
| 165.0 | .0280 | 165.0 | 5.970 | .553092 |
| 180.0 | .0270 | 180.0 | 6.382 | .591308 |
| 195.0 | .0250 | 195.0 | 6.772 | .627439 |
| 210.0 | .0230 | 210.0 | 7.132 | .660792 |
| 225.0 | .0210 | 225.0 | 7.462 | .691364 |
| 240.0 | .0190 | 240.0 | 7.762 | .719158 |
| 255.0 | .0160 | 255.0 | 8.025 | .743477 |
| 270.0 | .0140 | 270.0 | 8.250 | .764323 |
| 285.0 | .0130 | 285.0 | 8.453 | .783083 |
| 300.0 | .0110 | 300.0 | 8.633 | .799759 |
| 315.0 | .0090 | 315.0 | 8.783 | .813656 |
| 330.0 | .0080 | 330.0 | 8.910 | .825468 |
| 345.0 | .0070 | 345.0 | 9.023 | .835891 |
| 360.0 | .0060 | 360.0 | 9.120 | .844924 |
| 375.0 | .0050 | 375.0 | 9.203 | .852567 |
| 390.0 | .0040 | 390.0 | 9.270 | .858821 |
| 405.0 | .0030 | 405.0 | 9.323 | .863684 |
| 420.0 | .0030 | 420.0 | 9.368 | .867854 |
| 435.0 | .0020 | 435.0 | 9.405 | .871328 |
| 450.0 | .0020 | 450.0 | 9.435 | .874107 |
| 465.0 | .0010 | 465.0 | 9.458 | .876192 |
| 480.0 | .0010 | 480.0 | 9.473 | .877581 |
| 495.0 | .0010 | 495.0 | 9.488 | .878971 |
| 510.0 | .0000 | 510.0 | 9.495 | .879666 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

# TABLE B-24

EVAPORATION EXPERIMENT NO. BLF8 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 50%

OUTPUT VOLTAGE DATA FROM MIRAN IA VAPOR ANALYZER

| ANALYZER | OUTPUT | CUMULATIVE DISTRIBUTION FOR TWO SUBSTRATES | | |
|---|---|---|---|---|
| TIME | ABSORBANCE | ELAPSED TIME | TOTAL | TOTAL |
| MINUTES | VOLTS | MINUTES | VOLT.MIN | NORMALIZED |
| .0 | .0500 | .0 | .000 | .000000 |
| 15.0 | .0480 | 15.0 | .735 | .059113 |
| 30.0 | .0460 | 30.0 | 1.440 | .115813 |
| 45.0 | .0440 | 45.0 | 2.115 | .170100 |
| 60.0 | .0420 | 60.0 | 2.760 | .221975 |
| 75.0 | .0410 | 75.0 | 3.382 | .272040 |
| 90.0 | .0400 | 90.0 | 3.990 | .320898 |
| 105.0 | .0380 | 105.0 | 4.575 | .367947 |
| 120.0 | .0370 | 120.0 | 5.137 | .413187 |
| 135.0 | .0360 | 135.0 | 5.685 | .457220 |
| 150.0 | .0350 | 150.0 | 6.217 | .500046 |
| 165.0 | .0340 | 165.0 | 6.735 | .541666 |
| 180.0 | .0330 | 180.0 | 7.237 | .582080 |
| 195.0 | .0320 | 195.0 | 7.725 | .621288 |
| 210.0 | .0300 | 210.0 | 8.190 | .658686 |
| 225.0 | .0290 | 225.0 | 8.632 | .694274 |
| 240.0 | .0270 | 240.0 | 9.052 | .728053 |
| 255.0 | .0260 | 255.0 | 9.450 | .760022 |
| 270.0 | .0250 | 270.0 | 9.832 | .790785 |
| 285.0 | .0210 | 285.0 | 10.177 | .818532 |
| 300.0 | .0190 | 300.0 | 10.477 | .842659 |
| 315.0 | .0170 | 315.0 | 10.748 | .864374 |
| 330.0 | .0150 | 330.0 | 10.988 | .883676 |
| 345.0 | .0130 | 345.0 | 11.198 | .900566 |
| 360.0 | .0110 | 360.0 | 11.378 | .915042 |
| 375.0 | .0090 | 375.0 | 11.528 | .927106 |
| 390.0 | .0070 | 390.0 | 11.648 | .936757 |
| 405.0 | .0050 | 405.0 | 11.738 | .943996 |
| 420.0 | .0040 | 420.0 | 11.805 | .949424 |
| 435.0 | .0020 | 435.0 | 11.850 | .953044 |
| 450.0 | .0010 | 450.0 | 11.873 | .954853 |
| 465.0 | .0010 | 465.0 | 11.888 | .956060 |
| 480.0 | .0000 | 480.0 | 11.895 | .956663 |

MIRAN VAPOR ANAYZER .25 ABSORBANCE UNITS PER VOLT

Blank

# APPENDIX C

## VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS

## TABLE C-1

EVAPORATION EXPERIMENT NO. GLF1 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 45%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MASS BALANCE)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | 2.208 | 13861.830 | 40926.560 | 498.570 | .00150 | 9.417 |
| 30.0 | 2.001 | 12562.280 | 37089.690 | 451.829 | .00136 | 8.534 |
| 60.0 | 1.742 | 10937.850 | 32293.610 | 393.403 | .00118 | 7.431 |
| 90.0 | 1.587 | 9963.187 | 29415.960 | 358.347 | .00108 | 6.768 |
| 120.0 | 1.449 | 9096.822 | 26858.050 | 327.186 | .00098 | 6.180 |
| 150.0 | 1.328 | 8338.754 | 24619.880 | 299.921 | .00090 | 5.665 |
| 180.0 | 1.173 | 7364.095 | 21742.230 | 264.865 | .00080 | 5.003 |
| 210.0 | 1.087 | 6822.617 | 20143.540 | 245.390 | .00074 | 4.635 |
| 240.0 | .983 | 6172.844 | 18225.110 | 222.019 | .00067 | 4.194 |
| 270.0 | .880 | 5523.071 | 16306.670 | 198.649 | .00060 | 3.752 |
| 300.0 | .794 | 4981.593 | 14707.980 | 179.174 | .00054 | 3.384 |
| 330.0 | .707 | 4440.116 | 13109.290 | 159.698 | .00048 | 3.016 |
| 360.0 | .621 | 3898.638 | 11510.590 | 140.223 | .00042 | 2.649 |
| 390.0 | .552 | [illegible] | 10231.640 | 124.642 | .00038 | 2.354 |
| 420.0 | .483 | [illegible] | 8952.685 | [illegible] | .00033 | 2.060 |
| 450.0 | .397 | 2490.797 | 7353.991 | 89.587 | .00027 | 1.692 |
| 480.0 | .328 | 2057.615 | 6075.036 | 74.006 | .00022 | [illegible] |
| 510.0 | .259 | 1624.432 | 4796.081 | 58.426 | .00018 | [illegible] |
| 540.0 | .207 | 1299.546 | 3836.865 | 46.741 | .00014 | .883 |
| 570.0 | .172 | 1082.955 | 3197.387 | 38.951 | .00012 | .736 |
| 600.0 | .138 | 866.364 | 2557.910 | 31.161 | .00009 | .589 |
| 630.0 | .104 | 649.773 | 1918.432 | 23.370 | .00007 | .441 |
| 660.0 | .086 | 541.477 | 1598.693 | 19.475 | .00006 | .368 |
| 690.0 | .069 | 433.182 | 1278.955 | 15.580 | .00005 | .294 |
| 720.0 | .052 | 324.887 | 959.216 | 11.685 | .00004 | .221 |
| 750.0 | .035 | 216.591 | 639.477 | 7.790 | .00002 | .147 |
| 780.0 | .035 | [illegible] | 639.477 | 7.790 | .00002 | .147 |
| 810.0 | .017 | 108.296 | 319.739 | 3.895 | .00001 | .074 |
| 840.0 | .017 | 108.296 | [illegible] | 3.895 | .00001 | .074 |
| 870.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

# TABLE C-2

EVAPORATION EXPERIMENT NO. GLF2 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MIRAN CALIBRATION DATA)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | 1.949 | 12237 390 | 36130.470 | 413.780 | .00132 | 8.313 |
| 30.0 | 1.811 | 11371.030 | 33572.560 | 384.486 | .00123 | 7.725 |
| 60.0 | 1.673 | 10504.660 | 31014.660 | 355.191 | .00114 | 7.136 |
| 90.0 | 1.553 | 9746.595 | 28776.480 | 329.559 | .00105 | 6.621 |
| 120.0 | 1.449 | 9096.822 | 26858.050 | 307.588 | .00098 | 6.180 |
| 150.0 | 1.363 | 8555.345 | 25259.360 | 289.280 | .00093 | 5.812 |
| 180.0 | 1.259 | 7905.571 | 23340.920 | 267.309 | .00086 | 5.371 |
| 210.0 | 1.173 | 7364.095 | 21742.230 | 249.000 | .00080 | 5.003 |
| 240.0 | 1.104 | 6930.913 | 20463.280 | 234.353 | .00075 | 4.709 |
| 270.0 | 1.018 | 6389.435 | 18864.580 | 216.044 | .00069 | 4.341 |
| 300.0 | .932 | 5847.957 | 17265.890 | 197.735 | .00063 | 3.973 |
| 330.0 | .863 | 5414.775 | 15986.940 | 183.088 | .00059 | 3.679 |
| 360.0 | .794 | 4981.593 | 14707.980 | 168.441 | .00054 | 3.384 |
| 390.0 | .725 | 4548.411 | 13429.030 | 153.794 | .00049 | 3.090 |
| 420.0 | .655 | 4115.229 | 12150.070 | 139.147 | .00045 | 2.796 |
| 450.0 | .587 | 3682.047 | 10871.120 | 124.500 | .00040 | 2.501 |
| 480.0 | .517 | 3248.865 | 9592.161 | 109.853 | .00035 | 2.207 |
| 510.0 | .449 | 2815.683 | 8313.207 | 95.206 | .00030 | 1.913 |
| 540.0 | .380 | 2382.501 | 7034.251 | 80.559 | .00026 | 1.619 |
| 570.0 | .328 | 2057.615 | 6075.036 | 69.574 | .00022 | 1.398 |
| 600.0 | .276 | 1732.728 | 5115 820 | 58.588 | .00019 | 1.177 |
| 630.0 | .224 | 1407.842 | 4156.604 | 47.603 | .00015 | .956 |
| 660.0 | .190 | 1191.250 | 3517.126 | 40.2[illegible] | .00013 | .809 |
| 690.0 | .172 | 1082.955 | 3197.387 | 36.618 | .00012 | .736 |
| 720.0 | .138 | 866.364 | 2557.910 | 29.294 | .00009 | .589 |
| 750.0 | .121 | 758.069 | 2238.171 | 25.632 | .00008 | .515 |
| 780.0 | .121 | 758.069 | 2238.171 | 25.632 | .00008 | .515 |
| 810.0 | .104 | 649.773 | 1918.432 | 21.971 | .00007 | .441 |
| 840.0 | .086 | 541.477 | 1598.693 | 18.309 | .00006 | .368 |
| 870.0 | .069 | 433.182 | 1278.955 | 14.647 | .00005 | .294 |
| 900.0 | .052 | 324.887 | 959.216 | 10.985 | .00004 | .221 |
| 930.0 | .035 | 216.591 | 639.477 | 7.324 | .00002 | .147 |
| 960.0 | .017 | 108.296 | 319.739 | 3.662 | .00001 | .074 |
| 990.0 | .017 | 108.296 | 319.739 | 3.662 | .00001 | .074 |
| 1020.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

## TABLE C-3

EVAPORATION EXPERIMENT NO. GLF3 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MASS BALANCE)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | 1.484 | 9313.413 | 27497.530 | 374.[illegible]75 | .00101 | 6.327 |
| 15.0 | 1.294 | 8122.163 | 23980.400 | 326.828 | .00088 | 5.518 |
| 30.0 | 1.138 | 7147.503 | 21102.750 | 287.618 | .00077 | 4.856 |
| 45.0 | 1.018 | 6389.435 | 18864.580 | 257.113 | .00069 | 4.341 |
| 60.0 | .897 | 5631.366 | 16626.4 | 226.608 | .00061 | 3.826 |
| 75.0 | .794 | 4981.593 | 14707.980 | 200.461 | .00054 | 3.384 |
| 90.0 | .707 | 4440.116 | 13109.290 | 178.672 | .00048 | 3.016 |
| 105.0 | .621 | 3898.638 | 11510.590 | 156.882 | .00042 | 2.649 |
| 120.0 | .535 | 3357.160 | 9911.[illegible]99 | 135.093 | .00036 | 2.281 |
| 135.0 | .449 | 2815.683 | 8313.207 | 113.304 | .00030 | 1.913 |
| 150.0 | .362 | 2274.206 | 6714.515 | 91.515 | .00025 | 1.545 |
| 165.0 | .310 | 1949.319 | 5755.297 | 78.441 | .00021 | 1.324 |
| 180.0 | .259 | 1624.432 | 4796.081 | 65.368 | .00018 | 1.104 |
| 195.0 | .207 | 1299.546 | 3836.865 | 52.294 | .00014 | .883 |
| 210.0 | .155 | 974.659 | 2877.648 | 39.221 | .00011 | .662 |
| 225.0 | .121 | 758.069 | 2238.171 | 30.505 | .00008 | .515 |
| 240.0 | .086 | 541.477 | 1598.693 | 21.789 | .00006 | .368 |
| 255.0 | .069 | 433.182 | 1278.955 | 17.431 | .00005 | .294 |
| 270.0 | .069 | 433.182 | 1278.955 | 17.431 | .00005 | .294 |
| 285.0 | .052 | 324.887 | 959.216 | 13.074 | .00004 | .221 |
| 300.0 | .052 | 324.887 | 959.216 | 13.074 | .00004 | .221 |
| 315.0 | .035 | 216.591 | 639.477 | 8.716 | .00002 | .147 |
| 330.0 | .017 | 108.295 | 319.739 | 4.358 | .00001 | .074 |
| 345.0 | .017 | 108.295 | 319.739 | 4.358 | .00001 | .074 |
| 360.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

# TABLE C-4

EVAPORATION EXPERIMENT NO. GLF4  SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MASS BALANCE)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | 1.259 | 7905.571 | 23340.920 | 267.309 | .00086 | 5.371 |
| 10.0 | 1.242 | 7797.276 | 23021.190 | 263.647 | .00084 | 5.297 |
| 20.0 | 1.225 | 7688.981 | 22701.450 | 259.986 | .00083 | 5.223 |
| 30.0 | 1.173 | 7364.095 | 21742.230 | 249.000 | .00080 | 5.003 |
| 40.0 | 1.104 | 6930.913 | 20463.280 | 234.353 | .00075 | 4.709 |
| 50.0 | 1.035 | 6497.730 | 19184.320 | 219.706 | .00070 | 4.414 |
| 60.0 | 1.000 | 6281.139 | 18544.840 | 212.382 | .00068 | 4.267 |
| 70.0 | .949 | 5956.252 | 17585.630 | 201.397 | .00064 | 4.046 |
| 80.0 | .897 | 5631.366 | 16626.410 | 190.412 | .00061 | 3.826 |
| 90.0 | .845 | 5306.479 | 15667.200 | 179.427 | .00057 | 3.605 |
| 100.0 | .811 | 5089.888 | 15027.720 | 172.103 | .00055 | 3.458 |
| 110.0 | .759 | 4765.002 | 14068.500 | 161.118 | .00052 | 3.237 |
| 120.0 | .707 | 4440.116 | 13109.290 | 150.132 | .00048 | 3.016 |
| 130.0 | .673 | 4223.524 | 12469.810 | 142.809 | .00046 | 2.869 |
| 140.0 | .638 | 4006.933 | 11830.330 | 135.485 | .00043 | 2.722 |
| 150.0 | .587 | 3682.047 | 10871.120 | 124.500 | .00040 | 2.501 |
| 160.0 | .552 | 3465.456 | 10231.640 | 117.177 | .00038 | 2.354 |
| 170.0 | .517 | 3248.865 | 9592.161 | 109.853 | .00035 | 2.207 |
| 180.0 | .483 | 3032.274 | 8952.685 | 102.529 | .00033 | 2.060 |
| 190.0 | .449 | 2815.683 | 8313.207 | 95.206 | .00030 | 1.913 |
| 200.0 | .414 | 2599.092 | 7673.729 | 87.882 | .00028 | 1.766 |
| 210.0 | .380 | 2382.501 | 7034.251 | 80.559 | .00026 | 1.619 |
| 220.0 | .345 | 2165.910 | 6394.774 | 73.235 | .00023 | 1.471 |
| 230.0 | .310 | 1949.319 | 5755.297 | 65.912 | .00021 | 1.324 |
| 240.0 | .276 | 1732.728 | 5115.820 | 58.588 | .00019 | 1.177 |
| 250.0 | .242 | 1516.137 | 4476.342 | 51.265 | .00016 | 1.030 |
| 260.0 | .224 | 1407.842 | 4156.604 | 47.603 | .00015 | .956 |
| 270.0 | .190 | 1191.250 | 3517.126 | 40.279 | .00013 | .809 |
| 280.0 | .155 | 974.659 | 2877.648 | 32.956 | .00011 | .662 |
| 290.0 | .138 | 866.364 | 2557.910 | 29.294 | .00009 | .589 |
| 300.0 | .121 | 758.069 | 2238.171 | 25.632 | .00008 | .515 |
| 310.0 | .104 | 649.773 | 1918.432 | 21.971 | .00007 | .441 |
| 320.0 | .086 | 541.477 | 1598.693 | 18.309 | .00006 | .368 |
| 330.0 | .069 | 433.182 | 1278.955 | 14.647 | .00005 | .294 |
| 340.0 | .035 | 216.591 | 639.477 | 7.324 | .00002 | .147 |
| 350.0 | .035 | 216.591 | 639.477 | 7.324 | .00002 | .147 |
| 360.0 | .017 | 108.296 | 319.739 | 3.662 | .00001 | .074 |
| 370.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

# TABLE C-5

EVAPORATION EXPERIMENT NO. GLF5 SERIES 1D 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 58%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MASS BALANCE)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | 1.345 | 8447.049 | 24939.620 | 339.912 | .00091 | 5.738 |
| 30.0 | 1.276 | 8013.867 | 23660.660 | 322.480 | .00087 | 5.444 |
| 60.0 | 1.225 | 7688.981 | 22701.450 | 309.407 | .00083 | 5.223 |
| 90.0 | 1.156 | 7255.799 | 21422.490 | 291.976 | .00079 | 4.929 |
| 120.0 | 1.087 | 6822.617 | 20143.540 | 274.544 | .00074 | 4.635 |
| 150.0 | 1.035 | 6497.730 | 19184.320 | 261.471 | .00073 | 4.414 |
| 180.0 | .966 | 6064.548 | 17905.370 | 244.039 | .00066 | 4.120 |
| 210.0 | .914 | 5739.662 | 16946.150 | 230.966 | .00062 | 3.899 |
| 240.0 | .863 | 5414.775 | 15986.940 | 217.892 | .00059 | 3.679 |
| 270.0 | .811 | 5089.888 | 15027.720 | 204.819 | .00055 | 3.458 |
| 300.0 | .759 | 4765.002 | 14068.500 | 191.745 | .00052 | 3.237 |
| 330.0 | .690 | 4331.820 | 12789.550 | 174.314 | .00047 | 2.943 |
| 360.0 | .621 | 3898.638 | 11510.590 | 156.882 | .00042 | 2.649 |
| 390.0 | .569 | 3573.751 | 10551.380 | 143.809 | .00039 | 2.428 |
| 420.0 | .517 | 3248.865 | 9592.161 | 130.735 | .00035 | 2.207 |
| 450.0 | .483 | 3032.274 | 8952.685 | 122.020 | .00033 | 2.060 |
| 480.0 | .431 | 2707.387 | 7993.468 | 108.946 | .00029 | 1.839 |
| 510.0 | .397 | 2490.797 | 7353.991 | 100.230 | .00027 | 1.692 |
| 540.0 | .362 | 2274.206 | 6714.513 | 91.515 | .00025 | 1.545 |
| 570.0 | .310 | 1949.319 | 5755.297 | 78.441 | .00021 | 1.324 |
| 600.0 | .276 | 1732.728 | 5115.820 | 69.726 | .00019 | 1.177 |
| 630.0 | .224 | 1407.842 | 4156.604 | 56.652 | .00015 | .956 |
| 660.0 | .190 | 1191.250 | 3517.126 | 47.936 | .00013 | .809 |
| 690.0 | .138 | 866.364 | 2557.910 | 34.863 | .00009 | .589 |
| 720.0 | .104 | 649.773 | 1918.432 | 26.147 | .00007 | .441 |
| 750.0 | .069 | 433.182 | 1278.955 | 17.431 | .00005 | .294 |
| 780.0 | .052 | 324.887 | 959.216 | 13.074 | .00004 | .221 |
| 810.0 | .035 | 216.591 | 639.477 | 8.716 | .00002 | .147 |
| 840.0 | .017 | 108.296 | 319.739 | 4.358 | .00001 | .074 |
| 870.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

# TABLE C-6

EVAPORATION EXPERIMENT NO. GLF6 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 55%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MASS BALANCE)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | 1.311 | 8230.457 | 24300.140 | 296.026 | .00089 | 5.591 |
| 30.0 | 1.276 | 8013.866 | 23660.660 | 288.236 | .00087 | 5.444 |
| 60.0 | 1.225 | 7688.980 | 22701.450 | 276.550 | .00083 | 5.223 |
| 90.0 | 1.207 | 7580.684 | 22381.710 | 272.655 | .00082 | 5.150 |
| 120.0 | 1.138 | 7147.502 | 21102.750 | 257.075 | .00077 | 4.856 |
| 150.0 | 1.104 | 6930.912 | 20463.280 | 249.285 | .00075 | 4.708 |
| 180.0 | 1.069 | 6714.320 | 19823.800 | 241.495 | .00073 | 4.561 |
| 210.0 | 1.018 | 6389.434 | 18864.580 | 229.810 | .00069 | 4.341 |
| 240.0 | .966 | 6064.547 | 17905.370 | 218.124 | .00066 | 4.120 |
| 270.0 | .914 | 5739.661 | 16946.150 | 206.439 | .00062 | 3.899 |
| 300.0 | .862 | 5414.774 | 15986.930 | 194.754 | .00059 | 3.679 |
| 330.0 | .811 | 5089.883 | 15027.720 | 183.069 | .00055 | 3.458 |
| 360.0 | .759 | 4765.001 | 14068.500 | 171.383 | .00052 | 3.237 |
| 390.0 | .707 | 4440.115 | 13109.290 | 159.698 | .00048 | 3.016 |
| 420.0 | .655 | 4115.229 | 12150.070 | 148.013 | .00045 | 2.796 |
| 450.0 | .604 | 3790.342 | 11190.850 | 136.328 | .00041 | 2.575 |
| 480.0 | .552 | 3465.456 | 10231.640 | 124.64? | .00038 | 2.354 |
| 510.0 | .500 | 3140.569 | 9272.422 | 112.957 | .00034 | 2.134 |
| 540.0 | .448 | 2815.683 | 8313.205 | 101.272 | .00030 | 1.913 |
| 570.0 | .397 | 2490.796 | 7353.989 | 89.587 | .00027 | 1.692 |
| 600.0 | .345 | 2165.910 | 6394.774 | 77.902 | .00023 | 471 |
| 630.0 | .293 | 1841.023 | 5435.558 | 66.216 | .00020 | 1.251 |
| 660.0 | .241 | 1516.137 | 4476.341 | 54.531 | .00016 | 1.030 |
| 690.0 | .190 | 1191.250 | 3517.125 | 42.846 | .00013 | .809 |
| 720.0 | .138 | 866.364 | 2557.909 | 31.161 | .00009 | .589 |
| 750.0 | .103 | 649 773 | 1918.432 | 23.370 | .00007 | .441 |
| 780.0 | .086 | 541.477 | 1598.693 | 19.475 | .00006 | .368 |
| 810.0 | .052 | 324.886 | 959.216 | 11.685 | .00004 | .221 |
| 840.0 | .034 | 216.591 | 639.477 | 7.790 | .00002 | .147 |
| 870.0 | .017 | 108.295 | 319.739 | 3.895 | .00001 | .074 |
| 900.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

# TABLE C-7

EVAPORATION EXPERIMENT NO. GLF7 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MIRAN CALIBRATION DATA)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | .816 | 5122.848 | 15125.030 | 188.252 | .00055 | 3.480 |
| 15.0 | .765 | 4802.670 | 14179.720 | 176.486 | .00052 | 3.263 |
| 30.0 | .731 | 4589.218 | 13549.510 | 168.643 | .00050 | 3.118 |
| 45.0 | .714 | 4482.492 | 13234.400 | 164.721 | .00049 | 3.045 |
| 60.0 | .680 | 4269.040 | 12604.190 | 156.877 | .00046 | 2.900 |
| 75.0 | .646 | 4055.588 | 11973.980 | 149.033 | .00044 | 2.755 |
| 90.0 | .629 | 3948.862 | 11658.880 | 145.111 | .00043 | 2.683 |
| 105.0 | .595 | 3735.410 | 11028.670 | 137.267 | .00040 | 2.538 |
| 120.0 | .578 | 3628.684 | 10713.560 | 133.345 | .00039 | 2.465 |
| 135.0 | .544 | 3415.232 | 10083.350 | 125.501 | .00037 | 2.320 |
| 150.0 | .527 | 3308.506 | 9768.250 | 121.580 | .00036 | 2.248 |
| 165.0 | .493 | 3095.054 | 9138.039 | 113.736 | .00033 | 2.103 |
| 180.0 | .459 | 2881.602 | 8507.830 | 105.892 | .00031 | 1.958 |
| 195.0 | .442 | 2774.876 | 8192.726 | 101.970 | .00030 | 1.885 |
| 210.0 | .408 | 2561.424 | 7562.516 | 94.126 | .00028 | 1.740 |
| 225.0 | .374 | 2347.972 | 6932.307 | 86.282 | .00025 | 1.595 |
| 240.0 | .340 | 2134.520 | 6302.096 | 78.438 | .00023 | 1.450 |
| 255.0 | .306 | 1921.068 | 5671.887 | 70.595 | .00021 | 1.305 |
| 270.0 | .272 | 1707.616 | 5041.677 | 62.751 | .00018 | 1.160 |
| 285.0 | .238 | 1494.164 | 4411.468 | 54.907 | .00016 | 1.015 |
| 300.0 | .221 | 1387.438 | 4096.363 | 50.985 | .00015 | .943 |
| 315.0 | .187 | 1173.986 | 3466.153 | 43.141 | .00013 | .798 |
| 330.0 | .153 | 960.534 | 2835.943 | 35.297 | .00010 | .653 |
| 345.0 | .119 | 747.082 | 2205.734 | 27.453 | .00008 | .508 |
| 360.0 | .102 | 640.356 | 1890.629 | 23.532 | .00007 | .435 |
| 375.0 | .085 | 533.630 | 1575.524 | 19.610 | .00006 | .363 |
| 390.0 | .068 | 426.904 | 1260.419 | 15.688 | .00005 | .290 |
| 405.0 | .051 | 320.178 | 945.314 | 11.766 | .00003 | .218 |
| 420.0 | .034 | 213.452 | 630.210 | [illegible].844 | .00002 | .145 |
| 435.0 | .034 | 213.452 | 630.210 | 7.844 | .00002 | .145 |
| 450.0 | .017 | 106.726 | 315.105 | 3.922 | .00001 | .073 |
| 465.0 | .017 | 106.726 | 315.105 | 3.922 | .00001 | .073 |
| 480.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

# TABLE C-8

EVAPORATION EXPERIMENT NO. GLF8 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 50%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MASS BALANCE)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | .799 | 5014.553 | 14805.290 | 169.556 | .00054 | 3.407 |
| 15.0 | .763 | 4791.684 | 14147.280 | 162.020 | .00052 | 3.255 |
| 30.0 | .745 | 4680.249 | 13818.270 | 158.252 | .00051 | 3.180 |
| 45.0 | .728 | 4568.814 | 13489.270 | 154.484 | .00049 | 3.104 |
| 60.0 | .692 | 4345.946 | 12831.250 | 146.948 | .00047 | 2.952 |
| 75.0 | .674 | 4234.511 | 12502.250 | 143.180 | .00046 | 2.877 |
| 90.0 | .639 | 4011.642 | 11844.230 | 135.645 | .00043 | 2.725 |
| 105.0 | .621 | 3900.207 | 11515.230 | 131.877 | .00042 | 2.650 |
| 120.0 | .604 | 3788.773 | 11186.220 | 128.109 | .00041 | 2.574 |
| 135.0 | .568 | 3565.904 | 10528.210 | 120.573 | .00039 | 2.422 |
| 150.0 | .550 | 3454.469 | 10199.200 | 116.805 | .00037 | 2.347 |
| 165.0 | .515 | 3231.601 | 9541.188 | 109.269 | .00035 | 2.195 |
| 180.0 | .497 | 3120.166 | 9212.182 | 105.501 | .00034 | 2.120 |
| 195.0 | .462 | 2897.297 | 8554.169 | 97.966 | .00031 | 1.968 |
| 210.0 | .444 | 2785.863 | 8225.163 | 94.198 | .00030 | 1.893 |
| 225.0 | .408 | 2562.993 | 7567.149 | 86.662 | .00028 | 1.741 |
| 240.0 | .391 | 2451.559 | 7238.143 | 82.894 | .00027 | 1.665 |
| 255.0 | .355 | 2228.690 | 6580.130 | 75.358 | .00024 | 1.514 |
| 270.0 | .337 | 2117.255 | 6251.123 | 71.590 | .00023 | 1.438 |
| 285.0 | .302 | 1894.386 | 5593.110 | 64.054 | .00020 | 1.287 |
| 300.0 | .284 | 1782.952 | 5264.104 | 60.286 | .00019 | 1.211 |
| 315.0 | .249 | 1560.083 | 4606.091 | 52.751 | .00017 | 1.060 |
| 330.0 | .231 | 1448.649 | 4277.084 | 48.983 | .00016 | .984 |
| 345.0 | .195 | 1225.780 | 3619.072 | 41.447 | .00013 | .833 |
| 360.0 | .160 | 1002.911 | 2961.059 | 33.911 | .00011 | .681 |
| 375.0 | .142 | 891.476 | 2632.052 | 30.143 | .00010 | .606 |
| 390.0 | .106 | 668.607 | 1974.039 | 22.607 | .00007 | .454 |
| 405.0 | .089 | 557.172 | 1645.032 | 18.840 | .00006 | .379 |
| 420.0 | .053 | 334.303 | 987.019 | 11.304 | .00004 | .227 |
| 435.0 | .036 | 222.869 | 658.013 | 7.536 | .00002 | .151 |
| 450.0 | .018 | 111.435 | 329.007 | 3.768 | .00001 | .076 |
| 465.0 | .018 | 111.435 | 329.007 | 3.768 | .00001 | .076 |
| 480.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

## TABLE C-9

EVAPORATION EXPERIMENT NO. GLF9 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 44%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MIRAN CALIBRATION DATA)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | 2.397 | 15048.370 | 44429.780 | 652.031 | .00163 | 10.223 |
| 30.0 | 1.530 | 9605.341 | 28359.440 | 416.190 | .00104 | 6.525 |
| 60.0 | 1.428 | 8964.983 | 26468.800 | 388.444 | .00097 | 6.090 |
| 90.0 | 1.394 | 8751.532 | 25838.600 | 379.195 | .00095 | 5.945 |
| 120.0 | 1.275 | 8004.451 | 23632.860 | 346.825 | .00087 | 5.438 |
| 150.0 | 1.190 | 7470.820 | 22057.340 | 323.703 | .00081 | 5.075 |
| 180.0 | 1.122 | 7043.916 | 20796.920 | 305.206 | .00076 | 4.785 |
| 210.0 | 1.037 | 6510.287 | 19221.400 | 282.084 | .00070 | 4.423 |
| 240.0 | .969 | 6083.382 | 17960.970 | 263.587 | .00066 | 4.133 |
| 270.0 | .884 | 5549.752 | 16385.450 | 240.465 | .00060 | 3.770 |
| 300.0 | .816 | 5122.848 | 15125.030 | 221.968 | .00055 | 3.480 |
| 330.0 | .731 | 4589.218 | 13549.510 | 198.846 | .00050 | 3.118 |
| 360.0 | .663 | 4162.314 | 12289.090 | 180.349 | .00045 | 2.828 |
| 390.0 | .578 | 3628.684 | 10713.560 | 157.227 | .00039 | 2.465 |
| 420.0 | .510 | 3201.780 | 9453.145 | 138.730 | .00035 | 2.175 |
| 450.0 | .425 | 2668.150 | 7877.621 | 115.608 | .00029 | 1.813 |
| 480.0 | .357 | 2241.246 | 6617.201 | 97.111 | .00024 | 1.523 |
| 510.0 | .289 | 1814.342 | 5356.782 | 78.614 | .00020 | 1.233 |
| 540.0 | .238 | 1494.164 | 4411.468 | 64.741 | .00016 | 1.015 |
| 570.0 | .187 | 1173.986 | 3466.153 | 50.868 | .00013 | .798 |
| 600.0 | .136 | 853.808 | 2520.839 | 36.995 | .00009 | .580 |
| 630.0 | .102 | 640.356 | 1890.629 | 27.746 | .00007 | .435 |
| 660.0 | .068 | 426.904 | 1260.419 | 18.497 | .00005 | .290 |
| 690.0 | .051 | 320.178 | 945.314 | 13.873 | .00003 | .218 |
| 720.0 | .034 | 213.452 | 630.210 | 9.249 | .00002 | .145 |
| 750.0 | .017 | 106.726 | 315.105 | 4.624 | .00001 | .073 |
| 780.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

# TABLE C-10

EVAPORATION EXPERIMENT NO. GLF10 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 52%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MASS BALANCE)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | 2.329 | 14619.890 | 43164.730 | 494.339 | .00158 | 9.932 |
| 30.0 | 1.673 | 10504.670 | 31014.660 | 355.191 | .00114 | 7.136 |
| 60.0 | 1.570 | 9854.892 | 29096.230 | 333.221 | .00107 | 6.695 |
| 90.0 | 1.484 | 9313.414 | 27497.530 | 314.912 | .00101 | 6.327 |
| 120.0 | 1.432 | 8988.527 | 26538.320 | 303.927 | .00097 | 6.106 |
| 150.0 | 1.363 | 8555.346 | 25259.360 | 289.280 | .00093 | 5.812 |
| 180.0 | 1.294 | 8122.164 | 23980.410 | 274.633 | .00088 | 5.518 |
| 210.0 | 1.242 | 7797.277 | 23021.190 | 263.647 | .00084 | 5.297 |
| 240.0 | 1.173 | 7364.095 | 21742.240 | 249.000 | .00080 | 5.003 |
| 270.0 | 1.121 | 7039.208 | 20783.020 | 238.015 | .00076 | 4.782 |
| 300.0 | 1.035 | 6497.730 | 19184.320 | 219.706 | .00070 | 4.414 |
| 330.0 | .983 | 6172.844 | 18225.110 | 208.721 | .00067 | 4.194 |
| 360.0 | .914 | 5739.662 | 16946.150 | 194.074 | .00062 | 3.899 |
| 390.0 | .845 | 5306.480 | 15667.200 | 179.427 | .00057 | 3.605 |
| 420.0 | .776 | 4873.298 | 14388.240 | 164.780 | .00053 | 3.311 |
| 450.0 | .690 | 4331.820 | 12789.550 | 146.471 | .00047 | 2.943 |
| 480.0 | .604 | 3790.343 | 11190.860 | 128.162 | .00041 | 2.575 |
| 510.0 | .535 | 3357.161 | 9911.901 | 113.515 | .00036 | 2.281 |
| 540.0 | .466 | 2923.979 | 8632.946 | 98.868 | .00032 | 1.986 |
| 570.0 | .397 | 2490.797 | 7353.991 | 84.221 | .00027 | 1.692 |
| 600.0 | .345 | 2165.910 | 6394.775 | 73.235 | .00023 | 1.471 |
| 630.0 | .276 | 1732.728 | 5115.820 | 58.588 | .00019 | 1.177 |
| 660.0 | .242 | 1516.137 | 4476.343 | 51.265 | .00016 | 1.030 |
| 690.0 | .207 | 1299.546 | 3836.865 | 43.941 | .00014 | .883 |
| 720.0 | .173 | 1082.955 | 3197.387 | 36.618 | .00012 | .736 |
| 750.0 | .138 | 866.364 | 2557.910 | 29.294 | .00009 | .589 |
| 780.0 | .104 | 649.773 | 1918.432 | 21.971 | .00007 | .441 |
| 810.0 | .086 | 541.478 | 1598.694 | 18.309 | .00006 | .368 |
| 840.0 | .069 | 433.182 | 1278.955 | 14.647 | .00005 | .294 |
| 870.0 | .052 | 324.887 | 959.216 | 10.985 | .00004 | .221 |
| 900.0 | .017 | 108.296 | 319.739 | 3.662 | .00001 | .074 |
| 930.0 | .017 | 108.296 | 319.739 | 3.662 | .00001 | .074 |
| 960.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

## TABLE C-11

EVAPORATION EXPERIMENT NO. G'F11 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 55%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MASS BALANCE)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | 1.137 | 7141.225 | 21084.220 | 280.695 | .00077 | 4.851 |
| 10.0 | 1.085 | 6811.630 | 20111.100 | 267.740 | .00074 | 4.627 |
| 20.0 | .033 | 6482.035 | 19137.980 | 254.785 | .00070 | 4.404 |
| 30.0 | .998 | 6262.305 | 18489.240 | 246.148 | .00068 | 4.254 |
| 40.0 | .945 | 5932.710 | 17516.120 | 233.193 | .00064 | 4.030 |
| 50.0 | .910 | 5712.980 | 16867.380 | 224.556 | .00062 | 3.881 |
| 60.0 | .857 | 5383.385 | 15894.260 | 211.601 | .00058 | 3.657 |
| 70.0 | .822 | 5163.655 | 15245.510 | 202.964 | .00056 | 3.508 |
| 80.0 | .788 | 4943.925 | 14596.770 | 194.327 | .00053 | 3.359 |
| 90.0 | .752 | 4724.195 | 13948.020 | 185.691 | .00051 | 3.209 |
| 100.0 | .700 | 4394.600 | 12974.900 | 172.736 | .00048 | 2.985 |
| 110.0 | .665 | 4174.870 | 12326.160 | 164.099 | .00045 | 2.836 |
| 120.0 | .613 | 3845.275 | 11353.040 | 151.144 | .00042 | 2.612 |
| 130.0 | .577 | 3625.545 | 10704.300 | 142.507 | .00039 | 2.463 |
| 140.0 | .543 | 3405.815 | 10055.550 | 133.870 | .00037 | 2.314 |
| 150.0 | .490 | 3076.220 | 9082.433 | 120.915 | .00033 | 2.090 |
| 160.0 | .455 | 2856.490 | 8433.688 | 112.278 | .00031 | 1.941 |
| 170.0 | .420 | 2636.760 | 7784.942 | 103.641 | .00029 | 1.791 |
| 180.0 | .385 | 2417.030 | 7136.197 | 95.005 | .00026 | 1.642 |
| 190.0 | .332 | 2087.435 | 6163.079 | 82.049 | .00023 | 1.418 |
| 200.0 | .298 | 1867.705 | 5514.334 | 73.413 | .00020 | 1.269 |
| 210.0 | .262 | 1647.975 | 4865.589 | 64.776 | .00018 | 1.120 |
| 220.0 | .228 | 1428.245 | 4216.844 | 56.139 | .00015 | .970 |
| 230.0 | .210 | 1318.380 | 3892.471 | 51.821 | .00014 | .896 |
| 240.0 | .175 | 1098.650 | 3243.726 | 43.184 | .00012 | .746 |
| 250.0 | .157 | 988.785 | 2919.353 | 38.865 | .00011 | .672 |
| 260.0 | .140 | 878.920 | 2594.981 | 34.547 | .00010 | .597 |
| 270.0 | .123 | 769.055 | 2270.608 | 30.229 | .00008 | .522 |
| 280.0 | .105 | 659.190 | 1946.236 | 25.910 | .00007 | .448 |
| 290.0 | .087 | 549.325 | 1621.863 | 21.592 | .00006 | .373 |
| 300.0 | .070 | 439.460 | 1297.490 | 17.274 | .00005 | .299 |
| 310.0 | .053 | 329.595 | 973.118 | 12.955 | .00004 | .224 |
| 320.0 | .053 | 329.595 | 973.118 | 12.955 | .00004 | .224 |
| 330.0 | .035 | 219.730 | 648.745 | 8.637 | .00002 | .149 |
| 340.0 | .018 | 109.865 | 324.373 | 4.318 | .00001 | .075 |
| 350.0 | .018 | 109.865 | 324.373 | 4.318 | .00001 | .075 |
| 360.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

# TABLE C-12

EVAPORATION EXPERIMENT NO. GLF12 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MASS BALANCE)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | .932 | 5847.957 | 17265.890 | 197.735 | .00063 | 3.973 |
| 10.0 | .897 | 5631.366 | 16626.410 | 190.412 | .00061 | 3.826 |
| 20.0 | .880 | 5523.071 | 16306.670 | 186.750 | .00060 | 3.752 |
| 30.0 | .845 | 5306.479 | 15667.200 | 179.427 | .00057 | 3.605 |
| 40.0 | .811 | 5089.888 | 15027.720 | 172.103 | .00055 | 3.458 |
| 50.0 | .794 | 4981.593 | 14707.980 | 168.441 | .00054 | 3.384 |
| 60.0 | .776 | 4873.297 | 14388.240 | 164.780 | .00053 | 3.311 |
| 70.0 | .742 | 4656.707 | 13748.760 | 157.456 | .00050 | 3.164 |
| 80.0 | .725 | 4548.411 | 13429.030 | 153.794 | .00049 | 3.090 |
| 90.0 | .707 | 4440.116 | 13109.290 | 150.132 | .00048 | 3.016 |
| 100.0 | .690 | 4331.820 | 12789.550 | 146.471 | .00047 | 2.943 |
| 110.0 | .673 | 4223.524 | 12469.810 | 142.809 | .00046 | 2.869 |
| 120.0 | .655 | 4115.229 | 12150.070 | 139.147 | .00045 | 2.796 |
| 130.0 | .621 | 3898.638 | 11510.590 | 131.824 | .00042 | 2.649 |
| 140.0 | .604 | 3790.343 | 11190.850 | 128.162 | .00041 | 2.575 |
| 150.0 | .587 | 3682.047 | 10871.120 | 124.500 | .00040 | 2.501 |
| 160.0 | .569 | 3573.751 | 10551.380 | 120.838 | .00039 | 2.428 |
| 170.0 | .552 | 3465.456 | 10231.640 | 117.177 | .00038 | 2.354 |
| 180.0 | .517 | 3248.865 | 9592.161 | 109.853 | .00035 | 2.207 |
| 190.0 | .500 | 3140.569 | 9272.422 | 106.191 | .00034 | 2.134 |
| 200.0 | .483 | 3032.274 | 8952.685 | 102.529 | .00033 | 2.060 |
| 210.0 | .466 | 2923.979 | 8632.945 | 98.868 | .00032 | 1.986 |
| 220.0 | .431 | 2707.387 | 7993.468 | 91.544 | .00029 | 1.839 |
| 230.0 | .414 | 2599.092 | 7673.729 | 87.882 | .00028 | 1.766 |
| 240.0 | .380 | 2382.501 | 7034.251 | 80.559 | .00026 | 1.619 |
| 250.0 | .362 | 2274.206 | 6714.513 | 76.897 | .00025 | 1.545 |
| 260.0 | .328 | 2057.615 | 6075.036 | 69.574 | .00022 | 1.398 |
| 270.0 | .310 | 1949.319 | 5755.297 | 65.912 | .00021 | 1.324 |
| 280.0 | .293 | 1841.024 | 5435.559 | 62.250 | .00020 | 1.251 |
| 290.0 | .259 | 1624.432 | 4796.081 | 54.927 | .00018 | 1.104 |
| 300.0 | .242 | 1516.137 | 4476.342 | 51.265 | .00016 | 1.030 |
| 310.0 | .207 | 1299.546 | 3836.865 | 43.941 | .00014 | .883 |
| 320.0 | .172 | 1082.955 | 3197.387 | 36.618 | .00012 | .736 |
| 330.0 | .155 | 974.659 | 2877.648 | 32.956 | .00011 | .662 |
| 340.0 | .138 | 866.364 | 2557.910 | 29.294 | .00009 | .589 |
| 350.0 | .104 | 649.772 | 1918.432 | 21.971 | .00007 | .441 |
| 360.0 | .086 | 541.477 | 1598.693 | 18.309 | .00006 | .368 |
| 370.0 | .052 | 324.887 | 959.216 | 10.985 | .00004 | .221 |
| 380.0 | .035 | 216.591 | 639.477 | 7.324 | .00002 | .147 |
| 390.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

# TABLE C-13

EVAPORATION EXPERIMENT NO. GLF13 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 44%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MASS BALANCE)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | 1.190 | 7470.821 | 22057.340 | 307.945 | .00081 | 5.075 |
| 40.0 | 1.071 | 6723.739 | 19851.610 | 277.151 | .00073 | 4.568 |
| 80.0 | 1.020 | 6403.561 | 18906.290 | 263.953 | .00069 | 4.350 |
| 120.0 | .986 | 6190.108 | 18276.080 | 255.155 | .00067 | 4.205 |
| 160.0 | .935 | 5869.931 | 17330.770 | 241.957 | .00064 | 3.988 |
| 200.0 | .901 | 5656.479 | 16700.560 | 233.159 | .00061 | 3.843 |
| 240.0 | .867 | 5443.027 | 16070.350 | 224.360 | .00059 | 3.698 |
| 280.0 | .833 | 5229.574 | 15440.140 | 215.562 | .00057 | 3.553 |
| 320.0 | .799 | 5016.123 | 14809.[illegible]0 | 206.763 | .00054 | 3.408 |
| 360.0 | .765 | 4802.671 | 14179.720 | 197.965 | .00052 | 3.263 |
| 400.0 | .697 | 4375.767 | 12919.300 | 180.368 | .00047 | 2.973 |
| 440.0 | .663 | 4162.314 | 12289.090 | 171.570 | .00045 | 2.828 |
| 480.0 | .612 | 3842.136 | 11343.770 | 158.372 | .00042 | 2.610 |
| 520.0 | .561 | 3521.958 | 10398.460 | 145.174 | .00038 | 2.393 |
| 560.0 | .493 | 3095.054 | 9138.040 | 127.577 | .00033 | 2.103 |
| 600.0 | .425 | 2668.150 | 7877.621 | 109.980 | .00029 | 1.813 |
| 640.0 | .357 | 2241.246 | 6617.201 | 92.384 | .00024 | 1.523 |
| 680.0 | .306 | 1921.068 | 5671.887 | 79.186 | .00021 | 1.305 |
| 720.0 | .255 | 1600.890 | 4726.573 | 65.988 | .00017 | 1.088 |
| 760.0 | .204 | 1280.712 | 3781.258 | 52.791 | .00014 | .870 |
| 800.0 | .170 | 1067.260 | 3151.049 | 43.992 | .00012 | .725 |
| 840.0 | .136 | 853.808 | 2520.839 | 35.194 | .00009 | .580 |
| 880.0 | .119 | 747.082 | 2205.734 | 30.795 | .00008 | .508 |
| 920.0 | .102 | 640.356 | 1890.629 | 26.395 | .00007 | .435 |
| 960.0 | .085 | 533.630 | 1575.524 | 21.996 | .00006 | .363 |
| 1000.0 | .068 | 426.904 | 1260.420 | 17.597 | .00005 | .290 |
| 1040.0 | .051 | 320.178 | 945.315 | 13.198 | .00003 | .218 |
| 1080.0 | .034 | 213.452 | 630.210 | 8.798 | .00002 | .165 |
| 1120.0 | .034 | 213.452 | 630.210 | 8.798 | .00002 | .145 |
| 1160.0 | .034 | 213.452 | 630.210 | 8.798 | .00002 | .145 |
| 1200.0 | .017 | 106.726 | 315.105 | 4.399 | .00001 | .073 |
| 1240.0 | .017 | 106.726 | 315.105 | 4.399 | .00001 | .073 |
| 1280.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

## TABLE C-14

EVAPORATION EXPERIMENT NO. GLF14 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 43%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MIRAN CALIBRATION DATA)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | 1.225 | 7690.550 | 22706.080 | 260.039 | .00083 | 5.225 |
| 40.0 | 1.173 | 7360.955 | 21732.960 | 248.894 | .00080 | 5.001 |
| 80.0 | 1.120 | 7031.360 | 20759.850 | 237.750 | .00076 | 4.777 |
| 120.0 | 1.085 | 6811.630 | 20111.100 | 230.320 | .00074 | 4.627 |
| 160.0 | 1.050 | 6591.900 | 19462.360 | 222.890 | .00071 | 4.478 |
| 200.0 | 1.015 | 6372.170 | 18813.610 | 215.461 | .00069 | 4.329 |
| 240.0 | .962 | 6042.575 | 17840.490 | 204.316 | .00065 | 4.105 |
| 280.0 | .928 | 5822.845 | 17191.750 | 196.886 | .00063 | 3.956 |
| 320.0 | .892 | 5603.115 | 16543.000 | 189.457 | .00061 | 3.806 |
| 360.0 | .857 | 5383.385 | 15894.260 | 182.027 | .00058 | 3.657 |
| 400.0 | .805 | 5053.790 | 14921.140 | 170.882 | .00055 | 3.433 |
| 440.0 | .770 | 4834.060 | 14272.390 | 163.453 | .00052 | 3.284 |
| 480.0 | .718 | 4504.465 | 13299.280 | 152.308 | .00049 | 3.060 |
| 520.0 | .665 | 4174.870 | 12326.160 | 141.164 | .00045 | 2.836 |
| 560.0 | .613 | 3845.275 | 11353.040 | 130.019 | .00042 | 2.612 |
| 600.0 | .560 | 3515.680 | 10379.920 | 118.875 | .00038 | 2.388 |
| 640.0 | .507 | 3186.085 | 9406.806 | 107.730 | .00034 | 2.164 |
| 680.0 | .438 | 2746.625 | 8109.315 | 92.871 | .00030 | 1.866 |
| 720.0 | .385 | 2417.030 | 7136.197 | 81.726 | .00026 | 1.642 |
| 760.0 | .350 | 2197.300 | 6487.452 | 74.297 | .00024 | 1.493 |
| 800.0 | .298 | 1867.705 | 5514.334 | 63.152 | .00020 | 1.269 |
| 840.0 | .262 | 1647.975 | 4865.589 | 55.723 | .00018 | 1.120 |
| 880.0 | .228 | 1428.245 | 4216.844 | 48.293 | .00015 | .970 |
| 920.0 | .157 | 988.785 | 2919.353 | 33.434 | .00011 | .672 |
| 960.0 | .105 | 659.190 | 1946.236 | 22.289 | .00007 | .448 |
| 1000.0 | .087 | 549.325 | 1621.863 | 18.574 | .00006 | .373 |
| 1040.0 | .087 | 549.325 | 1621.863 | 18.574 | .00006 | .373 |
| 1080.0 | .053 | 329.595 | 973.118 | 11.145 | .00004 | .224 |
| 1120.0 | .035 | 219.730 | 648.745 | 7.430 | .00002 | .149 |
| 1160.0 | .000 | .000 | 000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

# TABLE C-15

EVAPORATION EXPERIMENT NO. GLF15 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.3 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MASS BALANCE)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | .720 | 4521.729 | 13350.250 | 177.733 | .00049 | 3.072 |
| 15.0 | .687 | 4311.417 | 12729.310 | 169.466 | .00047 | 2.929 |
| 30.0 | .653 | 4101.104 | 12108.370 | 161.199 | .00044 | 2.786 |
| 45.0 | .637 | 3995.947 | 11797.900 | 157.066 | .00043 | 2.715 |
| 60.0 | .603 | 3785.634 | 11176.950 | 148.799 | .00041 | 2.572 |
| 75.0 | .586 | 3680.478 | 10866.480 | 144.666 | .00040 | 2.500 |
| 90.0 | .570 | 3575.321 | 10556.010 | 140.533 | .00039 | 2.429 |
| 105.0 | .553 | 3470.165 | 10245.540 | 136.399 | .00038 | 2.357 |
| 120.0 | .519 | 3259.851 | 9624.598 | 128.133 | .00035 | 2.215 |
| 135.0 | .502 | 3154.695 | 9314.128 | 123.999 | .00034 | 2.143 |
| 150.0 | .486 | 3049.538 | 9003.656 | 119.866 | .00033 | 2.072 |
| 165.0 | .452 | 2839.226 | 8382.715 | 111.600 | .00031 | 1.929 |
| 180.0 | .435 | 2734.069 | 8072.244 | 107.466 | .00030 | 1.857 |
| 195.0 | .419 | 2628.913 | 7761.773 | 103.333 | .00028 | 1.786 |
| 210.0 | .402 | 2523.756 | 7451.302 | 99.200 | .00027 | 1.715 |
| 225.0 | .368 | 2313.443 | 6830.360 | 90.933 | .00025 | 1.572 |
| 240.0 | .335 | 2103.130 | 6209.418 | 82.666 | .00023 | 1.429 |
| 255.0 | .301 | 1892.817 | 5588.476 | 74.400 | .00020 | 1.286 |
| 270.0 | .268 | 1682.504 | 4967.535 | 66.133 | .00018 | 1.143 |
| 285.0 | .235 | 1472.191 | 4346.593 | 57.866 | .00016 | 1.000 |
| 300.0 | .201 | 1261.878 | 3725.651 | 49.600 | .00014 | .857 |
| 315.0 | .167 | 1051.565 | 3104.709 | 41.333 | .00011 | .714 |
| 330.0 | .134 | 841.252 | 2483.767 | 33.067 | .00009 | .572 |
| 345.0 | .101 | 630.939 | 1862.826 | 24.800 | .00007 | .429 |
| 360.0 | .084 | 525.782 | 1552.354 | 20.667 | .00006 | .357 |
| 375.0 | .067 | 420.626 | 1241.884 | 16.533 | .00005 | .286 |
| 390.0 | .050 | 315.470 | 931.413 | 12.400 | .00003 | .214 |
| 405.0 | .034 | 210.313 | 620.942 | 8.267 | .00002 | .143 |
| 420.0 | .017 | 105.157 | 310.471 | 4.133 | .00001 | .071 |
| 435.0 | .017 | 105.157 | 310.471 | 4.133 | .00001 | .071 |
| 450.0 | .017 | 105.157 | 310.471 | 4.133 | .00001 | .071 |
| 465.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

## TABLE C-16

EVAPORATION EXPERIMENT NO. GLF16 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS ? MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.3 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MASS BALANCE)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | .731 | 4589.218 | 13549.510 | 161.628 | .00050 | 3.118 |
| 15.0 | .697 | 4375.766 | 12919.300 | 154.111 | .00047 | 2.973 |
| 30.0 | .663 | 4162.314 | 12289.090 | 146.593 | .00045 | 2.828 |
| 45.0 | .646 | 4055.588 | 11973.980 | 142.834 | .00044 | 2.755 |
| 60.0 | .612 | 3842.136 | 11343.770 | 135.317 | .00042 | 2.610 |
| 75.0 | .595 | 3735.410 | 11028.670 | 131.558 | .00040 | 2.538 |
| 90.0 | .578 | 3628.684 | 10713.560 | 127.799 | .00039 | 2.465 |
| 105.0 | .561 | 3521.958 | 10398.460 | 124.040 | .00038 | 2.393 |
| 120.0 | .544 | 3415.232 | 10083.350 | 120.281 | .00037 | 2.320 |
| 135.0 | .527 | 3308.506 | 9768.250 | 116.523 | .00036 | 2.248 |
| 150.0 | .510 | 3201.780 | 9453.145 | 112.764 | .00035 | 2.175 |
| 165.0 | .476 | 2988.328 | 8822.936 | 105.246 | .00032 | 2.030 |
| 180.0 | .476 | 2988.328 | 8822.936 | 105.246 | .00032 | 2.030 |
| 195.0 | .442 | 2774.876 | 8152.726 | 97.729 | .00030 | 1.885 |
| 210.0 | .425 | 2668.150 | 7877.621 | 93.970 | .00029 | 1.813 |
| 225.0 | .408 | 2561.424 | 7562.516 | 90.211 | .00028 | 1.740 |
| 240.0 | .374 | 2347.972 | 6932.307 | 87.694 | .00025 | 1.595 |
| 255.0 | .357 | 2241.246 | 6617.201 | 78.935 | .00024 | 1.523 |
| 270.0 | .340 | 2134.520 | 6302.096 | 75.176 | .00023 | 1.450 |
| 285.0 | .306 | 1921.068 | 5671.887 | 67.658 | .00021 | 1.305 |
| 300.0 | .272 | 1707.616 | 5341.677 | 60.145 | .00018 | 1.160 |
| 315.0 | .238 | 1494.164 | 4411.468 | 52.623 | .00016 | 1.015 |
| 330.0 | .204 | 1280.712 | 3781.250 | 45.106 | .00014 | .870 |
| 345.0 | .153 | 960.534 | 2835.943 | 33.029 | .00010 | .653 |
| 360.0 | .119 | 747.082 | 2205.734 | 26.312 | .00008 | .508 |
| 375.0 | .085 | 533.630 | 1575.524 | 18.794 | .00006 | .363 |
| 390.0 | .051 | 320.178 | 945.314 | 11.276 | .00005 | .218 |
| 405.0 | .034 | 213.452 | 630.210 | 7.518 | .00002 | .145 |
| 420.0 | .017 | 106.726 | 315.105 | 3.759 | .00001 | .073 |
| 435.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

# TABLE C-17

EVAPORATION EXPERIMENT NO. RLF1 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MIRAN CALIBRATION DATA)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQU | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | 1.345 | 8447.049 | 24939.620 | 297.498 | .00091 | 5.738 |
| 45.0 | 1.259 | 7905.571 | 23340.920 | 278.427 | .00086 | 5.371 |
| 90.0 | 1.190 | 7472.389 | 22061.970 | 263.171 | .00081 | 5.076 |
| 135.0 | 1.138 | 7147.503 | 21102.750 | 251.729 | .00077 | 4.856 |
| 180.0 | 1.087 | 6822.617 | 20143.540 | 240.287 | .00074 | 4.635 |
| 225.0 | 1.035 | 6497.730 | 19184.320 | 228.844 | .00070 | 4.414 |
| 270.0 | .966 | 6064.548 | 17905.370 | 213.588 | .00066 | 4.120 |
| 315.0 | .914 | 5739.662 | 16946.150 | 202.146 | .00062 | 3.899 |
| 360.0 | .828 | 5198.184 | 15347.460 | 183.075 | .00056 | 3.531 |
| 405.0 | .759 | 4765.002 | 14068.500 | 167.819 | .00052 | 3.237 |
| 450.0 | .675 | 4223.524 | 12469.810 | 148.749 | .00046 | 2.869 |
| 495.0 | .604 | 3790.343 | 11190.850 | 133.493 | .00041 | 2.575 |
| 540.0 | .517 | 3248.865 | 9592.161 | 114.422 | .00035 | 2.207 |
| 585.0 | .431 | 2707.387 | 7993.468 | 95.352 | .00029 | 1.839 |
| 630.0 | .362 | 2274.206 | 6714.513 | 80.096 | .00025 | 1.545 |
| 675.0 | .276 | 1732.728 | 5115.820 | 61.025 | .00019 | 1.177 |
| 720.0 | .224 | 1407.842 | 4156.604 | [illegible]9.583 | .00015 | .956 |
| 765.0 | .155 | 974.659 | 2877.648 | [illegible].327 | .00011 | .662 |
| 810.0 | .121 | 758.069 | 2238.171 | 26.699 | .00008 | .515 |
| 855.0 | .069 | 433.182 | 1278.955 | 15.256 | .00005 | .294 |
| 900.0 | .052 | 324.887 | 959.216 | 11.442 | .00004 | .221 |
| 945.0 | .035 | 216.591 | 639.477 | 7.628 | .00002 | .147 |
| 990.0 | .035 | 216.591 | 639.477 | 7.628 | .00002 | .147 |
| 1035.0 | .017 | 108.296 | 319.739 | 3.314 | .00001 | .074 |
| 1080.0 | .017 | 108.296 | 319.739 | 3.814 | .00001 | .074 |
| 1125.0 | .017 | 108.296 | 319.739 | 3.814 | .00001 | .074 |
| 1170.0 | .017 | 108.296 | 319.739 | 3.814 | .00001 | .074 |
| 1215.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

TABLE C-28

EVAPORATION EXPERIMENT NO. BLF2 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 2.9 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MIRAN CALIBRATION DATA)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | 1.491 | 9358.929 | 27631.910 | 316.451 | .00101 | 6.358 |
| 40.0 | 1.407 | 8833.146 | 26079.560 | 298.673 | .00096 | 6.001 |
| 80.0 | 1.340 | 8412.520 | 24837.670 | 284.450 | .00091 | 5.715 |
| 120.0 | 1.290 | 8097.050 | 23906.260 | 273.783 | .00088 | 5.501 |
| 160.0 | 1.240 | 7781.581 | 22974.850 | 263.117 | .00084 | 5.286 |
| 200.0 | 1.189 | 7466.111 | 22043.440 | 252.450 | .00081 | 5.072 |
| 240.0 | 1.139 | 7150.643 | 21112.020 | 241.783 | .00077 | 4.858 |
| 280.0 | 1.089 | 6835.172 | 20180.610 | 231.116 | .00074 | 4.643 |
| 320.0 | 1.038 | 6519.703 | 19249.200 | 220.449 | .00071 | 4.429 |
| 360.0 | .988 | 6204.233 | 18317.780 | 209.782 | .00067 | 4.215 |
| 400.0 | .938 | 5888.764 | 17386.370 | 199.115 | .00064 | 4.001 |
| 440.0 | .871 | 5468.138 | 16144.490 | 184.893 | .00059 | 3.715 |
| 480.0 | .821 | 5152.668 | 15213.080 | 174.226 | .00056 | 3.500 |
| 520.0 | .754 | 4732.042 | 13971.190 | 160.003 | .00051 | 3.215 |
| 560.0 | .670 | 4206.260 | 12418.840 | 142.225 | .00046 | 2.858 |
| 600.0 | .603 | 3785.634 | 11176.950 | 128.003 | .00041 | 2.572 |
| 640.0 | .536 | 3365.008 | 9935.069 | 113.780 | .00036 | 2.286 |
| 680.0 | .469 | 2944.382 | 8693.187 | 99.558 | .00032 | 2.000 |
| 720.0 | .402 | 2523.756 | 7451.302 | 85.335 | .00027 | 1.715 |
| 760.0 | .335 | 2103.130 | 6209.418 | 71.113 | .00023 | 1.429 |
| 800.0 | .285 | 1787.661 | 5278.006 | 60.446 | .00019 | 1.214 |
| 840.0 | .235 | 1472.191 | 4346.593 | 49.779 | .00016 | 1.000 |
| 880.0 | .201 | 1261.878 | 3725.651 | 42.668 | .00014 | .857 |
| 920.0 | .151 | 946.408 | 2794.238 | 32.001 | .00010 | .643 |
| 960.0 | .134 | 841.252 | 2483.767 | 28.445 | .00009 | .572 |
| 1000.0 | .101 | 630.939 | 1862.826 | 21.334 | .00007 | .429 |
| 1040.0 | .067 | 420.626 | 1241.884 | 14.223 | .00005 | .286 |
| 1080.0 | .050 | 315.470 | 931.413 | 10.667 | .00003 | .214 |
| 1120.0 | .034 | 210.313 | 620.942 | 7.111 | .00002 | .143 |
| 1160.0 | .034 | 210.313 | 620.942 | 7.111 | .00002 | .143 |
| 1200.0 | .017 | 105.157 | 310.471 | 3.556 | .00001 | .071 |
| 1240.0 | .017 | 105.157 | 310.471 | 3.556 | .00001 | .071 |
| 1280.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

## TABLE C-19

EVAPORATION EXPERIMENT NO. BLF3 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 30 DEG F., RELATIVE HUMIDITY 37%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MIRAN CALIBRATION DATA)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | .897 | 5631.366 | 16626.410 | 195.332 | .00061 | 3.826 |
| 15.0 | .845 | 5306.479 | 15667.200 | 186.890 | .00057 | 3.605 |
| 30.0 | .811 | 5089.888 | 15027.720 | 179.261 | .00055 | 3.458 |
| 45.0 | .759 | 4765.002 | 14068.500 | 167.819 | .00052 | 3.237 |
| 60.0 | .725 | 4548.411 | 13429.030 | 160.191 | .00049 | 3.090 |
| 75.0 | .707 | 4440.116 | 13109.290 | 154.017 | .00048 | 3.016 |
| 90.0 | .673 | 4223.524 | 12469.810 | 148.749 | .00046 | 2.869 |
| 105.0 | .638 | 4006.933 | 11830.330 | 141.121 | .00043 | 2.722 |
| 120.0 | .604 | 3790.343 | 11190.850 | 131.493 | .00041 | 2.575 |
| 135.0 | .587 | 3682.047 | 10871.120 | 129.678 | .00040 | 2.501 |
| 150.0 | .552 | 3465.456 | 10231.640 | 122.050 | .00038 | 2.354 |
| 165.0 | .535 | 3357.160 | 9911.899 | 118.236 | .00036 | 2.281 |
| 180.0 | .500 | 3140.569 | 9272.422 | 110.608 | .00034 | 2.134 |
| 195.0 | .466 | 2923.979 | 8632.945 | 102.980 | .00032 | 1.986 |
| 210.0 | .431 | 2707.387 | 7993.460 | 95.352 | .00029 | 1.839 |
| 225.0 | .397 | 2490.797 | 7353.991 | 87.724 | .00027 | 1.692 |
| 240.0 | .345 | 2165.910 | 6394.774 | 76.281 | .00023 | 1.471 |
| 255.0 | .310 | 1949.319 | 5755.297 | 68.653 | .00021 | 1.324 |
| 270.0 | .276 | 1732.728 | 5115.820 | 61.025 | .00019 | 1.177 |
| 285.0 | .242 | 1516.137 | 4476.342 | 53.397 | .00016 | 1.030 |
| 300.0 | .207 | 1299.546 | 3836.865 | 45.769 | .00014 | .883 |
| 315.0 | .172 | 1082.955 | 3197.387 | 38.141 | .00012 | .736 |
| 330.0 | .138 | 866.364 | 2557.910 | 30.513 | .00009 | .589 |
| 345.0 | .104 | 649.773 | 1918.432 | 22.884 | .00007 | .441 |
| 360.0 | .069 | 433.182 | 1278.955 | 15.256 | .00005 | .294 |
| 375.0 | .052 | 324.887 | 959.216 | 11.442 | .00004 | .221 |
| 390.0 | .035 | 216.591 | 639.477 | 7.628 | .00002 | .147 |
| 405.0 | .035 | 216.591 | 639.477 | 7.628 | .00002 | .147 |
| 420.0 | .017 | 108.296 | 319.739 | 3.814 | .00001 | .074 |
| 435.0 | .017 | 108.296 | 319.739 | 3.814 | .00001 | .074 |
| 450.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

TABLE C-20

EVAPORATION EXPERIMENT NO. BLF4 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 20%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MIRAN CALIBRATION DATA)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | .880 | 5523.071 | 16306.670 | 179.579 | .00060 | 3.752 |
| 20.0 | .863 | 5414.775 | 15986.940 | 176.058 | .00059 | 3.679 |
| 40.0 | .828 | 5198.184 | 15347.460 | 169.016 | .00056 | 3.531 |
| 60.0 | .794 | 4931.593 | 14707.980 | 161.973 | .00054 | 3.384 |
| 80.0 | .776 | 4873.297 | 14388.240 | 158.452 | .00053 | 3.311 |
| 100.0 | .742 | 4656.707 | 13748.760 | 151.410 | .00050 | 3.164 |
| 120.0 | .690 | 4331.820 | 12789.550 | 140.846 | .00047 | 2.943 |
| 140.0 | .655 | 4115.229 | 12150.070 | 133.804 | .00045 | 2.796 |
| 160.0 | .621 | 3898.638 | 11510.590 | 126.762 | .00042 | 2.649 |
| 180.0 | .587 | 3682.047 | 10871.120 | 119.719 | .00040 | 2.501 |
| 200.0 | .535 | 3357.160 | 9911.899 | 109.156 | .00036 | 2.281 |
| 220.0 | .500 | 3140.569 | 9272.422 | 102.114 | .00034 | 2.134 |
| 240.0 | .449 | 2815.683 | 8313.202 | 91.550 | .00030 | 1.913 |
| 260.0 | .414 | 2599.092 | 7673.729 | 84.508 | .00028 | 1.766 |
| 280.0 | .362 | 2274.206 | 6714.513 | 73.944 | .00025 | 1.545 |
| 300.0 | .310 | 1949.319 | 5755.297 | 63.381 | .00021 | 1.324 |
| 320.0 | .259 | 1624.432 | 4796.081 | 52.817 | .00018 | 1.104 |
| 340.0 | .207 | 1299.546 | 3836.865 | 42.254 | .00014 | .883 |
| 360.0 | .155 | 974.659 | 2877.648 | 31.690 | .00011 | .662 |
| 380.0 | .104 | 649.773 | 1918.432 | 21.127 | .00007 | .441 |
| 400.0 | .069 | 433.182 | 1278.955 | 14.085 | .00005 | .294 |
| 420.0 | .052 | 324.887 | 959.216 | 10.563 | .00004 | .221 |
| 440.0 | .035 | 216.591 | 639.477 | 7.042 | .00002 | .147 |
| 460.0 | .035 | 216.591 | 639.477 | 7.042 | .00002 | .147 |
| 480.0 | .017 | 108.296 | 319.739 | 3.521 | .00001 | .074 |
| 500.0 | .017 | 108.296 | 319.739 | 3.521 | .00001 | .074 |
| 520.0 | .017 | 108.296 | 319.739 | 3.521 | .00001 | .074 |
| 540.0 | .017 | 108.296 | 319.739 | 3.521 | .00001 | .074 |
| 560.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

## TABLE C-21

EVAPORATION EXPERIMENT NO. 9LF5 SERIES TO 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MIRAN CALIBRATION DATA)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | 1.363 | 8555.345 | 25259.360 | 314.388 | .00093 | 5.812 |
| 30.0 | 1.242 | 7797.276 | 23021.190 | 286.531 | .00084 | 5.297 |
| 60.0 | 1.156 | 7255.799 | 21422.490 | 266.633 | .00079 | 4.929 |
| 90.0 | 1.121 | 7039.207 | 20783.020 | 258.674 | .00075 | 4.782 |
| 120.0 | 1.087 | 6822.617 | 20143.540 | 250.715 | .00074 | 4.635 |
| 150.0 | 1.052 | 6606.026 | 19504.060 | 242.755 | .00071 | 4.488 |
| 180.0 | 1.035 | 6497.730 | 19184.320 | 238.7[illegible]6 | .00070 | 4.414 |
| 210.0 | 1.000 | 6281.139 | 18544.840 | 230.817 | .00068 | 4.267 |
| 240.0 | .966 | 6064.548 | 17905.370 | 222.857 | .00066 | 4.120 |
| 270.0 | .932 | 5847.957 | 17265.890 | 214.898 | .00063 | 3.973 |
| 300.0 | .897 | 5631.366 | 16626.410 | 206.939 | .00061 | 3.826 |
| 330.0 | .863 | 5414.775 | 15986.940 | 198.980 | .00059 | 3.679 |
| 360.0 | .811 | 5089.888 | 15027.720 | 187.041 | .00055 | 3.458 |
| 390.0 | .759 | 4765.002 | 14068.500 | 175.102 | .00052 | 3.237 |
| 420.0 | .707 | 4440.116 | 13109.290 | 163.163 | .00048 | 3.016 |
| 450.0 | .655 | 4115.229 | 12150.070 | 151.225 | .00045 | 2.796 |
| 480.0 | .604 | 3790.343 | 11190.850 | 139.286 | .00041 | 2.575 |
| 510.0 | .552 | 3465.456 | 10231.640 | 127.347 | .00038 | 2.354 |
| 540.0 | .517 | 3248.865 | 9592.161 | 119.388 | .00035 | 2.207 |
| 570.0 | .466 | 2923.979 | 8632.945 | 107.449 | .00032 | 1.986 |
| 600.0 | .414 | 2599.092 | 7673.729 | 95.510 | .00028 | 1.766 |
| 630.0 | .362 | 2274.206 | 6714.513 | 83.572 | .00025 | 1.545 |
| 660.0 | .310 | 1949.319 | 5755.297 | 71.633 | .00021 | 1.324 |
| 690.0 | .259 | 1624.432 | 4796.081 | 59.694 | .00018 | 1.104 |
| 720.0 | .207 | 1299.546 | 3836.865 | 47.755 | .00014 | .883 |
| 750.0 | .172 | 1082.955 | 3197.387 | 39.796 | .00012 | .736 |
| 780.0 | .155 | 974.659 | 2877.648 | 35.816 | .00011 | .662 |
| 810.0 | .138 | 866.364 | 2557.910 | 31.837 | .00009 | .589 |
| 840.0 | .121 | 758.069 | 2238.171 | 27.857 | .00008 | .515 |
| 870.0 | .104 | 649.773 | 1918.432 | 23.878 | .00007 | .441 |
| 900.0 | .086 | 541.477 | 1598.693 | 19.898 | .00006 | .3[illegible]8 |
| 930.0 | .052 | 324.887 | 959.216 | 11.939 | .00004 | .221 |
| 960.0 | .052 | 324.887 | 959.216 | 11.939 | .00004 | .221 |
| 990.0 | .052 | 324.887 | 959.216 | 11.939 | .00004 | .221 |
| 1020.0 | .035 | 216.591 | 639.477 | 7.959 | .00002 | .147 |
| 1050.0 | .035 | 216.591 | 639.477 | 7.959 | .00002 | .147 |
| 1080.0 | .017 | 108.296 | 319.739 | 3.980 | .00001 | .074 |
| 1110.0 | .017 | 108.296 | 319.739 | 3.980 | .00001 | .074 |
| 1140.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

TABLE C-22

EVAPORATION EXPERIMENT NO. BLF6 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 2.9 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MIRAN CALIBRATION DATA)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | 1.414 | 8880.231 | 26218.580 | 306.382 | .00096 | 6.033 |
| 40.0 | 1.363 | 8555.345 | 25259.360 | 295.173 | 00093 | 5.812 |
| 80.0 | 1.328 | 8338.754 | 24619.880 | 287.700 | .00090 | 5.665 |
| 120.0 | 1.259 | 7905.571 | 23340.920 | 272.755 | .00086 | 5.371 |
| 160.0 | 1.225 | 7688.981 | 22701.450 | 265.282 | .00083 | 5.223 |
| 200.0 | 1.173 | 7364.095 | 21742.230 | 254.073 | .00080 | 5.003 |
| 240.0 | 1.121 | 7039.207 | 20783.020 | 242.864 | .00076 | 4.782 |
| 280.0 | 1.069 | 6714.321 | 19823.800 | 231.655 | .00073 | 4.561 |
| 320.0 | 1.018 | 6389.435 | 18864.580 | 220.446 | .00069 | 4.341 |
| 360.0 | .966 | 6064.548 | 17905.370 | 209.237 | .00066 | 4.120 |
| 400.0 | .914 | 5739.662 | 16946.150 | 198.028 | .00062 | 3.899 |
| 440.0 | .845 | 5306.479 | 15667.200 | 183.082 | .00057 | 3.605 |
| 480.0 | .759 | 4765.002 | 14068.500 | 164.400 | .00052 | 3.237 |
| 520.0 | .673 | 4223.524 | 12469.810 | 145.718 | .00046 | 2.869 |
| 560.0 | .604 | 3790.343 | 11190.850 | 130.773 | .00041 | 2.575 |
| 600.0 | .517 | 3248.865 | 9592.161 | 112.091 | .00035 | 2.207 |
| 640.0 | .431 | 2707.387 | 7993.468 | 93.409 | .00029 | 1.839 |
| 680.0 | .345 | 2165.910 | 6394.774 | 74.727 | .00023 | 1.471 |
| 720.0 | .293 | 1841.024 | 5435.559 | 63.518 | .00020 | 1.251 |
| 760.0 | .242 | 1516.137 | 4476.342 | 52.309 | .00016 | 1.030 |
| 800.0 | .207 | 1299.546 | 3836.865 | 44.836 | .00014 | .883 |
| 840.0 | .172 | 1082.955 | 3197.387 | 37.364 | .00012 | .736 |
| 880.0 | .138 | 866.364 | 2557.910 | 29.891 | .00009 | .589 |
| 920.0 | .121 | 758.069 | 2238.171 | 26.155 | .00008 | .515 |
| 960.0 | .104 | 649.773 | 1918.432 | 22.418 | .00007 | .441 |
| 1000.0 | .086 | 541.477 | 1598.693 | 18.682 | .00006 | .368 |
| 1040.0 | .069 | 433.182 | 1278.955 | 14.945 | .00005 | .294 |
| 1080.0 | .052 | 324.887 | 959.216 | 11.209 | .00004 | .221 |
| 1120.0 | .035 | 216.591 | 639.477 | 7.473 | .00002 | .147 |
| 1160.0 | .035 | 216.591 | 639.477 | 7.473 | .00002 | .147 |
| 1200.0 | .017 | 108.296 | 319.739 | 3.736 | .00001 | .074 |
| 1240.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

# TABLE C-23

EVAPORATION EXPERIMENT NO. BLF7 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MIRAN CALIBRATION DATA)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | .759 | 4765.002 | 14068.500 | 183.046 | .00052 | 3.237 |
| 15.0 | .742 | 4656.707 | 13748.760 | 178.886 | .00050 | 3.164 |
| 30.0 | .707 | 4440.116 | 13109.290 | 170.566 | .00048 | 3.016 |
| 45.0 | .690 | 4331.820 | 12789.550 | 166.406 | .00047 | 2.943 |
| 60.0 | .673 | 4223.524 | 12469.810 | 162.245 | .00046 | 2.869 |
| 75.0 | .638 | 4006.933 | 11830.330 | 153.925 | .00043 | 2.722 |
| 90.0 | .604 | 3790.343 | 11190.850 | 145.605 | .00041 | 2.575 |
| 105.0 | .587 | 3682.047 | 10871.120 | 141.445 | .00040 | 2.501 |
| 120.0 | .552 | 3465.456 | 10231.640 | 133.124 | .00033 | 2.354 |
| 135.0 | .535 | 3357.160 | 9911.899 | 128.964 | .00036 | 2.281 |
| 150.0 | .517 | 3248.865 | 9592.161 | 124.804 | .00035 | 2.207 |
| 165.0 | .483 | 3032.274 | 8952.685 | 116.484 | .00033 | 2.060 |
| 180.0 | .466 | 2923.979 | 8632.945 | 112.324 | .00032 | 1.986 |
| 195.0 | .431 | 2707.387 | 7993.468 | 104.003 | .00029 | 1.839 |
| 210.0 | .397 | 2490.797 | 7353.991 | 95.683 | .00027 | 1.692 |
| 225.0 | .362 | 2274.206 | 6714.513 | 87.363 | .00025 | 1.545 |
| 240.0 | .328 | 2057.615 | 6075.036 | 79.043 | .00022 | 1.398 |
| 255.0 | .276 | 1732.728 | 5115.820 | 66.562 | .00019 | 1.177 |
| 270.0 | .242 | 1516.137 | 4476.342 | 58.242 | .00016 | 1.030 |
| 285.0 | .224 | 1407.842 | 4156.604 | 54.082 | .00015 | .956 |
| 300.0 | .190 | 1191.250 | 3517.126 | 45.762 | .00013 | .809 |
| 315.0 | .155 | 974.659 | 2877.648 | 37.441 | .00011 | .662 |
| 330.0 | .138 | 866.364 | 2557.910 | 33.281 | .00009 | .589 |
| 345.0 | .121 | 758.069 | 2238.171 | 29.121 | .00008 | .515 |
| 360.0 | .104 | 649.773 | 1918.432 | 24.961 | .00007 | .441 |
| 375.0 | .086 | 541.477 | 1598.693 | 20.801 | .00006 | .368 |
| 390.0 | .069 | 433.182 | 1278.955 | 16.641 | .00005 | .294 |
| 405.0 | .052 | 324.887 | 959.216 | 12.480 | .00004 | .221 |
| 420.0 | .052 | 324.887 | 959.216 | 12.480 | .00004 | .221 |
| 435.0 | .035 | 216.591 | 639.477 | 8.320 | .00002 | .147 |
| 450.0 | .035 | 216.591 | 639.477 | 8.320 | .00002 | .147 |
| 465.0 | .017 | 108.296 | 319.739 | 4.160 | .00001 | .074 |
| 480.0 | .017 | 108.296 | 319.739 | 4.160 | .00001 | .074 |
| 495.0 | .017 | 108.296 | 319.739 | 4.160 | .00001 | .074 |
| 510.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

# TABLE C-24

EVAPORATION EXPERIMENT NO. 8LF8 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 50%

VAPOR CONTAMINATION FROM A UNIFORM ARRAY OF DEPOSITED DROPLETS
(PPM/AB BASED ON MIRAN CALIBRATION DATA)

| ELAPSED TIME MINUTES | PPM | MICROGRAMS PER CUBIC METER | * PER METER SQUARED | * PER GRAM/ METER SQD | PPM PER DROP | MICROGRAMS PER CUBIC METER PER DROP |
|---|---|---|---|---|---|---|
| .0 | .850 | 5336.300 | 15755.240 | 176.903 | .00058 | 3.625 |
| 15.0 | .816 | 5122.848 | 15125.030 | 169.827 | .00055 | 3.480 |
| 30.0 | .782 | 4909.396 | 14494.820 | 162.751 | .00053 | 3.335 |
| 45.0 | .748 | 4695.944 | 13864.610 | 155.675 | .00051 | 3.190 |
| 60.0 | .714 | 4482.492 | 13234.400 | 148.598 | .00049 | 3.045 |
| 75.0 | .697 | 4375.766 | 12919.300 | 145.060 | .00047 | 2.973 |
| 90.0 | .680 | 4269.040 | 12604.190 | 141.522 | .00046 | 2.900 |
| 105.0 | .646 | 4055.588 | 11973.980 | 134.446 | .00044 | 2.755 |
| 120.0 | .629 | 3948.862 | 11658.880 | 130.908 | .00043 | 2.683 |
| 135.0 | .612 | 3842.136 | 11343.770 | 127.370 | .00042 | 2.610 |
| 150.0 | .595 | 3735.410 | 11028.670 | 123.832 | .00040 | 2.538 |
| 165.0 | .578 | 3628.684 | 10713.560 | 120.294 | .00039 | 2.465 |
| 180.0 | .561 | 3521.958 | 10398.460 | 116.756 | .00038 | 2.393 |
| 195.0 | .544 | 3415.232 | 10083.350 | 113.218 | .00037 | 2.320 |
| 210.0 | .510 | 3201.780 | 9453.145 | 106.142 | .00035 | [illegible] |
| 225.0 | .493 | 3095.054 | 9138.039 | 102.604 | .00033 | 2.103 |
| 240.0 | .459 | 2881.602 | 8507.830 | 95.528 | .00031 | 1.958 |
| 255.0 | .442 | 2774.876 | 8192.726 | 91.989 | .00030 | 1.885 |
| 270.0 | .425 | 2668.150 | 7877.621 | 88.451 | .00029 | 1.813 |
| 285.0 | .357 | 2241.246 | 6617.201 | 74.299 | .00024 | 1.523 |
| 300.0 | .323 | 2027.794 | 5986.991 | 67.223 | .00022 | 1.378 |
| 315.0 | .289 | 1814.342 | 5356.782 | 60.147 | .00020 | 1.233 |
| 330.0 | .255 | 1600.890 | 4726.572 | 53.071 | .00017 | 1.088 |
| 345.0 | .221 | 1387.438 | 4096.363 | 45.995 | .00015 | .943 |
| 360.0 | .187 | 1173.986 | 3466.153 | 38.919 | .00013 | .798 |
| 375.0 | .153 | 960.534 | 2835.943 | 31.843 | .00010 | .653 |
| 390.0 | .119 | 747.082 | 2205.734 | 24.766 | .00008 | .508 |
| 405.0 | .085 | 533.630 | 1575.524 | 17.690 | .00006 | .363 |
| 420.0 | .068 | 426.904 | 1260.419 | 14.152 | .00005 | .290 |
| 435.0 | .034 | 213.452 | 630.210 | 7.076 | .00002 | .145 |
| 450.0 | .017 | 106.726 | 315.105 | 3.538 | .00001 | .073 |
| 465.0 | .017 | 106.726 | 315.105 | 3.538 | .00001 | .073 |
| 480.0 | .000 | .000 | .000 | .000 | .00000 | .000 |

* MICROGRAMS PER CUBIC METER

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# APPENDIX D

## EVAPORATION HISTORY OF TEST DROPLET, MEASURED AND THEORETICAL

## TABLE D-1

EVAPORATION EXPERIMENT NO. GLF1 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 45%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 6.20707 | 1.000000 | .000000 | .00000 | 6.20707 | 1.000000 | .0000 | .00000 |
| 30.0 | 5.66969 | .913426 | .537370 | .08657 | 5.70427 | .918997 | .0345 | .12187 |
| 60.0 | 5.19179 | .836432 | 1.015277 | .16357 | 5.24221 | .844555 | .0690 | .24374 |
| 90.0 | 4.76674 | .767953 | 1.440328 | .23205 | 4.81757 | .776143 | .1034 | .36561 |
| 120.0 | · 37913 | .705507 | 1.827939 | .29449 | 4.42733 | .713273 | .1379 | .48747 |
| 150.0 | 4.02455 | .648382 | 2.182515 | .35162 | 4.06870 | .655495 | .1724 | .60934 |
| 180.0 | 3.70521 | .596934 | 2.507854 | .40307 | 3.73912 | .602398 | .2069 | .73121 |
| 210.0 | 3.41671 | .550454 | 2.790360 | .44955 | 3.43624 | .553601 | .2414 | .85308 |
| 240.0 | 3.15243 | .507877 | 3.054640 | .49212 | 3.15789 | .508758 | .2759 | .97495 |
| 270.0 | 2.91457 | .469557 | 3.292493 | .53044 | 2.90209 | .467547 | .3103 | 1.09682 |
| 300.0 | 2.70095 | .435141 | 3.506119 | .56486 | 2.66701 | .429674 | .3448 | 1.21869 |
| 330.0 | 2.50934 | .404272 | 3.697723 | .59573 | 2.45098 | .394869 | .3793 | 1.34055 |
| 360.0 | 2.33976 | .376951 | 3.867303 | .62305 | 2.25244 | .362883 | .4138 | 1.46242 |
| 390.0 | 2.19000 | .352824 | 4.017062 | .64718 | 2.06998 | .333488 | .4483 | 1.58429 |
| 420.0 | 2.05786 | .331536 | 4.149202 | .66846 | 1.90231 | .306475 | .4828 | 1.70616 |
| 450.0 | 1.94554 | .313440 | 4.261521 | .68656 | 1.74821 | .281649 | .5172 | 1.82803 |
| 480.0 | 1.85305 | .298538 | 4.354019 | .70146 | 1.60660 | .258835 | .5517 | 1.94990 |
| 510.0 | 1.77817 | .286475 | 4.428898 | .71353 | 1.47646 | .237868 | .5862 | 2.07177 |
| 540.0 | 1.71870 | .276895 | 4.488362 | .72311 | 1.35686 | .218600 | .6207 | 2.19364 |
| 570.0 | 1.67025 | .269089 | 4.536813 | .73091 | 1.24695 | .200893 | .6552 | 2.31550 |
| 600.0 | 1.63061 | .262702 | 4.576455 | .73730 | 1.14595 | .184620 | .6897 | 2.43737 |
| 630.0 | 1.59978 | .257735 | 4.607288 | .74227 | 1.05312 | .169665 | .7241 | 2.55924 |
| 660.0 | 1.57555 | .253832 | 4.631514 | .74617 | .96781 | .155921 | .7586 | 2.68111 |
| 690.0 | 1.55573 | .250639 | 4.651335 | .74936 | .88942 | .143291 | .7931 | 2.80298 |
| 720.0 | 1.54031 | .248155 | 4.666751 | .75185 | .81737 | .131684 | .8276 | 2.92485 |
| 750.0 | 1.52930 | .246381 | 4.677763 | .75362 | .75116 | .121017 | .8621 | 3.04672 |
| 780.0 | 1.52049 | .244962 | 4.686572 | .75504 | .69032 | .111214 | .8966 | 3.16858 |
| 810.0 | 1.51389 | .243897 | 4.693179 | .75610 | .63440 | .102206 | .9310 | 3.29045 |
| 840.0 | 1.50948 | .243188 | 4.697584 | .75681 | .58301 | .093927 | .9655 | 3.41232 |
| 870.0 | 1.50728 | .242833 | 4.699786 | .75717 | .53578 | .086318 | 1.0000 | 3.53419 |

# TABLE D-2

EVAPORATION EXPERIMENT NO. GLF2 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 6.46739 | 1.000000 | .000000 | .00000 | 6.46739 | 1.000000 | .0000 | .00000 |
| 30.0 | 5.98728 | .925765 | .480109 | .07424 | 5.97791 | .924316 | .0294 | .11354 |
| 60.0 | 5.54241 | .856978 | .924981 | .14302 | 5.52548 | .854360 | .0588 | .22708 |
| 90.0 | 5.13057 | .793299 | 1.336819 | .20670 | 5.10729 | .789699 | .0882 | .34063 |
| 120.0 | 4.74737 | .734047 | 1.720025 | .26595 | 4.72075 | .729932 | .1176 | .45417 |
| 150.0 | 4.38839 | .678540 | 2.079005 | .32146 | 4.36347 | .674688 | .1471 | .56771 |
| 180.0 | 4.05363 | .626780 | 2.413761 | .37322 | 4.03322 | .623625 | .1765 | .68125 |
| 210.0 | 3.74310 | .578765 | 2.724290 | .42123 | 3.72797 | .576426 | .2059 | .79479 |
| 240.0 | 3.45239 | .533815 | 3.014998 | .46618 | 3.44583 | .532800 | .2353 | .90833 |
| 270.0 | 3.18151 | .491930 | 3.285886 | .50807 | 3.18503 | .492476 | .2647 | 1.02188 |
| 300.0 | 2.93264 | .453450 | 3.534750 | .54655 | 2.94398 | .455203 | .2941 | 1.13542 |
| 330.0 | 2.70360 | .418035 | 3.763793 | .58196 | 2.72117 | .420752 | .3235 | 1.24896 |
| 360.0 | 2.49217 | .385345 | 3.975217 | .61466 | 2.51522 | .388908 | .3529 | 1.36250 |
| 390.0 | 2.29837 | .355378 | 4.169023 | .64462 | 2.32486 | .359474 | .3824 | 1.47604 |
| 420.0 | 2.12218 | .328136 | 4.345210 | .67186 | 2.14890 | .332267 | .4118 | 1.58958 |
| 450.0 | 1.96361 | .303618 | 4.503778 | .69638 | 1.98627 | .307120 | .4412 | 1.70313 |
| 480.0 | 1.82266 | .281824 | 4.644727 | .71818 | 1.83594 | .283876 | .4706 | 1.81667 |
| 510.0 | 1.69933 | .262754 | 4.768058 | .73725 | 1.69699 | .262391 | .5000 | 1.93021 |
| 540.0 | 1.59362 | .246409 | 4.873771 | .75359 | 1.56855 | .242532 | .5294 | 2.04375 |
| 570.0 | 1.50332 | .232447 | 4.964067 | .76755 | 1.44984 | .224177 | .5588 | 2.15729 |
| 600.0 | 1.42624 | .220528 | 5.041148 | .77947 | 1.34011 | .207210 | .5882 | 2.27083 |
| 630.0 | 1.36237 | .210653 | 5.105017 | .78935 | 1.23868 | .191528 | .6176 | 2.38438 |
| 660.0 | 1.30952 | .202480 | 5.157873 | .79752 | 1.14494 | .177032 | .6471 | 2.49792 |
| 690.0 | 1.26327 | .195329 | 5.204121 | .80467 | 1.05828 | .163634 | .6765 | 2.61146 |
| 720.0 | 1.22363 | .189200 | 5.243763 | .81080 | .97819 | .151249 | .7059 | 2.72500 |
| 750.0 | 1.19059 | .184092 | 5.276799 | .81591 | .90415 | .139802 | .7353 | 2.83854 |
| 780.0 | 1.15976 | .179324 | 5.307631 | .82068 | .83572 | .129221 | .7647 | 2.95208 |
| 810.0 | 1.13113 | .174897 | 5.336262 | .82510 | .77247 | .119441 | .7941 | 3.065[illegible] |
| 840.0 | 1.10690 | .171152 | 5.360487 | .82885 | .71401 | .110402 | .8235 | 3.17917 |
| 870.0 | 1.08708 | .168087 | 5.380308 | .83191 | .65997 | .102046 | .8529 | 3.29271 |
| 900.0 | 1.07167 | .165703 | 5.395724 | .83430 | .61002 | .094323 | .8824 | 3.40625 |
| 930.0 | 1.06066 | .164000 | 5.406736 | .83600 | .56385 | .087184 | .9118 | 3.51979 |
| 960.0 | 1.05405 | .162979 | 5.413347 | .83702 | .52118 | .080586 | .9412 | 3.63333 |
| 990.0 | 1.04964 | .162298 | 5.417747 | .83770 | .48173 | .074487 | .9706 | 3.74688 |
| 1020.0 | 1.04744 | .161957 | 5.419950 | .83804 | .44527 | .068849 | 1.0000 | 3.86042 |

# TABLE D-3

EVAPORATION EXPERIMENT NO. GLF3 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 5.54674 | 1.000000 | .000000 | .00000 | 5.54674 | 1.000000 | .0000 | .00000 |
| 15.0 | 4.89668 | .882804 | .650056 | .11720 | 4.89933 | .883281 | .0417 | .17906 |
| 30.0 | 4.32738 | .780166 | 1.219360 | .21983 | 4.32749 | .780185 | .0833 | .35811 |
| 45.0 | 3.82268 | .689175 | 1.724062 | .31082 | 3.82239 | .689123 | .1250 | .53717 |
| 60.0 | 3.37450 | .608376 | 2.172238 | .39162 | 3.37624 | .608689 | .1667 | .71622 |
| 75.0 | 2.97881 | .537039 | 2.567924 | .46296 | 2.98217 | .537644 | .2083 | .89528 |
| 90.0 | 2.62754 | .473709 | 2.919197 | .52629 | 2.63409 | .474891 | .2500 | 1.07433 |
| 105.0 | 2.31665 | .417659 | 3.230093 | .58234 | 2.32664 | .419462 | .2917 | 1.25339 |
| 120.0 | 2.04613 | .368888 | 3.500614 | .63111 | 2.05508 | .370503 | .3333 | 1.43244 |
| 135.0 | 1.81598 | .327396 | 3.730758 | .67260 | 1.81521 | .327258 | .3750 | 1.61150 |
| 150.0 | 1.62621 | .293184 | 3.920526 | .70682 | 1.60334 | .289061 | .4167 | 1.79056 |
| 165.0 | 1.46875 | .264794 | 4.077993 | .73521 | 1.41620 | .255322 | .4583 | 1.96961 |
| 180.0 | 1.33550 | .240773 | 4.211235 | .75923 | 1.25091 | .225521 | .5000 | 2.14867 |
| 195.0 | 1.22649 | .221119 | 4.320250 | .77888 | 1.10490 | .199198 | .5417 | 2.32772 |
| 210.0 | 1.14170 | .205832 | 4.405040 | .79417 | .97594 | .175948 | .5833 | 2.50678 |
| 225.0 | 1.07710 | .194186 | 4.469642 | .80581 | .86203 | .155412 | .6250 | 2.68583 |
| 240.0 | 1.02865 | .185450 | 4.518094 | .81455 | .76141 | .137272 | .6667 | 2.86489 |
| 255.0 | .99231 | .178899 | 4.554432 | .82110 | .67254 | .121250 | .7083 | 3.04394 |
| 270.0 | .96001 | .173076 | 4.586733 | .82692 | .59404 | .107098 | .7500 | 3.22300 |
| 285.0 | .93174 | .167980 | 4.614996 | .83202 | .52471 | .094597 | .7917 | 3.40206 |
| 300.0 | .90752 | .163613 | 4.639223 | .83639 | .46346 | .083556 | .8333 | 3.58111 |
| 315.0 | .88733 | .159973 | 4.659410 | .84003 | .40937 | .073804 | .8750 | 3.76017 |
| 330.0 | .87522 | .157789 | 4.671524 | .84221 | .36159 | .065189 | 9167 | 3.93922 |
| 345.0 | .86714 | .156333 | 4.679599 | .84367 | .31938 | .057580 | .9583 | 4.11828 |
| [illegible].0 | .86310 | .155605 | 4.683637 | .84439 | .28211 | .050860 | 1.0000 | 4.29733 |

# TABLE D-4

EVAPORATION EXPERIMENT NO. CLF4 SERIES 10 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 6.46739 | 1.000000 | .000000 | .00000 | 6.46739 | 1.000000 | .0000 | .00000 |
| 10.0 | 6.07709 | .939651 | .390303 | .06035 | 6.02691 | .931891 | .0270 | .10177 |
| 20.0 | 5.69217 | .880134 | .775222 | .11987 | 5.61642 | .868422 | .0541 | .20353 |
| 30.0 | 5.31802 | .822282 | 1.149375 | .17772 | 5.23389 | [illegible] | .0811 | .30530 |
| 40.0 | 4.96271 | .767343 | 1.504685 | .23266 | 4.87742 | .754156 | .1081 | .40707 |
| 50.0 | 4.62893 | .715734 | 1.838462 | .28427 | 4.54523 | .702792 | .1351 | .50883 |
| 60.0 | 4.31130 | .666622 | 2.156087 | .33338 | 4.23566 | .654925 | .1622 | .61060 |
| 70.0 | 4.00714 | .619591 | 2.460255 | .38041 | 3.94717 | .610319 | .1892 | .71236 |
| 80.0 | 3.7191[illegible] | .575057 | 2.748271 | .42494 | 3.67634 | .568751 | .2162 | .81413 |
| 90.0 | 3.44725 | .533021 | 3.020138 | .46698 | 3.42781 | .530014 | .2432 | .91590 |
| 100.0 | 3.18885 | .493065 | 3.278545 | .50693 | 3.19435 | .493916 | .2703 | 1.01766 |
| 110.0 | 2.94390 | .455191 | 3.523494 | .5448[illegible] | 2.97678 | .460275 | .2973 | 1.11943 |
| 120.0 | 2.71510 | .419814 | 3.752292 | .58019 | 2.77604 | .428927 | .3243 | 1.22120 |
| 130.0 | 2.49976 | .386517 | 3.967632 | .61348 | 2.58510 | .399714 | .3514 | 1.32296 |
| 140.0 | 2.29519 | .354886 | 4.172206 | .64511 | 2.40904 | .372490 | .3784 | 1.42473 |
| 150.0 | 2.10407 | .325336 | 4.363318 | .67466 | 2.24496 | .347120 | .4054 | 1.52649 |
| 160.0 | 1.92642 | .297866 | 4.540974 | .70213 | 2.09206 | .323478 | .4324 | 1.62826 |
| 170.0 | 1.75953 | .272062 | 4.707862 | .72794 | 1.94957 | .301446 | .4595 | 1.73003 |
| 180.0 | 1.60341 | .247922 | 4.863983 | .75208 | 1.81679 | .280915 | .4865 | 1.83179 |
| 190.0 | 1.45805 | .225447 | 5.009337 | .77455 | 1.69305 | .261783 | .5135 | 1.93356 |
| 200.0 | 1.32367 | .204637 | 5.143925 | .79536 | 1.57774 | .243953 | .5405 | 2.03533 |
| 210.0 | 1.19965 | .185492 | 5.267745 | .81451 | 1.47028 | .227338 | .5676 | 2.13709 |
| 220.0 | 1.08659 | .168011 | 5.380798 | .83199 | 1.37014 | .211854 | .5946 | 2.23886 |
| 230.0 | .98431 | .152195 | 5.483084 | .84780 | 1.27682 | .197425 | .6216 | 2.34062 |
| 240.0 | .89279 | .138045 | 5.574603 | .86196 | 1.18926 | .183979 | .6486 | 2.44239 |
| 250.0 | .81204 | .125558 | 5.655355 | .87444 | 1.10882 | .171448 | .6757 | 2.54416 |
| 260.0 | .73936 | .114321 | 5.728033 | .88568 | 1.03330 | .159771 | .7027 | 2.64592 |
| 270.0 | .67476 | .104332 | 5.792634 | .89567 | .96292 | .148889 | .7297 | 2.74769 |
| 280.0 | .62092 | .096008 | 5.846469 | .[illegible]399 | .89734 | .138749 | .7568 | 2.84946 |
| 290.0 | .57516 | .088933 | 5.892230 | .9[illegible]07 | .83622 | .129299 | .7838 | 2.95122 |
| 300.0 | .53479 | .082690 | 5.932605 | .91731 | .77927 | .120492 | .8108 | 3.05299 |
| 310.0 | [illegible] | .077279 | 5.967598 | .92272 | .72620 | .112286 | .8378 | 3.15475 |
| 320.0 | .47018 | .072701 | 5.997207 | .92730 | .67674 | .104638 | .8649 | 3.25652 |
| 330.0 | .44596 | .068955 | 6.021433 | .93105 | .63064 | .097511 | .8919 | 3.35829 |
| 340.0 | .42981 | .066458 | 6.037585 | .93354 | .58769 | .090870 | .9189 | 3.46005 |
| 350.0 | .41904 | .064793 | 6.048350 | .93521 | .54766 | .084681 | .9459 | 3.56182 |
| 360.0 | .41097 | .063544 | 6.056426 | .93646 | .51036 | .078911 | .9730 | 3.66359 |
| 370.0 | .40827 | .063128 | 6.059118 | .93687 | .47560 | .073539 | 1.0000 | 3.76535 |

# TABLE D-5

EVAPORATION EXPERIMENT NO. GLF5 SERIES 10 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 58%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 5.54674 | 1.000000 | .000000 | .00000 | 5.54674 | 1.000000 | .0000 | .00000 |
| 30.0 | 5.21198 | .939648 | .334755 | .06035 | 5.19749 | .937035 | .0345 | .09382 |
| 60.0 | 4.89264 | .882076 | .654094 | .11792 | 4.87023 | .878035 | .0690 | .18765 |
| 90.0 | 4.58872 | .827283 | .958016 | .17272 | 4.56358 | .822750 | .1034 | .28147 |
| 120.0 | 4.30242 | .775666 | 1.244320 | .22433 | 4.27623 | .770945 | .1379 | .37530 |
| 150.0 | 4.03153 | .726829 | 1.515208 | .27317 | 4.00698 | .722403 | .1724 | .46912 |
| 180.0 | 3.77606 | .680771 | 1.770679 | .31923 | 3.75468 | .676917 | .2069 | .56295 |
| 210.0 | 3.53601 | .637495 | 2.010733 | .36251 | 3.51827 | .634295 | .2414 | .65677 |
| 240.0 | 3.30917 | .596596 | 2.237574 | .40340 | 3.29674 | .594357 | .2759 | .75060 |
| 270.0 | 3.09554 | .558083 | 2.451200 | .44192 | 3.08916 | .556935 | .3103 | .84442 |
| 300.0 | 2.89513 | .521951 | 2.651613 | .47805 | 2.89465 | .521866 | .3448 | .93825 |
| 330.0 | 2.71013 | .488599 | 2.836610 | .51140 | 2.71239 | .489007 | .3793 | 1.03207 |
| 360.0 | 2.54275 | .458423 | 3.003987 | .54158 | 2.54161 | .458217 | .4138 | 1.12590 |
| 390.0 | 2.39079 | .431026 | 3.155948 | .56897 | 2.38158 | .429365 | .4483 | 1.21972 |
| 420.0 | 2.25204 | .406012 | 3.294695 | .59399 | 2.23162 | .402330 | .4828 | 1.31355 |
| 450.0 | 2.12431 | .382983 | 3.422431 | .61702 | 2.09111 | .376998 | .5172 | 1.40737 |
| 480.0 | 2.00758 | .361940 | 3.539155 | .63806 | 1.95944 | .353260 | .5517 | 1.50120 |
| 510.0 | 1.90187 | .342881 | 3.644867 | .65712 | 1.83606 | .331017 | .5862 | 1.59502 |
| 540.0 | 1.80497 | .325411 | 3.741770 | .67459 | 1.72046 | .310175 | .6207 | 1.68885 |
| 570.0 | 1.71908 | .309926 | 3.827661 | .69007 | 1.61213 | .290645 | .6552 | 1.78267 |
| 600.0 | 1.64420 | .296426 | 3.902540 | .70357 | 1.51062 | .272344 | .6897 | 1.87650 |
| 630.0 | 1.58033 | .284912 | 3.966408 | .71509 | 1.41551 | .255196 | .7241 | 1.97032 |
| 660.0 | 1.52747 | .275383 | 4.019264 | .72462 | 1.32638 | .239126 | .7586 | 2.06415 |
| 690.0 | 1.48563 | .267839 | 4.061109 | .73216 | 1.24285 | .224071 | .7931 | 2.15797 |
| 720.0 | 1.45480 | .262280 | 4.091941 | .73772 | 1.16461 | .209962 | .8276 | 2.25180 |
| 750.0 | 1.43277 | .258309 | 4.113964 | .74169 | 1.09128 | .196742 | .8621 | 2.34562 |
| 780.0 | 1.41736 | .255530 | 4.129380 | .74447 | 1.02257 | .184354 | .8966 | 2.43945 |
| 810.0 | 1.40635 | .253545 | 4.140392 | .74646 | .95818 | .172747 | .9310 | 2.53327 |
| 840.0 | 1.39974 | .252354 | 4.146999 | .74765 | .89785 | .161870 | .9655 | 2.62710 |
| 870.0 | 1.39754 | .251957 | 4.149201 | .74804 | .84132 | .151678 | 1.0000 | 2.72092 |

## TABLE D-6

EVAPORATION EXPERIMENT NO. GLF6 SERIES 10 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1200 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 3? GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 55%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 6.07935 | 1.000000 | .000000 | .00000 | 6.07935 | 1.000000 | .0000 | .00000 |
| 30.0 | 5.74900 | .945660 | .330350 | .05434 | 5.71066 | .939354 | .0333 | .09026 |
| 60.0 | 5.42966 | .893132 | .649689 | .10687 | 5.36433 | .882385 | .0667 | .18052 |
| 90.0 | 5.11913 | .842052 | .960219 | .15795 | 5.03900 | .828872 | .1000 | .27078 |
| 120.0 | 4.81961 | .792784 | 1.259735 | .20722 | 4.73341 | .778604 | .1333 | .36104 |
| 150.0 | 4.53331 | .745670 | 1.546040 | .25431 | 4.44634 | .731385 | .1667 | .45130 |
| 180.0 | 4.25581 | .700044 | 1.823534 | .29996 | 4.17669 | .687029 | .2000 | .54156 |
| 210.0 | 3.98933 | .656210 | 2.090017 | .34379 | 3.92339 | .645363 | .2333 | .63182 |
| 240.0 | 3.73606 | .614550 | 2.343286 | .38545 | 3.68545 | .606224 | .2667 | .72208 |
| 270.0 | 3.49601 | .575062 | 2.583340 | .42494 | 3.46194 | .569459 | .3000 | .81234 |
| 300.0 | 3.26917 | .537750 | 2.810181 | .46225 | 3.25199 | .534924 | .3333 | .90259 |
| 330.0 | 3.05554 | .502610 | 3.023808 | .49739 | 3.05477 | .502483 | .3667 | .99285 |
| 360.0 | 2.85513 | .469644 | 3.224220 | .53036 | 2.86951 | .472009 | .4000 | 1.08311 |
| 390.0 | 2.66793 | .438851 | 3.411419 | .56115 | 2.69548 | .443385 | .4333 | 1.17337 |
| 420.0 | 2.49394 | .410232 | 3.585403 | .58977 | 2.53201 | .416494 | .4667 | 1.26363 |
| 450.0 | 2.33317 | .383787 | 3.746174 | .61621 | 2.37845 | .391235 | .5000 | 1.35389 |
| 480.0 | 2.18562 | .359515 | 3.893730 | .64048 | 2.23421 | .367508 | .5333 | 1.44415 |
| 510.0 | 2.05127 | .337417 | 4.028073 | .66258 | 2.09871 | .345220 | .5667 | 1.53441 |
| 540.0 | 1.93015 | .317492 | 4.149202 | .68251 | 1.97143 | .324284 | .6000 | 1.62467 |
| 570.0 | 1.82223 | .299741 | 4.257116 | .70026 | 1.85187 | .304617 | .6333 | 1.71493 |
| 600.0 | 1.72753 | .284164 | 4.351817 | .71584 | 1.73957 | .286143 | .6667 | 1.80519 |
| 630.0 | 1.64604 | .270760 | 4.433303 | .72924 | 1.63407 | .268790 | .7000 | 1.89545 |
| 660.0 | 1.57777 | .259530 | 4.501576 | .74047 | 1.53497 | .252489 | .7333 | 1.98571 |
| 690.0 | 1.52271 | .250473 | 4.556634 | .74953 | 1.44188 | .237176 | .7667 | 2.07597 |
| 720.0 | 1.48087 | .243590 | 4.598478 | .75641 | 1.35443 | .222792 | .8000 | 2.16623 |
| 750.0 | 1.45004 | .238513 | 4.629311 | .76148 | 1.27229 | .209281 | .8333 | 2.25649 |
| 780.0 | 1.42581 | .234534 | 4.653537 | .76547 | 1.19513 | .196589 | .8667 | 2.34675 |
| 810.0 | 1.40819 | .231635 | 4.671156 | .76836 | 1.12265 | .184666 | .9000 | 2.43701 |
| 840.0 | 1.39718 | .229824 | 4.682168 | .77018 | 1.05457 | .173467 | .9333 | 2.52727 |
| 870.0 | 1.39057 | .228737 | 4.688775 | .77126 | .99061 | .162947 | .9667 | 2.61753 |
| 900.0 | 1.38837 | .228375 | 4.690977 | .77162 | .93053 | .153065 | 1.0000 | 2.70778 |

# TABLE D-7

EVAPORATION EXPERIMENT NO. GL77 SERIES (D 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 1?.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF LIFES |
| .0 | 6.07500 | 1.000000 | .000000 | .00000 | 6.07500 | 1.000000 | .0000 | .00000 |
| 15.0 | 5.70494 | .939085 | .370056 | .06091 | 5.66336 | .932240 | .0313 | .10123 |
| 30.0 | 5.35478 | .881446 | .720217 | .11855 | 5.27961 | .869071 | .0625 | .20265 |
| 45.0 | 5.01656 | .825771 | 1.058441 | .17422 | 4.92185 | .810197 | .0938 | .30368 |
| 60.0 | 4.69027 | .772061 | 1.384727 | .22794 | 4.58835 | .755284 | .1250 | .40491 |
| 75.0 | 4.37990 | .720972 | 1.695097 | .27903 | 4.27744 | .704106 | .1563 | .50614 |
| 90.0 | 4.08147 | .671847 | 1.993530 | .32815 | 3.98760 | .656396 | .1875 | .60736 |
| 105.0 | 3.79498 | .624687 | 2.280025 | .37531 | 3.71740 | .611919 | .2188 | .70859 |
| 120.0 | 3.52041 | .579491 | 2.554583 | .42051 | 3.46551 | .570455 | .2500 | .80982 |
| 135.0 | 3.25780 | .536263 | 2.817205 | .46374 | 3.23069 | .531800 | .2813 | .91104 |
| 150.0 | 3.00711 | .494998 | 3.067886 | .50500 | 3.01178 | .495766 | .3125 | 1.01227 |
| 165.0 | 2.76837 | .455698 | 3.306632 | .54430 | 2.80770 | .462172 | .3438 | 1.11350 |
| 180.0 | 2.54554 | .419019 | 3.529462 | .58098 | 2.61743 | .430855 | .3750 | 1.21472 |
| 195.0 | 2.33465 | .384304 | 3.740354 | .61570 | 2.44009 | .401661 | .4063 | 1.31595 |
| 210.0 | 2.13569 | .351554 | 3.939310 | .64845 | 2.27475 | .374444 | .4375 | 1.41718 |
| 225.0 | 1.95265 | .321424 | 4.122348 | .67853 | 2.12061 | .349072 | .4688 | 1.51841 |
| 240.0 | 1.78553 | .293914 | 4.289470 | .70609 | 1.97692 | .325418 | .5000 | 1.61963 |
| 255.0 | 1.63432 | .269025 | 4.440676 | .73098 | 1.84297 | .303368 | .5313 | 1.72086 |
| 270.0 | 1.49903 | .246755 | 4.575965 | .75325 | 1.71808 | .282812 | .5625 | 1.82209 |
| 285.0 | 1.37966 | .227105 | 4.695338 | .77290 | 1.60166 | .263648 | .5938 | 1.92331 |
| 300.0 | 1.27223 | .209420 | 4.802774 | .79058 | 1.49313 | .245783 | .6250 | 2.02454 |
| 315.0 | 1.17673 | .193700 | 4.898273 | .80630 | 1.39196 | .229129 | .6563 | 2.12577 |
| 330.0 | 1.09715 | .180600 | 4.977855 | .81940 | 1.29764 | .213603 | .6875 | 2.22699 |
| 345.0 | 1.03348 | .170120 | 5.041520 | .82988 | 1.20971 | .199129 | .7188 | 2.32822 |
| 360.0 | .98175 | .161605 | 5.093248 | .83839 | 1.12774 | .185636 | .7500 | 2.42945 |
| 375.0 | .93798 | .154400 | 5.137019 | .84560 | 1.05133 | .173058 | .7813 | 2.53068 |
| 390.0 | .90217 | .148505 | 5.172831 | .85149 | .98009 | .161331 | .8125 | 2.63190 |
| 405.0 | .87432 | .143920 | 5.200685 | .85608 | .91368 | .150399 | .8438 | 2.73313 |
| 420.0 | .85442 | .140645 | 5.220580 | .85935 | .85177 | .140208 | .8750 | 2.83436 |
| 435.0 | .83850 | .138025 | 5.236496 | .86197 | .79405 | .130708 | .9063 | 2.93558 |
| 450.0 | .82657 | .136060 | 5.248434 | .86394 | .74024 | .121851 | .9375 | 3.03681 |
| 465.0 | .81861 | .134750 | 5.256392 | .86525 | .69009 | .113594 | .9688 | 3.13804 |
| 480.0 | .81463 | .134095 | 5.260371 | .86590 | .64332 | .105897 | 1.0000 | 3.23926 |

# TABLE D-8

EVAPORATION EXPERIMENT NO. GLFS SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 50%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 6.46739 | 1.000000 | .000000 | .00000 | 6.46739 | 1.000000 | .0000 | .00000 |
| 15.0 | 6.10178 | 943469 | .365609 | .05653 | 6.04932 | .935357 | .0313 | .09641 |
| 30.0 | 5.74864 | .888865 | .718754 | .11114 | 5.65827 | .874892 | .0625 | .19282 |
| 45.0 | 5.40380 | .835546 | 1.063590 | .16445 | 5.29250 | .818336 | .0938 | .28923 |
| 60.0 | 5.07143 | .784154 | 1.395962 | .21585 | 4.95037 | .765435 | .1250 | .38565 |
| 75.0 | 4.75152 | .734689 | 1.715870 | .26531 | 4.63036 | .715956 | .1563 | .48206 |
| 90.0 | 4.44408 | .687151 | 2.023314 | .31285 | 4.33104 | .669674 | .1875 | .57847 |
| 105.0 | 4.14910 | .641541 | 2.318294 | .35846 | 4.05107 | .626384 | .2188 | .67488 |
| 120.0 | 3.86243 | .597216 | 2.604965 | .40278 | 3.78919 | .585892 | .2500 | .77129 |
| 135.0 | 3.58822 | .554817 | 2.879172 | .44518 | 3.54425 | .548018 | .2813 | .86770 |
| 150.0 | 3.32648 | .514346 | 3.140914 | .48565 | 3.31514 | .512592 | .3125 | .96412 |
| 165.0 | 3.07720 | .475802 | 3.390193 | .52420 | 3.10083 | .479457 | .3438 | 1.06053 |
| 180.0 | 2.84038 | .439185 | 3.627008 | .56081 | 2.90039 | .448463 | .3750 | 1.15694 |
| 195.0 | 2.61603 | .404496 | 3.851359 | .59550 | 2.71289 | .419473 | .4063 | 1.25335 |
| 210.0 | 2.40414 | .371753 | 4.063247 | .62827 | 2.53752 | .392357 | .4375 | 1.34976 |
| 225.0 | 2.20472 | .340898 | 4.262670 | .65910 | 2.37349 | .366993 | .4688 | 1.44617 |
| 240.0 | 2.01776 | .311990 | 4.449629 | .68801 | 2.22006 | .343270 | .5000 | 1.54259 |
| 255.0 | 1.84327 | .285009 | 4.624125 | .71499 | 2.07655 | .321080 | .5313 | 1.63900 |
| 270.0 | 1.68124 | .259956 | 4.786156 | .74004 | 1.94231 | .300324 | .5625 | 1.73541 |
| 285.0 | 1.53167 | .236829 | 4.935723 | .76317 | 1.81675 | .280910 | .5938 | 1.83182 |
| 300.0 | 1.39456 | .215630 | 5.072827 | .78437 | 1.69931 | .262751 | .6250 | 1.92823 |
| 315.0 | 1.26992 | .196358 | 5.197466 | .80364 | 1.58946 | .245766 | .6563 | 2.02464 |
| 330.0 | 1.15775 | .179013 | 5.309642 | .82099 | 1.48672 | .229879 | .6875 | 2.12105 |
| 345.0 | 1.05804 | .163596 | 5.409354 | .83640 | 1.39061 | .215019 | .7188 | 2.21747 |
| 360.0 | .97494 | .150748 | 5.492447 | .84925 | 1.30072 | .201119 | .7500 | 2.31388 |
| 375.0 | .90432 | .139827 | 5.563076 | .86017 | 1.21663 | .188118 | .7813 | 2.41029 |
| 390.0 | .84615 | .130833 | 5.621240 | .86917 | 1.13799 | .175957 | .8125 | 2.50670 |
| 405.0 | .80045 | .123767 | 5.666942 | .87623 | 1.06442 | .164583 | .8438 | 2.60311 |
| 420.0 | .76721 | .118628 | 5.700179 | .88137 | .99561 | .153944 | .8750 | 2.69952 |
| 435.0 | .74644 | .115416 | 5.720953 | .88458 | .93125 | .143992 | .9063 | 2.79594 |
| 450.0 | .73397 | .113489 | 5.733417 | .88651 | .87106 | .134684 | .9375 | 2.89235 |
| 465.0 | .72567 | .112204 | 5.741726 | .88780 | .81475 | .125978 | .9688 | 2.98876 |
| 480.0 | .72151 | .111561 | 5.745881 | .88844 | .76208 | .117834 | 1.0000 | 3.08517 |

# TABLE D-9

EVAPORATION EXPERIMENT NO. GLF9 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 44%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 5.15054 | 1.000000 | .000000 | .00000 | 5.15054 | 1.000000 | .0000 | .00000 |
| 30.0 | 4.68260 | .909147 | .467942 | .09085 | 4.73103 | .918550 | .0385 | .12257 |
| 60.0 | 4.33013 | .840712 | .820418 | .15929 | 4.34569 | .843733 | .0769 | .24514 |
| 90.0 | 3.99385 | .775424 | 1.156689 | .22458 | 3.99173 | .775011 | .1154 | .36771 |
| 120.0 | 3.67582 | .713675 | 1.474727 | .28632 | 3.66660 | .711886 | .1538 | .49028 |
| 150.0 | 3.38209 | .656647 | 1.768457 | .34335 | 3.36795 | .653903 | .1923 | .61285 |
| 180.0 | 3.10659 | .603157 | 2.043956 | .39684 | 3.09363 | .600642 | .2308 | .73542 |
| 210.0 | 2.84932 | .553208 | 2.301222 | .44679 | 2.84166 | .551720 | .2692 | .85799 |
| 240.0 | 2.61029 | .506798 | 2.540258 | .49320 | 2.61020 | .506782 | .3077 | .98056 |
| 270.0 | 2.38948 | .463928 | 2.761061 | .53607 | 2.39760 | .465504 | .3462 | 1.10313 |
| 300.0 | 2.18691 | .424598 | 2.963634 | .57540 | 2.20231 | .427589 | .3846 | 1.22570 |
| 330.0 | 2.00257 | .388807 | 3.147975 | .61119 | 2.02293 | .392761 | .4231 | 1.34827 |
| 360.0 | 1.83646 | .356556 | 3.314084 | .64344 | 1.85817 | .360771 | .4615 | 1.47085 |
| 390.0 | 1.68858 | .327845 | 3.461962 | .67215 | 1.70682 | .331386 | .5000 | 1.59342 |
| 420.0 | 1.55893 | .302674 | 3.591609 | .69733 | 1.56780 | .304394 | .5385 | 1.71599 |
| 450.0 | 1.44752 | .281042 | 3.703023 | .71896 | 1.44010 | .279601 | .5769 | 1.83856 |
| 480.0 | 1.35434 | .262950 | 3.796207 | .73705 | 1.32280 | .256828 | .6154 | 1.96113 |
| 510.0 | 1.27736 | .248005 | 3.873184 | .75200 | 1.21506 | .235909 | .6538 | 2.08370 |
| 540.0 | 1.21456 | .235812 | 3.935982 | .76419 | 1.11609 | .216694 | .6923 | 2.20627 |
| 570.0 | 1.16392 | .225980 | 3.986625 | .77402 | 1.02519 | .199044 | .7308 | 2.32884 |
| 600.0 | 1.12543 | .218507 | 4.025114 | .78149 | .94168 | .182832 | .7692 | 2.45141 |
| 630.0 | 1.09707 | .213001 | 4.053473 | .78700 | .86498 | .167940 | .8077 | 2.57398 |
| 660.0 | 1.07681 | .209068 | 4.073730 | .79093 | .79453 | .154262 | .8462 | 2.69655 |
| 690.0 | 1.06263 | .206315 | 4.087911 | .79369 | .72982 | .141697 | .8846 | 2.81912 |
| 720.0 | 1.05250 | .204348 | 4.098040 | .79565 | .67037 | .130156 | .9231 | 2.94169 |
| 750.0 | 1.04643 | .203168 | 4.104116 | .79683 | .61577 | .119554 | .9615 | [illegible] 06426 |
| 780.0 | 1.04440 | .202775 | 4.106143 | .79723 | .56562 | .109817 | 1.0000 | [illegible]18683 |

# TABLE D-10

EVAPORATION EXPERIMENT NO. GLF10 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 52%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 6.46739 | 1.000000 | .000000 | .00000 | 6.46739 | 1.000000 | .0000 | .00000 |
| 30.0 | 5.99051 | .926264 | .476879 | .07374 | 6.01550 | .930128 | .0313 | .10450 |
| 60.0 | 5.60408 | .866512 | .863316 | .13349 | 5.59518 | .865138 | .0625 | .20900 |
| 90.0 | 5.24025 | .810257 | 1.227142 | .18974 | 5.20424 | .804688 | .0938 | .31350 |
| 120.0 | 4.89287 | .756544 | 1.574524 | .24346 | 4.84060 | .748463 | .1250 | .41800 |
| 150.0 | 4.55987 | .705056 | 1.907517 | .29494 | 4.50238 | .696166 | .1563 | .52250 |
| 180.0 | 4.24332 | .656111 | 2.224066 | .34389 | 4.18779 | .647524 | .1875 | .62700 |
| 210.0 | 3.94116 | .609390 | 2.526227 | .39061 | 3.89518 | .602280 | .2188 | 73149 |
| 240.0 | 3.65339 | .564894 | 2.813999 | .43511 | 3.62301 | .560197 | .2500 | [illegible]99 |
| 270.0 | 3.38001 | .522623 | 3.087382 | .47738 | 3.36986 | .521055 | .2813 | .94[illegible] |
| 300.0 | 3.12307 | .482895 | 3.344321 | .51711 | 3.13440 | .484647 | .3125 | 1.04[illegible] |
| 330.0 | 2.88258 | .445709 | 3.584816 | .55429 | 2.91540 | .450784 | .3438 | 1.14949 |
| 360.0 | 2.65647 | .410748 | 3.810923 | .58925 | 2.71169 | .419287 | .3750 | 1.25399 |
| 390.0 | 2.44681 | .378330 | 4.020586 | .62167 | 2.52222 | .389990 | .4063 | 1.35849 |
| 420.0 | 2.25359 | .348454 | 4.213804 | .65155 | 2.34599 | .362741 | .4375 | 1.46299 |
| 450.0 | 2.07887 | .321438 | 4.388523 | .67856 | 2.18207 | .337395 | .4688 | 1.56749 |
| 480.0 | 1.92471 | .297601 | 4.542686 | .70240 | 2.02960 | .313821 | .5000 | 1.67199 |
| 510.0 | 1.78904 | .276625 | 4.678350 | .72338 | 1.88779 | .291893 | .5313 | 1.77649 |
| 540.0 | 1.66982 | .258191 | 4.797570 | .74181 | 1.75588 | .271498 | .5625 | 1.88099 |
| 570.0 | 1.56705 | .242299 | 4.900346 | .75770 | 1.63320 | .252528 | .5938 | 1.98549 |
| 600.0 | 1.47866 | .228633 | 4.988733 | .77137 | 1.51908 | .234883 | .6250 | 2.08998 |
| 630.0 | 1.40466 | .217191 | 5.062731 | .78281 | 1.41294 | .218471 | .6563 | 2.19448 |
| 660.0 | 1.34299 | .207656 | 5.124397 | .79234 | 1.31421 | .203206 | .6875 | 2.29898 |
| 690.0 | 1.28955 | .199393 | 5.177841 | .80061 | 1.22239 | .189008 | .7188 | 2.40348 |
| 720.0 | 1.24433 | .192401 | 5.223062 | .80760 | 1.13698 | .175801 | .7500 | 2.50798 |
| 750.0 | 1.20733 | .186680 | 5.260061 | .81332 | 1.05753 | .163518 | .7813 | 2.61248 |
| 780.0 | 1.17855 | .182230 | 5.288838 | .81777 | .98364 | .152092 | .8125 | 2.71698 |
| 810.0 | 1.15594 | .178734 | 5.311449 | .82127 | .91491 | .141465 | .8438 | 2.82148 |
| 840.0 | 1.13744 | .175874 | 5.329948 | .82413 | .85098 | .131581 | .8750 | 2.92598 |
| 870.0 | 1.12305 | .173649 | 5.344337 | .82635 | .79152 | .122387 | .9063 | 3.03048 |
| 900.0 | 1.11483 | .172377 | 5.352559 | .82762 | .73622 | .113836 | .9375 | 3.13498 |
| 930.0 | 1.11072 | .171742 | 5.356670 | .8282[illegible] | .68478 | .105882 | .9688 | 3.23948 |
| 960.0 | 1.10867 | .171424 | 5.358726 | .8285[illegible] | .63693 | 098483 | 1.0000 | 3.34398 |

# TABLE D-11

EVAPORATION EXPERIMENT NO. GLF11 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 55%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| TIME | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 5.67880 | 1.000000 | .000000 | .00000 | 5.67880 | 1.000000 | .0000 | .00000 |
| 10.0 | 5.33200 | .938930 | .346806 | .06107 | 5.29797 | .932938 | .0278 | .10015 |
| 20.0 | 5.00158 | .880745 | .677227 | .11926 | 4.94268 | .870374 | .0556 | .20029 |
| 30.0 | 4.68481 | .824964 | .993995 | .17504 | 4.61122 | .812005 | .0833 | .30044 |
| 40.0 | 4.38170 | .771588 | 1.297109 | .22841 | 4.30198 | .757551 | .1111 | .40059 |
| 50.0 | 4.09224 | .720616 | 1.586569 | .27938 | 4.01348 | .706748 | .1389 | .50073 |
| 60.0 | 3.81643 | .672048 | 1.862375 | .32795 | 3.74433 | .659352 | .1667 | .60088 |
| 70.0 | 3.55428 | .625885 | 2.124528 | .37412 | 3.49323 | .615135 | .1944 | .70102 |
| 80.0 | 3.30305 | .581645 | 2.375757 | .41836 | 3.25897 | .573883 | .2222 | .80117 |
| 90.0 | 3.06274 | .539328 | 2.616064 | .46067 | 3.04042 | .535397 | .2500 | .90132 |
| 100.0 | 2.83609 | .499416 | 2.842716 | .50058 | 2.83652 | .499493 | .2778 | 1.00146 |
| 110.0 | 2.62309 | .461909 | 3.055715 | .53809 | 2.64630 | .465996 | .3056 | 1.10161 |
| 120.0 | 2.42374 | .426805 | 3.255060 | .57319 | 2.46883 | .434746 | .3333 | 1.20176 |
| 130.0 | 2.23805 | .394106 | 3.440752 | .60589 | 2.30327 | .405591 | .3611 | 1.30190 |
| 140.0 | 2.06328 | .363331 | 3.615520 | .63667 | 2.14881 | .378391 | .3889 | 1.40205 |
| 150.0 | 1.90217 | .334960 | 3.776635 | .66504 | 2.00471 | .353016 | .4167 | 1.50220 |
| 160.0 | 1.75471 | .308993 | 3.924096 | .69101 | 1.87027 | .329342 | .4444 | 1.60234 |
| 170.0 | 1.61817 | .284949 | 4.060633 | .71505 | 1.74484 | .307256 | .4722 | 1.70249 |
| 180.0 | 1.49256 | .262829 | 4.186248 | .73717 | 1.62783 | .286650 | .5000 | 1.80264 |
| 190.0 | 1.38060 | .243114 | 4.298209 | .75689 | 1.51867 | .267427 | .5278 | 1.90278 |
| 200.0 | 1.28229 | .225803 | 4.396516 | .77420 | 1.41682 | .249493 | .5556 | 2.00293 |
| 210.0 | 1.19490 | .210415 | 4.483900 | .78959 | 1.32181 | .232762 | .5833 | 2.10307 |
| 220.0 | 1.11844 | .196950 | 4.560361 | .80305 | 1.23317 | .217152 | .6111 | 2.20322 |
| 230.0 | 1.05017 | .184929 | 4.628631 | .81507 | 1.15047 | .202590 | .6389 | 2.30337 |
| 240.0 | .99010 | .174350 | 4.688707 | .82565 | 1.07331 | .189004 | .6667 | 2.40351 |
| 250.0 | .93821 | .165213 | 4.740591 | .83479 | 1.00134 | .176329 | .6944 | 2.50366 |
| 260.0 | .89179 | .157038 | 4.787014 | .84296 | .93419 | .164504 | .7222 | 2.60381 |
| 270.0 | .85083 | .149825 | 4.827975 | .85017 | .87154 | .153472 | .7500 | 2.70395 |
| 280.0 | .81533 | .143574 | 4.863475 | .85643 | .81309 | .143180 | .7778 | 2.80410 |
| 290.0 | .78529 | .138285 | 4.893514 | .86172 | .75856 | .133578 | .8056 | 2.90425 |
| 300.0 | .76071 | .133957 | 4.918090 | .86604 | .70769 | .124620 | .8333 | 3.00439 |
| 310.0 | .74160 | .130591 | 4.937206 | .86941 | .66023 | .116263 | .8611 | 3.10454 |
| 320.0 | .72521 | .127706 | 4.953590 | .87229 | .61596 | .108466 | .8889 | 3.20469 |
| 330.0 | .71156 | .125301 | 4.967243 | .87470 | .57465 | .101192 | .9167 | 3.30483 |
| 340.0 | .70337 | .123859 | 4.975436 | .87614 | .53611 | .094406 | .9444 | 3.40498 |
| 350.0 | .69791 | .122897 | 4.980898 | .87710 | .50016 | .088075 | .9722 | 3.50512 |
| 360.0 | .69518 | .122416 | 4.983628 | .87758 | .46662 | .082168 | 1.0000 | 3.60527 |

# TABLE D-12

EVAPORATION EXPERIMENT NO. GLF12 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 6.46739 | 1.000000 | .000000 | .00000 | 6.46739 | 1.000000 | .0000 | .00000 |
| 10.0 | 6.18207 | .955883 | .285325 | .04412 | 6.14691 | .950447 | .0256 | .07332 |
| 20.0 | 5.90482 | .913014 | .562574 | .08699 | 5.84232 | .903350 | .0513 | .14664 |
| 30.0 | 5.63564 | .871395 | .831749 | .12861 | 5.55282 | .858587 | .0769 | .21996 |
| 40.0 | 5.37723 | .831438 | 1.090157 | .16856 | 5.27766 | .816041 | .1026 | .29329 |
| 50.0 | 5.12690 | .792731 | 1.340488 | .20727 | 5.01614 | .775604 | .1282 | .36661 |
| 60.0 | 4.88195 | .754857 | 1.585437 | .24514 | 4.76757 | .737171 | .1538 | .43993 |
| 70.0 | 4.64506 | .718231 | 1.822311 | .28177 | 4.53133 | .700642 | .1795 | .51325 |
| 80.0 | 4.41628 | .682854 | 2.051110 | .31715 | 4.30679 | .665923 | .2051 | .58657 |
| 90.0 | 4.19287 | .648309 | 2.274524 | .35169 | 4.09337 | .632925 | .2308 | .65989 |
| 100.0 | 3.97484 | .614596 | 2.492555 | .38540 | 3.89054 | .601562 | .2564 | .73321 |
| 110.0 | 3.76219 | .581716 | 2.705204 | .41828 | 3.69775 | .571753 | .2821 | .80654 |
| 120.0 | 3.55492 | .549669 | 2.912467 | .45033 | 3.51452 | .543421 | .3077 | .87986 |
| 130.0 | 3.35573 | .518870 | 3.111657 | .48113 | 3.34036 | .516493 | .3333 | .95318 |
| 140.0 | 3.16462 | .489320 | 3.302771 | .51060 | 3.17484 | .490899 | .3590 | 1.02650 |
| 150.0 | 2.97889 | .460602 | 3.488501 | .53940 | 3.01752 | .466574 | .3846 | 1.09982 |
| 160.0 | 2.79854 | .432716 | 3.668848 | .56728 | 2.86799 | .443454 | .4103 | 1.17314 |
| 170.0 | 2.62358 | .405663 | 3.843811 | .59434 | 2.72587 | .421480 | .4359 | 1.24647 |
| 180.0 | 2.45669 | .379858 | 4.010699 | .62014 | 2.59080 | .400594 | .4615 | 1.31979 |
| 190.0 | 2.29788 | .355302 | 4.169512 | .64470 | 2.46242 | .380744 | .4872 | 1.39311 |
| 200.0 | 2.14445 | .331579 | 4.322942 | .66842 | 2.34040 | .361877 | .5128 | 1.46643 |
| 210.0 | 1.99640 | .308688 | 4.470988 | .69131 | 2.22443 | .343945 | .5385 | 1.53975 |
| 220.0 | 1.85643 | .287045 | 4.610958 | .71295 | 2.11420 | .326901 | .5641 | 1.61307 |
| 230.0 | 1.72454 | .266651 | 4.742854 | .73335 | 2.00943 | .310703 | .5897 | 1.68639 |
| 240.0 | 1.60072 | .247506 | 4.866674 | .75249 | 1.90986 | .295306 | .6154 | 1.75972 |
| 250.0 | 1.48497 | .229609 | 4.982419 | .77039 | 1.81522 | .280673 | .6410 | 1.83304 |
| 260.0 | 1.37730 | .212961 | 5.090089 | .78704 | 1.72527 | .266765 | .6667 | 1.90636 |
| 270.0 | 1.27771 | .197562 | 5.189683 | .80244 | 1.63978 | .253546 | .6923 | 1.97968 |
| 280.0 | 1.18350 | .182994 | 5.283895 | .81701 | 1.55853 | .240982 | .7179 | 2.05300 |
| 290.0 | 1.09736 | .169676 | 5.370030 | .83032 | 1.48130 | .229041 | .7436 | 2.12632 |
| 300.0 | 1.01930 | .157606 | 5.448091 | .84239 | 1.40789 | .217691 | .7692 | 2.19964 |
| 310.0 | .94931 | .146785 | 5.518076 | .85322 | 1.33813 | .206904 | .7949 | 2.27297 |
| 320.0 | .89010 | .137628 | 5.577295 | .86237 | 1.27182 | .196651 | .8205 | 2.34629 |
| 330.0 | .83895 | .129721 | 5.628438 | .87028 | 1.20880 | .186907 | .8462 | 2.41961 |
| 340.0 | .79319 | .122645 | 5.674198 | .87735 | 1.14890 | .177645 | .8718 | 2.49293 |
| 350.0 | .75551 | .116818 | 5.711882 | .88318 | 1.09197 | .168842 | .8974 | 2.56625 |
| 360.0 | .72590 | .112240 | 5.741491 | .88776 | 1.03786 | .160476 | .9231 | 2.63957 |
| 370.0 | .70437 | .108910 | 5.763025 | .89109 | .98643 | .152524 | .9487 | 2.71290 |
| 380.0 | .69091 | .106829 | 5.776484 | .89317 | .93755 | .144966 | .9744 | 2.78622 |
| 390.0 | .68552 | .105997 | 5.781868 | .89400 | .89109 | .137782 | 1.0000 | 2.85954 |

# TABLE D-13

EVAPORATION EXPERIMENT NO. GLF13 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 44%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 5.41467 | 1.000000 | .000000 | .00000 | 5.41467 | 1.000000 | .0000 | .00000 |
| 40.0 | 5.05545 | .933657 | .359228 | .06634 | 5.02083 | .927263 | .0313 | .10895 |
| 80.0 | 4.72323 | .872301 | .691447 | .12770 | 4.65563 | .859817 | .0625 | .21790 |
| 120.0 | 4.40451 | .813440 | 1.010161 | .18656 | 4.31699 | .797277 | .0938 | .32685 |
| 160.0 | 4.09930 | .757073 | 1.315370 | .24293 | 4.00299 | .739285 | .1250 | .43580 |
| 200.0 | 3.80760 | .703200 | 1.607074 | .29680 | 3.71182 | .685512 | .1563 | .54475 |
| 240.0 | 3.52670 | .651323 | 1.887975 | .34868 | 3.44184 | .635650 | .1875 | .65369 |
| 280.0 | 3.25660 | .601440 | 2.158071 | .39856 | 3.19149 | .589415 | .2188 | .76264 |
| 320.0 | 2.99731 | .553553 | 2.417363 | .44645 | 2.95935 | .546543 | .2500 | .87159 |
| 360.0 | 2.74882 | .507661 | 2.665853 | .49234 | 2.74410 | .506789 | .2813 | .98054 |
| 400.0 | 2.51654 | .464763 | 2.898136 | .53524 | 2.54450 | .469927 | .3125 | 1.08949 |
| 440.0 | 2.30046 | .424857 | 3.114213 | .57514 | 2.35942 | .435746 | .3438 | 1.19844 |
| 480.0 | 2.09789 | .387445 | 3.316785 | .61255 | 2.18781 | .404051 | .3750 | 1.30739 |
| 520.0 | 1.91152 | .353026 | 3.503152 | .64697 | 2.02867 | .374662 | .4063 | 1.41634 |
| 560.0 | 1.74406 | .322099 | 3.670612 | .67790 | 1.88111 | .347410 | .4375 | 1.52529 |
| 600.0 | 1.59821 | .295163 | 3.816464 | .70484 | 1.74429 | .322141 | .4688 | 1.63424 |
| 640.0 | 1.47397 | .272217 | 3.940708 | .72778 | 1.61741 | .298709 | .5000 | 1.74319 |
| 680.0 | 1.36863 | .252763 | 4.046046 | .74724 | 1.49977 | .276982 | .5313 | 1.85214 |
| 720.0 | 1.27950 | .236302 | 4.135178 | .76370 | 1.39068 | .256835 | .5625 | 1.96108 |
| 760.0 | 1.20657 | .222833 | 4.208104 | .77717 | 1.28953 | .238154 | .5938 | 2.07003 |
| 800.0 | 1.14715 | .211859 | 4.267525 | .78814 | 1.19573 | .220831 | .6250 | 2.17898 |
| 840.0 | 1.09853 | .202880 | 4.316143 | .79712 | 1.10876 | .204769 | .6563 | 2.28793 |
| 880.0 | 1.05802 | .195398 | 4.356657 | .80460 | 1.02811 | .189875 | .6875 | 2.39688 |
| 920.0 | 1.02290 | .188913 | 4.391769 | .81109 | .95333 | .176064 | .7188 | 2.50583 |
| 960.0 | .99319 | .183426 | 4.421480 | .81657 | .88399 | .163257 | .7500 | 2.61478 |
| 1000.0 | .96888 | .178937 | 4.445789 | .82106 | .81969 | .151383 | .7813 | 2.72373 |
| 1040.0 | .94998 | .175445 | 4.464696 | .82455 | .76007 | .140372 | .8125 | 2.83268 |
| 1080.0 | .93647 | .172951 | 4.478200 | .82705 | .70478 | .130161 | .8438 | 2.94163 |
| 1120.0 | .92567 | .170956 | 4.489005 | .82904 | .65352 | .120694 | .8750 | 3 05058 |
| 1160.0 | .91487 | .168960 | 4.499808 | .83104 | .60598 | .111915 | .9063 | 3.15953 |
| 1200.0 | .90676 | .167464 | 4.507912 | .83254 | .56191 | .103775 | .9375 | 3.26847 |
| 1240.0 | .90136 | .166466 | 4.513314 | .83353 | .52103 | .096226 | .9688 | 3.37742 |
| 1280.0 | .89866 | .165967 | 4.516015 | .83403 | .48314 | .089227 | 1.0000 | 3.48637 |

# TABLE D-14

EVAPORATION EXPERIMENT NO. GLF14 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 2.[illegible] MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 43%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 6.46739 | 1.000000 | .000000 | .00000 | 6.46739 | 1.000000 | .0000 | .00000 |
| 40.0 | 6.08648 | .941102 | .380916 | .05890 | 6.03845 | .933676 | .0345 | .09901 |
| 80.0 | 5.72224 | .884784 | .745148 | .11522 | 5.63795 | .871750 | .0690 | .19801 |
| 120.0 | 5.37191 | .830615 | 1.095479 | .16939 | 5.26402 | .813932 | .1034 | .29702 |
| 160.0 | 5.03270 | .778166 | 1.434689 | .22183 | 4.91488 | .759949 | .1379 | .39603 |
| 200.0 | 4.70461 | .727436 | 1.762777 | .27256 | 4.58891 | .709545 | .1724 | .49503 |
| 240.0 | 4.39043 | .678856 | 2.076962 | .32114 | 4.28455 | .662485 | .2069 | .59404 |
| 280.0 | 4.09015 | .632426 | 2.377246 | .36757 | 4.00038 | .618546 | .2414 | .69305 |
| 320.0 | 3.80098 | .587715 | 2.666409 | .41229 | 3.73506 | .577522 | .2759 | .79205 |
| 360.0 | 3.52294 | .544724 | 2.944449 | .45528 | 3.48733 | .539218 | .3103 | .89106 |
| 400.0 | 3.25880 | .503882 | 3.208587 | .49612 | 3.25604 | .503455 | .3448 | .99007 |
| 440.0 | 3.00857 | .465190 | 3.458824 | .53481 | 3.04008 | .470063 | .3793 | 1.08907 |
| 480.0 | 2.77223 | .428648 | 3.695158 | .57135 | 2.83845 | .438887 | .4138 | 1.18808 |
| 520.0 | 2.55258 | .394685 | 3.914811 | .60532 | 2.65019 | .409778 | .4483 | 1.28709 |
| 560.0 | 2.34961 | .363301 | 4.117780 | .63670 | 2.47442 | .382600 | .4828 | 1.38609 |
| 600.0 | 2.16332 | .334497 | 4.304067 | .66550 | 2.31031 | .357224 | .5172 | 1.48510 |
| 640.0 | 1.99372 | .308273 | 4.473672 | .69173 | 2.15708 | .333531 | .5517 | 1.58411 |
| 680.0 | 1.84358 | .285057 | 4.623814 | .71494 | 2.01401 | .311410 | .5862 | 1.68311 |
| 720.0 | 1.71290 | .264852 | 4.754493 | .73515 | 1.88043 | .290756 | .6207 | 1.78212 |
| 760.0 | 1.59612 | .246795 | 4.871270 | .75320 | 1.75571 | .271472 | .6552 | 1.88113 |
| 800.0 | 1.49325 | .230888 | 4.974145 | .76911 | 1.63927 | .253467 | .6897 | 1.98013 |
| 840.0 | 1.40427 | .217131 | 5.063118 | .78287 | 1.53054 | .236656 | .7241 | 2.07914 |
| 880.0 | 1.32642 | .205094 | 5.140970 | .79491 | 1.42903 | .220960 | .7586 | 2.17815 |
| 920.0 | 1.26525 | .195636 | 5.202138 | .80436 | 1.33425 | .206305 | .7931 | 2.27715 |
| 960.0 | 1.22355 | .189187 | 5.243845 | .81081 | 1.24576 | .192622 | .8276 | 2.37616 |
| 1000.0 | 1.19296 | .184458 | 5.274429 | .81554 | 1.16314 | .179846 | .8621 | 2.47516 |
| 1040.0 | 1.16516 | .180159 | 5.302233 | .81984 | 1.08599 | .167918 | .8966 | 2.57417 |
| 1080.0 | 1.14291 | .176720 | 5.324476 | .82328 | 1.01396 | .156781 | .9310 | 2.67318 |
| 1120.0 | 1.12901 | .174570 | 5.338378 | .82543 | .94671 | .146383 | .9655 | 2.77218 |
| 1160.0 | 1.12345 | .173710 | 5.343939 | .82629 | .88392 | .136674 | 1.0000 | 2.87119 |

# TABLE D-15

EVAPORATION EXPERIMENT NO. GLF15 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.3 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 5.67880 | 1.000000 | .000000 | .00000 | 5.67880 | 1.000000 | .0000 | .00000 |
| 15.0 | 5.34049 | .940426 | .338311 | .05957 | 5.[illegible]789 | .932923 | .0323 | .10017 |
| 30.0 | 5.01829 | .883688 | .660512 | .11631 | 4.94253 | .870346 | .0645 | .20034 |
| 45.0 | 4.70817 | .829078 | .970630 | .17092 | 4.61100 | .811966 | .0968 | .30051 |
| 60.0 | 4.41014 | .776596 | 1.268666 | .22340 | 4.30171 | .757502 | .1290 | .40068 |
| 75.0 | 4.12419 | .726242 | 1.554619 | .27376 | 4.01316 | .706692 | .1613 | .50085 |
| 90.0 | 3.84629 | .677306 | 1.832517 | .32269 | 3.74397 | .659289 | .1935 | .60102 |
| 105.0 | 3.57644 | .629788 | 2.102360 | .37021 | 3.49284 | .615066 | .2258 | .70119 |
| 120.0 | 3.31868 | .584398 | 2.360121 | .41560 | 3.25855 | .573810 | .2581 | .80136 |
| 135.0 | 3.07301 | .541136 | 2.605799 | .45886 | 3.03998 | .535321 | .2903 | .90153 |
| 150.0 | 2.83538 | .499292 | 2.843422 | .50071 | 2.83607 | .499413 | .3226 | 1.00169 |
| 165.0 | 2.60984 | .459576 | 3.068963 | .54042 | 2.64584 | .465914 | .3548 | 1.10186 |
| 180.0 | 2.39638 | .421987 | 3.282421 | .57801 | 2.46836 | .434662 | .3871 | 1.20203 |
| 195.0 | 2.19098 | .385817 | 3.487823 | .61418 | 2.30279 | .405507 | .4194 | 1.30220 |
| 210.0 | 1.99363 | .351066 | 3.685171 | .64893 | 2.14833 | .378307 | .4516 | 1.40237 |
| 225.0 | 1.80837 | .318442 | 3.870437 | .68156 | 2.00423 | .352931 | .4839 | 1.50254 |
| 240.0 | 1.63921 | .288654 | 4.039592 | .71135 | 1.86979 | .329258 | .5161 | 1.60271 |
| 255.0 | 1.48617 | .2[illegible]1704 | 4.192637 | .73830 | 1.74437 | .307172 | .5484 | 1.70288 |
| 270.0 | 1.3[illegible]923 | .237591 | 4.329573 | .76241 | 1.62736 | .286568 | .5806 | 1.80305 |
| 285.0 | 1.22841 | .2163[illegible] | 4.450398 | .78369 | 1.51821 | .267346 | .6129 | 1.90322 |
| 300.0 | 1.12569 | .197875 | 4.555114 | .80213 | 1.41637 | .249413 | .6452 | 2.00339 |
| 315.0 | 1.03509 | .182272 | 4.643719 | .81773 | 1.32136 | .232684 | .6774 | 2.10356 |
| 330.0 | .9625[illegible] | .169506 | 4.716214 | .83049 | 1.23273 | .217076 | .7097 | 2.20373 |
| 345.0 | .90621 | .159577 | 4.7725[illegible] | .84042 | 1.15004 | .202515 | .7419 | 2.30390 |
| 360.0 | .85190 | [illegible] | 4.8[illegible]690[illegible] | .84822 | 1.07290 | .188931 | .7742 | 2.40407 |
| 375.0 | .82566 | .14[illegible]392 | 4.853149 | .85461 | 1.00094 | .176258 | .8065 | 2.50424 |
| 390.0 | [illegible]746 | .140[illegible]28 | 4.881342 | [illegible]5957 | .93380 | .164436 | .8387 | 2.60441 |
| 405.0 | .77732 | .136882 | 4.901[illegible] | [illegible]6312 | .87116 | .153406 | .8710 | 2.70458 |
| 420.0 | .76524 | .134754 | [illegible] | .86525 | .81273 | .143116 | .9032 | 2.80474 |
| 435.0 | .75719 | .133336 | [illegible]618 | .86666 | .75821 | .133516 | .9355 | 2.90491 |
| 450.0 | .749[illegible] | .131917 | [illegible]929673 | .86808 | .70735 | .124560 | .9677 | 3.00508 |
| 465.0 | .74[illegible] | .131208 | 4.933700 | .86879 | .65991 | .116205 | 1.0000 | 3.10525 |

# TABLE D-16

EVAPORATION EXPERIMENT NO. GLF16 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.3 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 6.20870 | 1.000000 | .000000 | .00000 | 6.20870 | 1.000000 | .0000 | .00000 |
| 15.0 | 5.86534 | .944697 | .343360 | .05530 | 5.82395 | .938032 | .0345 | .09229 |
| 30.0 | 5.53833 | .892027 | .670370 | .10797 | 5.46306 | .879905 | .0690 | .18458 |
| 45.0 | 5.22358 | .841333 | .985117 | .15867 | 5.12453 | .825379 | .1034 | .27687 |
| 60.0 | 4.92109 | .792613 | 1.287601 | .20739 | 4.80697 | .774232 | .1379 | .36916 |
| 75.0 | 4.63087 | .745869 | 1.577822 | .25413 | 4.50910 | .726255 | .1724 | .46145 |
| 90.0 | 4.34883 | .700441 | 1.859868 | .29956 | 4.22968 | .681251 | .2069 | .55374 |
| 105.0 | 4.07496 | .656331 | 2.133739 | .34367 | 3.96757 | .639035 | .2414 | .64603 |
| 120.0 | 3.80926 | .613537 | 2.399434 | .38646 | 3.72171 | .599436 | .2759 | .73832 |
| 135.0 | 3.55174 | .572059 | 2.656954 | .42794 | 3.49109 | .562290 | .3103 | .83061 |
| 150.0 | 3.30240 | .531899 | 2.906299 | .46810 | 3.27475 | .527446 | .3448 | .92290 |
| 165.0 | 3.06531 | .493713 | 3.143381 | .50629 | 3.07182 | .494762 | .3793 | 1.01519 |
| 180.0 | 2.83641 | .456844 | 3.372288 | .54316 | 2.88147 | .464102 | .4138 | 1.10749 |
| 195.0 | 2.61568 | .421292 | 3.593019 | .57871 | 2.70291 | .435343 | .4483 | 1.19978 |
| 210.0 | 2.40721 | .387716 | 3.801488 | .61228 | 2.53542 | .408366 | .4828 | 1.29207 |
| 225.0 | 2.20691 | .355455 | 4.001782 | .64454 | 2.37831 | .383060 | .5172 | 1.38436 |
| 240.0 | 2.01888 | .325170 | 4.189812 | .67483 | 2.23093 | .359323 | .5517 | 1.47665 |
| 255.0 | 1.84312 | .296860 | 4.365580 | .70314 | 2.09268 | .337057 | .5862 | 1.56894 |
| 270.0 | 1.67552 | .269867 | 4.533172 | .73013 | 1.96300 | .316170 | .6207 | 1.66123 |
| 285.0 | 1.52019 | .244849 | 4.688502 | .75515 | 1.84136 | .296578 | .6552 | 1.75352 |
| 300.0 | 1.38121 | .222465 | 4.827481 | .77754 | 1.72726 | .278199 | .6897 | 1.84581 |
| 315.0 | 1.25859 | .202713 | 4.950110 | .79729 | 1.62022 | .260960 | .7241 | 1.93810 |
| 330.0 | 1.15231 | .185596 | 5.056388 | .81440 | 1.51982 | .244789 | .7586 | 2.03039 |
| 345.0 | 1.06647 | .171770 | 5.142228 | .82823 | 1.42564 | .229620 | .7931 | 2.12268 |
| 360.0 | 1.00107 | .161236 | 5.207630 | .83876 | 1.33730 | .215391 | .8276 | 2.21497 |
| 375.0 | .95201 | .153336 | 5.256681 | .84666 | 1.25443 | .202044 | .8621 | 2.30726 |
| 390.0 | .91931 | .148069 | 5.289383 | .85193 | 1.17669 | .189524 | .8966 | 2.39955 |
| 405.0 | .89887 | .144777 | 5.309821 | .85522 | 1.10378 | .177779 | .9310 | 2.49184 |
| 420.0 | .88661 | .142802 | 5.322084 | .85720 | 1.03538 | .166763 | .9655 | 2.58413 |
| 435.0 | .88252 | .142143 | 5.326171 | .85786 | .97122 | .156429 | 1.0000 | 2.67642 |

# TABLE D-17

EVAPORATION EXPERIMENT NO. BLF1 SERIES 10 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 6.33913 | 1.000000 | .000000 | .00000 | 6.33913 | 1.000000 | .0000 | .00000 |
| 45.0 | 5.84030 | .921310 | .498829 | .07869 | 5.78230 | .912160 | .0370 | .13264 |
| 90.0 | 5.37120 | .847309 | .967927 | .15269 | 5.27439 | .832036 | .0741 | .26528 |
| 135.0 | 4.92523 | .776957 | 1.413900 | .22304 | 4.81109 | .758951 | .1111 | .39792 |
| 180.0 | 4.49908 | .709731 | 1.840052 | .29027 | 4.38848 | .692285 | .1481 | .53056 |
| 225.0 | 4.09275 | .645632 | 2.246384 | .35437 | 4.00300 | .631474 | .1852 | .66320 |
| 270.0 | 3.70954 | .585181 | 2.629590 | .41482 | 3.65138 | .576006 | .2222 | .79584 |
| 315.0 | 3.34946 | .528378 | 2.989672 | .47162 | 3.33064 | .525410 | .2593 | .92849 |
| 360.0 | 3.01581 | .475744 | 3.323325 | .52426 | 3.03808 | .479258 | .2963 | 1.06113 |
| 405.0 | 2.71188 | .427800 | 3.627248 | .57220 | 2.77121 | .437160 | .3333 | 1.19377 |
| 450.0 | 2.43769 | .384547 | 3.901439 | .61545 | 2.52779 | .398760 | .3704 | 1.32641 |
| 495.0 | 2.19323 | .345983 | 4.145898 | .65402 | 2.30575 | .363733 | .4074 | 1.45905 |
| 540.0 | 1.97850 | .312110 | 4.360626 | .68789 | 2.10321 | .331783 | .4444 | 1.59169 |
| 585.0 | 1.79681 | .283448 | 4.542319 | .71655 | 1.91847 | .302639 | .4815 | 1.72433 |
| 630.0 | 1.64485 | .259476 | 4.694280 | .74052 | 1.74995 | .276055 | .5185 | 1.85697 |
| 675.0 | 1.52262 | .240194 | 4.816510 | .75981 | 1.59624 | .251807 | .5556 | 1.98961 |
| 720.0 | 1.42682 | .225081 | 4.912312 | .77492 | 1.45602 | .229688 | .5926 | 2.12225 |
| 765.0 | 1.35414 | .213616 | 4.984988 | .78638 | 1.32813 | .209512 | .6296 | 2.25489 |
| 810.0 | 1.30129 | .205278 | 5.037844 | .79472 | 1.21146 | .191109 | .6667 | 2.38753 |
| 855.0 | 1.26495 | .199546 | 5.074183 | .80045 | 1.10505 | .174322 | .7037 | 2.52017 |
| 900.0 | 1.24182 | .195898 | 5.097308 | .80410 | 1.00798 | .159010 | .7407 | 2.65281 |
| 945.0 | 1.22531 | .193292 | 5.113825 | .80671 | .91944 | .145042 | .7778 | 2.78546 |
| 990.0 | 1.21209 | .191208 | 5.127039 | .80879 | .83868 | .132302 | .8148 | 2.91810 |
| 1035.0 | 1.20218 | .189644 | 5.136950 | .81036 | .76501 | .120680 | .8519 | 3.05074 |
| 1080.0 | 1.19557 | .188602 | 5.143557 | .81140 | .69781 | .110080 | .8889 | 3.18338 |
| 1125.0 | 1.18897 | .187560 | 5.150164 | .81244 | .63652 | .100410 | .9259 | 3.31602 |
| 1170.0 | 1.18236 | .186518 | 5.156770 | .81348 | .58060 | .091590 | .9630 | 3.44866 |
| 1215.0 | 1.17906 | .185997 | 5.160073 | .81400 | .52960 | .083545 | 1.0000 | 3.58130 |

# TABLE D-18

EVAPORATION EXPERIMENT NO. BLF2  SERIES 1D 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2  MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 2.9  MPH, AIR TEMPERATURE 60  DEG F.,  RELATIVE HUMIDITY 39%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 6.46739 | 1.000000 | .000000 | .00000 | 6.46739 | 1.000000 | .0000 | .00000 |
| 40.0 | 5.99055 | .926270 | .476838 | .07373 | 5.92252 | .915750 | .0313 | .12697 |
| 80.0 | 5.53852 | .856376 | .928869 | .14362 | 5.42355 | .838599 | .0625 | .25395 |
| 120.0 | 5.10578 | .789466 | 1.361607 | .21053 | 4.96661 | .767947 | .0938 | .38092 |
| 160.0 | 4.68958 | .725112 | 1.777807 | .27489 | 4.54818 | .703248 | .1250 | .50790 |
| 200.0 | 4.28992 | .663316 | 2.177469 | .33668 | 4.16500 | .643999 | .1563 | .63487 |
| 240.0 | 3.90680 | .604076 | 2.560593 | .39592 | 3.81410 | .589742 | .1875 | .76184 |
| 280.0 | 3.54021 | .547394 | 2.927179 | .45261 | 3.49276 | .540057 | .2188 | .88882 |
| 320.0 | 3.19016 | .493269 | 3.277228 | .50673 | 3.19849 | .494557 | .2500 | 1.01579 |
| 360.0 | 2.85665 | .441701 | 3.610739 | .55830 | 2.92902 | .452891 | .2813 | 1.14276 |
| 400.0 | 2.53968 | .392690 | 3.927713 | .60731 | 2.68225 | .414735 | .3125 | 1.26974 |
| 440.0 | 2.24200 | .346662 | 4.225392 | .65334 | 2.45627 | .379794 | .3438 | 1.39671 |
| 480.0 | 1.96361 | .303618 | 4.503777 | .69638 | 2.24933 | .347796 | .3750 | 1.52369 |
| 520.0 | 1.70452 | .263557 | 4.762868 | .73644 | 2.05983 | .318494 | .4063 | 1.65066 |
| 560.0 | 1.47024 | .227331 | 4.997153 | .77267 | 1.88629 | .291661 | .4375 | 1.77763 |
| 600.0 | 1.26076 | .194941 | 5.206631 | .80506 | 1.72737 | .267089 | .4688 | 1.90461 |
| 640.0 | 1.07333 | .165961 | 5.394059 | .83404 | 1.58184 | .244587 | .5000 | 2.03158 |
| 680.0 | .90795 | .140390 | 5.559436 | .85961 | 1.44857 | .223980 | .5313 | 2.15856 |
| 720.0 | .76463 | .118228 | 5.702763 | .88177 | 1.32653 | .205110 | .5625 | 2.28553 |
| 760.0 | .64335 | .099476 | 5.824040 | .90052 | 1.21477 | .187830 | .5938 | 2.41250 |
| 8[illegible] | .54137 | .083707 | 5.926023 | .91629 | 1.11242 | .172005 | .6250 | 2.53948 |
| 840.0 | .45592 | .070496 | 6.011468 | .92950 | 1.01870 | .157514 | .6563 | 2.66645 |
| 880.0 | .38426 | .059415 | 6.083132 | .94059 | .93288 | .144243 | .6875 | 2.79342 |
| 920.0 | .32638 | .050465 | 6.141013 | .94953 | .85428 | .132091 | .7188 | 2.92040 |
| 960.0 | .27952 | .043220 | 6.187871 | .95678 | .78231 | .120962 | .7500 | 3.04737 |
| 1000.0 | .24093 | .037253 | 6.226458 | .96275 | .71640 | .110771 | .7813 | 3.17435 |
| 1040.0 | .21337 | .032992 | 6.254021 | .96701 | .65604 | .101439 | .8125 | 3.30132 |
| 1080.0 | .19408 | .030008 | 6.273315 | .96999 | .60077 | .0[illegible]893 | .8438 | 3.42829 |
| 1120.0 | .18029 | .027878 | 6.287097 | .97212 | .55016 | .085066 | .8750 | 3.55527 |
| 1160.0 | .16927 | .026173 | 6.298122 | .97383 | .50381 | .077900 | .9063 | 3.68224 |
| 1200.0 | .16100 | .024894 | 6.306391 | .97511 | .46136 | .071337 | .9375 | 3.80921 |
| 1240.0 | .15549 | .024042 | 6.311904 | .97596 | .42249 | .065326 | .9688 | 3.93619 |
| 1280.0 | .15273 | .023616 | 6.314660 | .97638 | .38690 | .059[illegible]3 | 1.0000 | 4.06316 |

# TABLE D-19

EVAPORATION EXPERIMENT NO. 8L5I SERIES TO 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.3 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 6.33913 | 1.000000 | .000000 | .00000 | 6.33913 | 1.000000 | .0000 | .00000 |
| 15.0 | 5.93133 | .935670 | .407799 | .06433 | 5.89171 | .929419 | .0333 | .10560 |
| 30.0 | 5.54372 | .874524 | .795410 | .12548 | 5.47587 | .863820 | .0667 | .21120 |
| 45.0 | 5.17630 | .816563 | 1.162834 | .18344 | 5.08938 | .802851 | .1000 | .31680 |
| 60.0 | 4.82906 | .761786 | 1.510069 | .23821 | 4.73017 | .746185 | .1333 | .42239 |
| 75.0 | 4.49354 | .708921 | 1.845191 | .29108 | 4.39631 | .693519 | .1667 | .52799 |
| 90.0 | 4.17073 | .657966 | 2.168200 | .34203 | 4.08601 | .644570 | .2000 | .63359 |
| 105.0 | 3.86407 | .609559 | 2.475059 | .39044 | 3.79762 | .599075 | .2333 | .73919 |
| 120.0 | 3.57336 | .563399 | 2.765768 | .43530 | 3.52953 | .556793 | .2667 | .84479 |
| 135.0 | 3.29477 | .519751 | 3.044363 | .48025 | 3.28046 | .517494 | .3000 | .95039 |
| 150.0 | 3.02025 | .477773 | 3.310845 | .52229 | 3.04892 | .480969 | .3333 | 1.05598 |
| 165.0 | 2.77392 | .437586 | 3.565216 | .56241 | 2.83373 | .447022 | .3667 | 1.16158 |
| 180.0 | 2.53166 | .399370 | 3.807472 | .60063 | 2.63372 | .415471 | .4000 | 1.26718 |
| 195.0 | 2.30555 | .363702 | 4.033579 | .63630 | 2.44783 | .386146 | .4333 | 1.37278 |
| 210.0 | 2.09560 | .330581 | 4.243535 | .66942 | 2.27506 | .358892 | .4667 | 1.47838 |
| 225.0 | 1.90179 | .300008 | 4.437341 | .69999 | 2.11449 | .333561 | .5000 | 1.58398 |
| 240.0 | 1.72817 | .272620 | 4.610959 | .72738 | 1.96525 | .310018 | .5333 | 1.68958 |
| 255.0 | 1.57474 | .248416 | 4.764388 | .75158 | 1.82654 | .288137 | .5667 | 1.79517 |
| 270.0 | 1.43746 | .226760 | 4.901667 | .77324 | 1.69762 | .267800 | .6000 | 1.90077 |
| 285.0 | 1.31634 | .207652 | 5.022796 | .79235 | 1.57780 | .248898 | .6333 | 2.00637 |
| 300.0 | 1.21136 | .191092 | 5.127773 | .80891 | 1.46644 | .231331 | .6667 | 2.11197 |
| 315.0 | 1.12253 | .177079 | 5.216601 | .82292 | 1.36294 | .215003 | .7000 | 2.21757 |
| 330.0 | 1.04985 | .165615 | 5.289278 | .83439 | 1.26674 | .199828 | .7333 | 2.32317 |
| 345.0 | .99333 | .156698 | 5.345805 | .84330 | 1.17733 | .185724 | .7667 | 2.42877 |
| 360.0 | .95295 | .150328 | 5.386181 | .84967 | 1.09423 | .172616 | .8000 | 2.53436 |
| 375.0 | .92469 | .145870 | 5.414444 | .85413 | 1.01700 | .160432 | .8333 | 2.63996 |
| 390.0 | .90450 | .142685 | 5.434632 | .85732 | .94522 | .149109 | .8667 | 2.74556 |
| 405.0 | .88835 | .140137 | 5.450783 | .85986 | .87851 | .138585 | .9000 | 2.85116 |
| 420.0 | .87624 | .138226 | 5.462895 | .86177 | .81650 | .128803 | .9333 | 2.95676 |
| 435.0 | .86816 | .136953 | 5.470971 | .86305 | .75887 | .119712 | .9667 | 3.06236 |
| 450.0 | .86412 | .136316 | 5.475008 | .86368 | .70531 | .111263 | 1.0000 | 3.16795 |

## TABLE D-20

EVAPORATION EXPERIMENT NO. BLF4 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 20%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 6.72609 | 1.000000 | .000000 | .00000 | 6.72609 | 1.000000 | .0000 | .00000 |
| 20.0 | 6.18235 | .919161 | .543732 | .08084 | 6.08267 | .904340 | .0357 | .14506 |
| 40.0 | 5.65477 | .840723 | 1.071314 | .15928 | 5.50080 | .817830 | .0714 | .29013 |
| 60.0 | 5.14872 | .765486 | 1.577362 | .23451 | 4.97459 | .739596 | .1071 | .43519 |
| 80.0 | 4.65883 | .692650 | 2.067260 | .30735 | 4.49872 | .668846 | .1429 | .58025 |
| 100.0 | 4.18508 | .622216 | 2.541007 | .37778 | 4.06837 | .604864 | .1786 | .72532 |
| 120.0 | 3.73825 | .555784 | 2.987836 | .44422 | 3.67919 | .547003 | .2143 | .87038 |
| 140.0 | 3.31834 | .493353 | 3.407748 | .50665 | 3.32723 | .494676 | .2500 | 1.01544 |
| 160.0 | 2.91996 | .434125 | 3.806127 | .56588 | 3.00895 | .447355 | .2857 | 1.16051 |
| 180.0 | 2.54312 | .378097 | 4.182971 | .62190 | 2.72111 | .404561 | .3214 | 1.30557 |
| 200.0 | 2.19319 | .326072 | 4.532897 | .67393 | 2.46081 | .365861 | .3571 | 1.45063 |
| 220.0 | 1.87018 | .278049 | 4.855906 | .72195 | 2.22541 | .330862 | .3929 | 1.59570 |
| 240.0 | 1.57409 | .234027 | 5.151999 | .76597 | 2.01252 | .299212 | .4286 | 1.74076 |
| 260.0 | 1.30491 | .194008 | 5.421173 | .80599 | 1.82001 | .270589 | .4643 | 1.88582 |
| 280.0 | 1.06266 | .157990 | 5.663430 | .84201 | 1.64590 | .244704 | .5000 | 2.03089 |
| 300.0 | .85270 | .126775 | 5.873386 | .87322 | 1.48846 | .221296 | .5357 | 2.17595 |
| 320.0 | .67505 | .100362 | 6.051042 | .89964 | 1.34607 | .200127 | .5714 | 2.32101 |
| 340.0 | .52969 | .078752 | 6.196396 | .92125 | 1.21730 | .180982 | .6071 | 2.46608 |
| 360.0 | .41664 | .061944 | 6.309449 | .93806 | 1.10086 | .163670 | .6429 | 2.61114 |
| 380.0 | .33589 | .049938 | 6.390201 | .95006 | .99555 | .148013 | .6786 | 2.75620 |
| 400.0 | .28205 | .041934 | 6.444036 | .95807 | .90031 | .133854 | .7143 | 2.90127 |
| 420.0 | .24437 | .036331 | 6.481721 | .96367 | .81419 | .121049 | .7500 | 3.04633 |
| 440.0 | .21745 | .032329 | 6.508638 | .96767 | .73630 | .109470 | .7857 | 3.19140 |
| 460.0 | .19591 | .029128 | 6.530172 | .97087 | .66587 | .098998 | .8214 | 3.33646 |
| 480.0 | .17976 | .026726 | 6.546322 | .97327 | .60217 | .089528 | .8571 | 3.48152 |
| 500.0 | .16900 | .025126 | 6.557089 | .97487 | .54457 | .080963 | .8929 | 3.62659 |
| 520.0 | .15823 | .023525 | 6.567857 | .97648 | .49247 | .073218 | .9286 | 3.77165 |
| 540.0 | .14746 | .021924 | 6.578624 | .97808 | .44536 | .066214 | .9643 | 3.91671 |
| 560.0 | .14208 | .021124 | 6.584008 | .97888 | .40276 | .059880 | 1.0000 | 4.06178 |

# TABLE D-21

EVAPORATION EXPERIMENT NO. BL55 SERIES 1D 2**6 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIVES |
| .0 | 6.07500 | 1.000000 | .000000 | .00000 | 6.07500 | 1.000000 | .0000 | .00000 |
| 30.0 | 5.74245 | .945259 | .332553 | .05474 | 5.71518 | .940771 | .0263 | .08808 |
| 60.0 | 5.43632 | .894868 | .638678 | .10513 | 5.37668 | .885050 | .0526 | .17517 |
| 90.0 | 5.14561 | .847015 | .929386 | .15299 | 5.05823 | .832630 | .0789 | .26425 |
| 120.0 | 4.86371 | .800611 | 1.211285 | .19939 | 4.75863 | .783314 | .1053 | .35234 |
| 150.0 | 4.59063 | .755659 | 1.484375 | .24434 | 4.47673 | .736919 | .1316 | .44042 |
| 180.0 | 4.32414 | .711793 | 1.750858 | .28821 | 4.21163 | .693272 | .1579 | .52851 |
| 210.0 | 4.06427 | .669015 | 2.010733 | .33098 | 3.96218 | .652210 | .1842 | .61659 |
| 240.0 | 3.81320 | .627687 | 2.261800 | .37231 | 3.72750 | .613581 | .2105 | .70467 |
| 270.0 | 3.57094 | .587810 | 2.504057 | .41219 | 3.50673 | .577239 | .2368 | .79276 |
| 300.0 | 3.33750 | .549383 | 2.737504 | .45062 | 3.29903 | .543050 | .2632 | .88084 |
| 330.0 | 3.11286 | .512404 | 2.962143 | .48760 | 3.10363 | .510886 | .2895 | .96893 |
| 360.0 | 2.89923 | .477240 | 3.175769 | .52276 | 2.91980 | .480626 | .3158 | 1.05701 |
| 390.0 | 2.69882 | .444250 | 3.376182 | .55575 | 2.74687 | .452159 | .3421 | 1.14510 |
| 420.0 | 2.51162 | .413435 | 3.563380 | .58656 | 2.58417 | .425378 | .3684 | 1.23318 |
| 450.0 | 2.33764 | .384796 | 3.737365 | .61520 | 2.43112 | .400184 | .3947 | 1.32127 |
| 480.0 | 2.17686 | .358332 | 3.898135 | .64167 | 2.28712 | .376481 | .4211 | 1.40935 |
| 510.0 | 2.02931 | .334042 | 4.045692 | .66596 | 2.15166 | .354183 | .4474 | 1.49743 |
| 540.0 | 1.89276 | .311566 | 4.182237 | .68843 | 2.02422 | .333205 | .4737 | 1.58552 |
| 570.0 | 1.76723 | .290902 | 4.307770 | .70910 | 1.90433 | .313470 | .5000 | 1.67360 |
| 600.0 | 1.65491 | .272413 | 4.420089 | .72759 | 1.79154 | .294903 | .5263 | 1.76169 |
| 630.0 | 1.55581 | .256100 | 4.519194 | .74390 | 1.68543 | .277436 | .5526 | 1.84977 |
| 660.0 | 1.46991 | .241961 | 4.605085 | .75804 | 1.58560 | .261004 | .5789 | 1.93786 |
| 690.0 | 1.39724 | .229998 | 4.677762 | .77000 | 1.49169 | .245545 | .6053 | 2.02594 |
| 720.0 | 1.33777 | .220210 | 4.737225 | .77979 | 1.40333 | .231002 | .6316 | 2.11402 |
| 750.0 | 1.28932 | .212234 | 4.785677 | .78777 | 1.32022 | .217320 | .6579 | 2.20211 |
| 780.0 | 1.24748 | .205346 | 4.827521 | .79465 | 1.24202 | .204448 | .6842 | 2.29019 |
| 810.0 | 1.21004 | .199183 | 4.864961 | .80082 | 1.16846 | .192339 | .7105 | 2.37828 |
| 840.0 | 1.17700 | .193746 | 4.897996 | .80625 | 1.09925 | .180947 | .7368 | 2.46636 |
| 870.0 | 1.14837 | .189033 | 4.926626 | .81097 | 1.03416 | .170230 | .7632 | 2.55445 |
| 900.0 | 1.12415 | .185045 | 4.950852 | .81496 | .97289 | .160147 | .7895 | 2.64253 |
| 930.0 | 1.10653 | .182145 | 4.968471 | .81786 | .91527 | .150662 | .8158 | 2.73062 |
| 960.0 | 1.09332 | .179970 | 4.981685 | .82003 | .86106 | .141738 | .8421 | 2.81870 |
| 990.0 | 1.08010 | .177794 | 4.994899 | .82221 | .81006 | .133343 | .8684 | 2.90678 |
| 1020.0 | 1.06909 | .175982 | 5.005910 | .82402 | .76208 | .125445 | .8947 | 2.99487 |
| 1050.0 | 1.06028 | .174532 | 5.014720 | .82547 | .71694 | [illegible] | .9211 | 3.08295 |
| 1080.0 | 1.05367 | .173444 | 5.021327 | .82656 | .67448 | .111025 | .9474 | 3.17104 |
| 1110.0 | 1.04927 | .172719 | 5.025731 | .82728 | .63453 | .104450 | .9737 | 3.25912 |
| 1140.0 | 1.04707 | .172357 | 5.027934 | .82764 | .59695 | .098263 | 1.0000 | 3.34721 |

# TABLE D-22

EVAPORATION EXPERIMENT NO. 8LF6 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 2.9 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 6.33804 | 1.000000 | .000000 | .00000 | 6.33804 | 1.000000 | .0000 | .00000 |
| 40.0 | 5.88103 | .927894 | .457009 | .07211 | 5.80431 | .915789 | .0323 | .12691 |
| 80.0 | 5.43822 | .858028 | .899826 | .14197 | 5.31553 | .838670 | .0645 | .25382 |
| 120.0 | 5.01243 | .790849 | 1.325611 | .20915 | 4.86791 | .768046 | .0968 | .38074 |
| 160.0 | 4.60368 | .726357 | 1.734364 | .27364 | 4.45798 | .703368 | .1290 | .50765 |
| 200.0 | 4.20912 | .664104 | 2.128925 | .33590 | 4.08257 | .644137 | .1613 | .63456 |
| 240.0 | 3.83159 | .604538 | 2.506455 | .39546 | 3.73877 | .589894 | .1935 | .76147 |
| 280.0 | 3.47109 | .547660 | 2.866953 | .45234 | 3.42393 | .540219 | .2258 | .88838 |
| 320.0 | 3.12762 | .493468 | 3.210419 | .50653 | 3.13560 | .494727 | .2581 | 1.01530 |
| 360.0 | 2.80119 | .441964 | 3.536855 | .55804 | 2.87155 | .453065 | .2903 | 1.14221 |
| 400.0 | 2.49179 | .393147 | 3.846258 | .60685 | 2.62973 | .414913 | .3226 | 1.26912 |
| 440.0 | 2.20225 | .347466 | 4.135792 | .65253 | 2.40828 | .379973 | .3548 | 1.39603 |
| 480.0 | 1.93826 | .305814 | 4.399779 | .69419 | 2.20548 | .347975 | .3871 | 1.52294 |
| 520.0 | 1.70266 | .268642 | 4.635380 | .73136 | 2.01976 | .318672 | .4194 | 1.64986 |
| 560.0 | 1.49261 | .235500 | 4.845434 | .76450 | 1.84967 | .291836 | .4516 | 1.77677 |
| 600.0 | 1.30810 | .206389 | 5.029941 | .79361 | 1.69391 | .267261 | .4839 | 1.90368 |
| 640.0 | 1.15198 | .181757 | 5.186061 | .81824 | 1.55126 | .244754 | .5161 | 2.03059 |
| 680.0 | 1.02425 | .161603 | 5.313797 | .83840 | 1.42063 | .224144 | .5484 | 2.15751 |
| 720.0 | .91922 | .145032 | 5.418825 | .85497 | 1.30100 | .205268 | .5806 | 2.28442 |
| 760.0 | .83122 | .131148 | 5.506820 | .86885 | 1.19144 | .187983 | .6129 | 2.41133 |
| 800.0 | .75742 | .119504 | 5.580623 | .88050 | 1.09111 | .172152 | .6452 | 2.53824 |
| 840.0 | .69497 | .109651 | 5.643071 | .89035 | .99923 | .157655 | .6774 | 2.66515 |
| 880.0 | .64388 | .101589 | 5.694165 | .89841 | .91508 | .144379 | .7097 | 2.79207 |
| 920.0 | .60130 | .094872 | 5.736744 | .90513 | .83802 | .132221 | .7419 | 2.91898 |
| 960.0 | .56440 | .089049 | 5.773644 | .91095 | .76745 | .121087 | .7742 | 3.04589 |
| 1000.0 | .53317 | .084123 | 5.804869 | .91588 | .70282 | .110890 | .8065 | 3.17280 |
| 1040.0 | .50763 | .080092 | 5.830416 | .91991 | .64364 | .101552 | .8387 | 3.29971 |
| 1080.0 | .48776 | .076957 | 5.850286 | .92304 | .58944 | .093000 | .8710 | 3.42663 |
| 1120.0 | .47356 | .074718 | 5.864479 | .92528 | .53980 | .085168 | .9032 | 3.55354 |
| 1160.0 | .46221 | .072926 | 5.875834 | .92707 | .49434 | .077996 | .9355 | 3.68045 |
| 1200.0 | .45369 | .071583 | 5.884349 | .92842 | .45272 | .071428 | .9677 | 3.80736 |
| 1240.0 | .45086 | .071135 | 5.887188 | .92887 | .41459 | .065413 | 1.0000 | 3.93427 |

# TABLE D-23

EVAPORATION EXPERIMENT NO. BLF7 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 5.81087 | 1.000000 | .000000 | .00000 | 5.81087 | 1.000000 | .0000 | .00000 |
| 15.0 | 5.45960 | .939549 | .351273 | .06045 | 5.41005 | .931023 | .0294 | .10311 |
| 30.0 | 5.12044 | .881183 | .690432 | .11882 | 5.03688 | .866803 | .0588 | .20622 |
| 45.0 | 4.79339 | .824901 | 1.017480 | .17510 | 4.68945 | .807014 | .0882 | .30934 |
| 60.0 | 4.47442 | .770008 | 1.336451 | .22999 | 4.36599 | .751348 | .1176 | .41245 |
| 75.0 | 4.16756 | .717201 | 1.643310 | .28280 | 4.06483 | .699522 | .1471 | .51556 |
| 90.0 | 3.87685 | .667172 | 1.934018 | .33283 | 3.78445 | .651271 | .1765 | .61867 |
| 105.0 | 3.59826 | .61[illegible]28 | 2.212614 | .38077 | 3.52341 | .606348 | .2059 | .72178 |
| 120.0 | 3.33177 | .573369 | 2.479097 | .42663 | 3.28037 | .564524 | .2353 | .82489 |
| 135.0 | 3.07740 | .529594 | 2.733467 | .47041 | 3.05410 | .525585 | .2647 | .92801 |
| 150.0 | 2.83111 | .487209 | 2.979761 | .51279 | 2.84344 | .489331 | .2941 | 1.03112 |
| 165.0 | 2.59693 | .446908 | 3.213943 | .55309 | 2.64731 | .455578 | .3235 | 1.13423 |
| 180.0 | 2.37486 | .408692 | 3.436012 | .59131 | 2.46470 | .424154 | .3529 | 1.23734 |
| 195.0 | 2.16490 | .372561 | 3.645968 | .62744 | 2.29469 | .394897 | .3824 | 1.34045 |
| 210.0 | 1.97110 | .339208 | 3.839774 | .66079 | 2.13641 | .367658 | .4118 | 1.44356 |
| 225.0 | 1.79344 | .308636 | 4.017428 | .69136 | 1.98905 | .342298 | .4412 | 1.54668 |
| 240.0 | 1.63194 | .280842 | 4.178934 | .71916 | 1.85185 | .318687 | .4706 | 1.64979 |
| 255.0 | 1.49062 | .256523 | 4.320250 | .74348 | 1.72411 | .296705 | .5000 | 1.75290 |
| 270.0 | 1.36949 | .235677 | 4.441379 | .76432 | 1.60519 | .276239 | .5294 | 1.85601 |
| 285.0 | 1.26048 | .216917 | 4.550395 | .78308 | 1.49447 | .257185 | .5588 | 1.95912 |
| 300.0 | 1.16357 | .200241 | 4.647297 | .79976 | 1.39138 | .239445 | .5882 | 2.06223 |
| 315.0 | 1.08282 | .186344 | 4.728050 | .81366 | 1.29541 | .222929 | .6176 | 2.16535 |
| 330.0 | 1.01418 | .174532 | 4.796689 | .82547 | 1.20606 | .207552 | .6471 | 2.26846 |
| 345.0 | .95362 | .164109 | 4.857253 | .83589 | 1.12287 | .193235 | .6765 | 2.37157 |
| 360.0 | .90113 | .155076 | 4.909742 | .84492 | 1.04541 | .179907 | .7059 | 2.47468 |
| 375.0 | .85671 | .147433 | 4.954156 | .85257 | .97330 | .167497 | .7353 | 2.57779 |
| 390.0 | .82038 | .141179 | 4.990495 | .85882 | .90617 | .155944 | .7647 | 2.68090 |
| 405.0 | .79211 | .136316 | 5.018758 | .86368 | .84366 | .145187 | .7941 | 2.78402 |
| 420.0 | .76789 | .132146 | 5.042984 | .86785 | .78547 | .135172 | .8235 | 2.88713 |
| 435.0 | .74770 | .128672 | 5.063172 | .87133 | .73129 | .125849 | .8529 | 2.99024 |
| 450.0 | .73155 | .125893 | 5.079322 | .87411 | .68085 | .117168 | .8824 | 3.09335 |
| 465.0 | .71943 | .123808 | 5.091435 | .87619 | .63388 | .109086 | .9118 | 3.19646 |
| 480.0 | .71136 | .122419 | 5.099511 | .87758 | .59016 | .101562 | .9412 | 3.29957 |
| 495.0 | .70328 | .121029 | 5.107586 | .87897 | .54945 | .094556 | .9706 | 3.40269 |
| 510.0 | .69925 | .120334 | 5.111623 | .87967 | .51155 | .088034 | 1.0000 | 3.50580 |

# TABLE D-24

EVAPORATION EXPERIMENT NO. BLF8 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 50%

EVAPORATION HISTORY OF TEST DROPLET MEASURED AND THEORETICAL

| | EXPERIMENTAL EVAPORATION DATA | | | | THEORETICAL HALF LIFE MODEL DATA | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | RESIDUAL MASS | | CUMULATIVE MASS | | MASS | MASS | TIME | TIME |
| MINUTES | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | MILLIGRAMS | FRACTIONAL | FRACTIONAL | HALF-LIFES |
| .0 | 6.59674 | 1.000000 | .000000 | .00000 | 6.59674 | 1.000000 | .0000 | .00000 |
| 15.0 | 6.20679 | .940887 | .389952 | .05911 | 6.15493 | .933026 | .0313 | .10001 |
| 30.0 | 5.83275 | .884187 | .763988 | .11581 | 5.74271 | .870538 | .0625 | .20002 |
| 45.0 | 5.47463 | .829900 | 1.122106 | .17010 | 5.35810 | .812234 | .0938 | .30003 |
| 60.0 | 5.13243 | .778025 | 1.464309 | .22197 | 4.99924 | .757836 | .1250 | .40004 |
| 75.0 | 4.80216 | .727960 | 1.794575 | .27204 | 4.66442 | .707080 | .1563 | .50005 |
| 90.0 | 4.47986 | .679102 | 2.116881 | .32090 | 4.35203 | .659724 | .1875 | .60006 |
| 105.0 | 4.16949 | .632053 | 2.427252 | .36795 | 4.06056 | .615540 | .2188 | .70008 |
| 120.0 | 3.87106 | .586813 | 2.725684 | .41319 | 3.78861 | .574315 | .2500 | .80009 |
| 135.0 | 3.58058 | .542780 | 3.016158 | .45722 | 3.53487 | .535851 | .2813 | .90010 |
| 150.0 | 3.29806 | .499954 | 3.298674 | .50005 | 3.29812 | .499963 | .3125 | 1.00011 |
| 165.0 | 3.02351 | .458334 | 3.573232 | .54167 | 3.07723 | .466478 | .3438 | 1.10012 |
| 180.0 | 2.75691 | .417920 | 3.839832 | .58208 | 2.87114 | .435236 | .3750 | 1.20013 |
| 195.0 | 2.49827 | .378712 | 4.098474 | .62129 | 2.67885 | .406087 | .4063 | 1.30014 |
| 210.0 | 2.25156 | .341314 | 4.345178 | .65869 | 2.49943 | .378889 | .4375 | 1.40015 |
| 225.0 | 2.01679 | .305726 | 4.579945 | .69427 | 2.33204 | .353514 | .4688 | 1.50016 |
| 240.0 | 1.79396 | .271947 | 4.802774 | .72805 | 2.17585 | .329838 | .5000 | 1.60017 |
| 255.0 | 1.58307 | .239978 | 5.013667 | .76002 | 2.03013 | .307747 | .5313 | 1.70018 |
| 270.0 | 1.38014 | .209215 | 5.216601 | .79078 | 1.89416 | .287136 | .5625 | 1.80019 |
| 285.0 | 1.19710 | .181468 | 5.399640 | .81853 | 1.76730 | .267905 | .5938 | 1.90020 |
| 300.0 | 1.03794 | .157341 | 5.558804 | .84266 | 1.64894 | .249963 | .6250 | 2.00022 |
| 315.0 | .89469 | .135626 | 5.702052 | .86437 | 1.53850 | .233222 | .6563 | 2.10023 |
| 330.0 | 76736 | .116324 | 5.829382 | .88368 | 1.43546 | .217602 | .6875 | 2.20024 |
| 345.0 | .65594 | .099434 | 5.940797 | .90057 | 1.33932 | .203028 | .7188 | 2.30025 |
| 360.0 | .56044 | .084958 | 6.036296 | .91504 | 1.24962 | .189431 | .7500 | 2.40026 |
| 375.0 | .48086 | .072894 | 6.115878 | .92711 | 1.16593 | .176744 | .7813 | 2.50027 |
| 390.0 | .41720 | .063243 | 6.179543 | .93676 | 1.08784 | .164906 | .8125 | 2.60028 |
| 405.0 | .36945 | .056004 | 6.227293 | .94400 | 1.01499 | .153862 | .8438 | 2.70029 |
| 420.0 | .33363 | .050576 | 6.263104 | .94942 | .94701 | .143557 | .8750 | 2.80030 |
| 435.0 | .30976 | .046956 | 6.286979 | .95304 | .88358 | .133963 | .9063 | 2.90031 |
| 450.0 | .29782 | .045147 | 6.298917 | .95485 | .82441 | .124972 | .9375 | 3.00032 |
| 465.0 | .28986 | .043940 | 6.306875 | .95606 | .76919 | .116602 | .9688 | 3.10033 |
| 480.0 | .28589 | .043337 | 6.310854 | .95666 | .71768 | .108793 | 1.0000 | 3.20035 |

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# APPENDIX E

# EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

# TABLE E-1

EVAPORATION EXPERIMENT NO. GLF1 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 45%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************* TIME | ************* | | ***** EVAPORATION RATE | ***** |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 30.0 | .0345 | .12187 | -17.91234 | -19.61007 |
| 60.0 | .0690 | .24374 | -15.93023 | -19.04545 |
| 90.0 | .1034 | .36561 | -14.16837 | -18.44951 |
| 120.0 | .1379 | .48747 | -12.92038 | -18.31362 |
| 150.0 | .1724 | .60934 | -11.81920 | -18.22875 |
| 180.0 | .2069 | .73121 | -10.64463 | -17.83216 |
| 210.0 | .2414 | .85308 | -9.61686 | -17.47077 |
| 240.0 | .2759 | .97495 | -8.80934 | -17.34543 |
| 270.0 | .3103 | 1.09682 | -7.92842 | -16.88488 |
| 300.0 | .3448 | 1.21869 | -7.12088 | -16.36456 |
| 330.0 | .3793 | 1.34055 | -6.38678 | -15.79822 |
| 360.0 | .4138 | 1.46242 | -5.65268 | -14.99577 |
| 390.0 | .4483 | 1.58429 | -4.99197 | -14.14859 |
| 420.0 | .4828 | 1.70616 | -4.40466 | -13.28563 |
| 450.0 | .5172 | 1.82803 | -3.74397 | -11.94478 |
| 480.0 | .5517 | 1.94990 | -3.08327 | -10.32788 |
| 510.0 | .5862 | 2.07177 | -2.4[illegible]598 | -8.71274 |
| 540.0 | .6207 | 2.19364 | -1.98211 | [illegible]5835 |
| 570.0 | .6552 | 2.31550 | -1.61505 | -6.00190 |
| 600.0 | .6897 | 2.43737 | [illegible] | -5.0300[illegible] |
| 630.0 | .7241 | 2.55924 | [illegible] | [illegible] |
| 660.0 | .7586 | 2.68111 | [illegible] | -3.18131 |
| 690.0 | .7931 | 2.80298 | [illegible] | [illegible] |
| 720.0 | .8276 | 2.92485 | [illegible]1387 | -2.07077 |
| 750.0 | .8621 | 3.04672 | [illegible] | [illegible] |
| 780.0 | .8966 | 3.16858 | [illegible] | [illegible] |
| 810.0 | .9310 | 3.29045 | [illegible] | [illegible] |
| 840.0 | .9655 | 3.41232 | [illegible] | [illegible] |
| 870.0 | 1.0000 | 3.53419 | [illegible] | [illegible] |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-2

EVAPORATION EXPERIMENT NO. GLF2 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME | ************* | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 30.0 | .0294 | .11354 | -16.00364 | -17.28695 |
| 60.0 | .0588 | .22708 | -14.82906 | -17.30391 |
| 90.0 | .0882 | .34063 | -13.72791 | -17.30485 |
| 120.0 | .1176 | .45417 | -12.77354 | -17.40154 |
| 150.0 | .1471 | .56771 | -11.96602 | -17.63494 |
| 180.0 | .1765 | .68125 | -11.15852 | -17.80293 |
| 210.0 | .2059 | .79479 | -10.35098 | -17.88458 |
| 240.0 | .2353 | .90833 | -9.69027 | -18.15285 |
| 270.0 | .2647 | 1.02188 | -9.02958 | -18.35541 |
| 300.0 | .2941 | 1.13542 | -8.29547 | -18.29410 |
| 330.0 | .3235 | 1.24896 | -7.63477 | -18.26344 |
| 360.0 | .3529 | 1.36250 | -7.04748 | -18.28878 |
| 390.0 | .3824 | 1.47604 | -6.46019 | -18.17836 |
| 420.0 | .4118 | 1.58958 | -5.87290 | -17.89777 |
| 450.0 | .4412 | 1.70313 | -5.28560 | -17.40876 |
| 480.0 | .4706 | 1.81667 | -4.69831 | -16.67109 |
| 510.0 | .5000 | 1.93021 | -4.11103 | -15.64594 |
| 540.0 | .5294 | 2.04375 | -3.52374 | -14.30041 |
| 570.0 | .5588 | 2.15729 | -3.00987 | -12.94863 |
| 600.0 | .5882 | 2.27083 | -2.56939 | -11.65109 |
| 630.0 | .6176 | 2.38438 | -2.12894 | -10.10639 |
| 660.0 | .6471 | 2.49792 | -1.76186 | -8.70142 |
| 690.0 | .6765 | 2.61146 | -1.54163 | -7.89245 |
| 720.0 | .7059 | 2.72500 | -1.32141 | -6.98422 |
| 750.0 | .7353 | 2.83854 | -1.10117 | -5.98163 |
| 780.0 | .7647 | 2.95208 | -1.02775 | -5.73121 |
| 810.0 | .7941 | 3.06563 | -.95435 | -5.45663 |
| 840.0 | .8235 | 3.17917 | -.80751 | -4.71813 |
| 870.0 | .8529 | 3.29271 | -.66070 | -3.93070 |
| 900.0 | .8824 | 3.40625 | -.51368 | -3.10119 |
| 930.0 | .9118 | 3.51979 | -.36706 | -2.23817 |
| 960.0 | .9412 | 3.63333 | -.22022 | -1.35119 |
| 990.0 | .9706 | 3.74688 | -.14682 | .90463 |
| 1020.0 | 1.0000 | 3.86042 | -.07341 | -.45328 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-3

EVAPORATION EXPERIMENT NO. GLF3 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME | ************** | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 15.0 | .0417 | .17906 | -43.33708 | -49.09026 |
| 30.0 | .0833 | .35811 | -37.95360 | -48.64809 |
| 45.0 | .1250 | .53717 | -33.64632 | -48.82185 |
| 60.0 | .1667 | .71622 | -29.87836 | -49.11170 |
| 75.0 | .2083 | .89528 | -26.37908 | -49.11948 |
| 90.0 | .2500 | 1.07433 | -23.41818 | -49.43577 |
| 105.0 | .2917 | 1.25339 | -20.72644 | -49.62528 |
| 120.0 | .3333 | 1.43244 | -18.03467 | -48.88930 |
| 135.0 | .3750 | 1.61150 | -15.34295 | -46.86356 |
| 150.0 | .4167 | 1.79056 | -12.65120 | -43.15112 |
| 165.0 | .4583 | 1.96961 | -10.49781 | -39.64514 |
| 180.0 | .5000 | 2.14867 | -8.83275 | -36.89266 |
| 195.0 | .5417 | 2.32772 | -7.26772 | -32.86795 |
| 210.0 | .5833 | 2.50678 | -5.65266 | -27.46245 |
| 225.0 | .6250 | 2.68583 | -4.30681 | -22.17883 |
| 240.0 | .6667 | 2.86489 | -3.23010 | -17.41758 |
| 255.0 | .7083 | 3.04394 | -2.42256 | -13.54151 |
| 270.0 | .7500 | 3.22300 | -2.15340 | -12.44198 |
| 285.0 | .7917 | 3.40206 | -1.88422 | -11.21692 |
| 300.0 | .8333 | 3.58111 | -1.61506 | -9.87123 |
| 315.0 | .8750 | 3.76017 | -1.34587 | -8.41313 |
| 330.0 | .9167 | 3.93922 | -.80753 | -5.11778 |
| 345.0 | .9583 | 4.11828 | 53837 | -3.44371 |
| 360.0 | 1.0000 | 4.29733 | -.26916 | 1.72979 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-4

EVAPORATION EXPERIMENT NO. GLF4 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME | ************* | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 10.0 | .0270 | .10177 | -39.03028 | -41.53702 |
| 20.0 | .0541 | .20353 | -38.49193 | -43.73419 |
| 30.0 | .0811 | .30530 | -37.41528 | -45.50179 |
| 40.0 | .1081 | .40707 | -35.53102 | -46.30398 |
| 50.0 | .1351 | .50883 | -33.57762 | -46.63414 |
| 60.0 | .1622 | .61060 | -3[illegible].76257 | -47.64706 |
| 70.0 | .1892 | .71236 | -30.41676 | -4[illegible].09169 |
| 80.0 | .2162 | .81413 | -28.80164 | -50.08482 |
| 90.0 | .2432 | .91590 | -27.18663 | -51.00483 |
| 100.0 | .2703 | 1.01766 | -25.84076 | -52.40839 |
| 110.0 | .2973 | 1.11943 | -24.49486 | -53.81227 |
| 120.0 | .3243 | 1.22120 | -22.87985 | -54.50001 |
| 130.0 | .3514 | 1.32296 | -21.53395 | -55.71274 |
| 140.0 | .3784 | 1.42473 | -20.45727 | -57.64461 |
| 150.0 | .4054 | 1.52649 | -19.11139 | -58.74351 |
| 160.0 | .4324 | 1.62826 | -17.76553 | -59.[illegible]262 |
| 170.0 | .4595 | 1.73003 | -16.68884 | -61.34209 |
| 180.0 | .4865 | 1.83179 | -15.61212 | -62.97192 |
| 190.0 | .5135 | 1.93356 | -14.53543 | -64.47382 |
| 200.0 | .5405 | 2.03533 | -13.45872 | -65.76878 |
| 210.0 | .5676 | 2.13709 | -12.38203 | -66.75250 |
| 220.0 | .5946 | 2.23886 | -11.30531 | -67.28909 |
| 230.0 | .6216 | 2.34062 | -10.22862 | -67.20718 |
| 240.0 | .6486 | 2.44239 | -9.15191 | -66.29678 |
| 250.0 | .6757 | 2.54416 | -8.07521 | -64.31435 |
| 260.0 | .7027 | 2.64592 | -7.26773 | 63.57304 |
| 270.0 | .7297 | 2.74769 | -6.46018 | -61.91934 |
| 280.0 | .7568 | 2.84946 | -5.38351 | -56.07352 |
| 290.0 | .7838 | 2.95122 | 4.57600 | 51.45465 |
| 300.0 | .8108 | 3.05[illegible]99 | -4.03759 | 48.82823 |
| 310.0 | .8378 | 3.15[illegible]75 | -3.49926 | -45.28086 |
| 320.0 | .8649 | 3.25652 | 2.96092 | 40.[illegible]2754 |
| 330.0 | .8919 | 3.358[illegible]9 | [illegible].62259 | 35.13295 |
| 340.0 | .9189 | 3.460[illegible] | 1.61504 | 24.30171 |
| 350.0 | .9459 | 3.56182 | [illegible].07670 | 16.61760 |
| 360.0 | .9730 | 3.66359 | .80756 | 12.70856 |
| 370.0 | 1.0000 | 3.76535 | .2[illegible]918 | 6.26410 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

## TABLE E-5

EVAPORATION EXPERIMENT NO. GLF5 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 58%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME ************* | | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 30.0 | .0345 | .09382 | -11.15850 | -11.87519 |
| 60.0 | .0690 | .18765 | -10.64463 | -12.06770 |
| 90.0 | .1034 | .28147 | -10.13074 | -12.24580 |
| 120.0 | .1379 | .37530 | -9.54346 | -12.30357 |
| 150.0 | .1724 | .46912 | -9.02959 | -12.42327 |
| 180.0 | .2069 | .56295 | -8.51570 | -12.50889 |
| 210.0 | .2414 | .65677 | -8.00182 | -12.55201 |
| 240.0 | .2759 | .75060 | -7.56136 | -12.67016 |
| 270.0 | .3103 | .84442 | -7.12088 | -12.75955 |
| 300.0 | .3448 | .93825 | -6.68042 | -12.79895 |
| 330.0 | .3793 | 1.03207 | -6.16654 | -12.62087 |
| 360.0 | .4138 | 1.12590 | -5.57925 | -12.17053 |
| 390.0 | .4483 | 1.21972 | -5.06538 | -11.75190 |
| 420.0 | .4828 | 1.31355 | -4.62490 | -11.39104 |
| 450.0 | .5172 | 1.40737 | -4.25785 | -11.11759 |
| 480.0 | .5517 | 1.50120 | -3.89079 | -10.74985 |
| 510.0 | .5862 | 1.59502 | -3.52374 | -10.27686 |
| 540.0 | .6207 | 1.68885 | -3.23009 | -9.92618 |
| 570.0 | .6552 | 1.78267 | -2.86304 | -9.23781 |
| 600.0 | .6897 | 1.87650 | -2.49599 | -8.42027 |
| 630.0 | .7241 | 1.97032 | -2.12891 | -7.47219 |
| 660.0 | .7586 | 2.06415 | -1.76187 | -6.39791 |
| 690.0 | .7931 | 2.15797 | -1.39482 | -5.20760 |
| 720.0 | .8276 | 2.25180 | -1.02775 | -3 1852 |
| 750.0 | .8621 | 2.34562 | -.73411 | -2.84198 |
| 780.0 | .8966 | 2.43945 | -.51387 | -2.01099 |
| 810.0 | .9310 | 2.53327 | -.36707 | -1.44775 |
| 840.0 | .9655 | 2.62710 | -.22025 | -.87274 |
| 870.0 | 1.0000 | 2.72093 | -.07340 | -.29133 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING

## TABLE E-6

EVAPORATION EXPERIMENT NO. GLF6 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 55%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME | ************* | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 30.0 | .0333 | .09026 | -11.01168 | -11.64643 |
| 60.0 | .0667 | .18052 | -10.64463 | -11.91832 |
| 90.0 | .1000 | .27078 | -10.35098 | -12.29256 |
| 120.0 | .1333 | .36104 | -9.98392 | -12.59349 |
| 150.0 | .1667 | .45130 | -9.54346 | -12.79817 |
| 180.0 | .2000 | .54156 | -9.24930 | -13.21317 |
| 210.0 | .2333 | .63182 | -8.88277 | -13.53647 |
| 240.0 | .2667 | .72208 | -8.44229 | -13.73736 |
| 270.0 | .3000 | .81234 | -8.00182 | -13.91468 |
| 300.0 | .3333 | .90259 | -7.56136 | -14.06112 |
| 330.0 | .3667 | .99285 | -7.12088 | -14.16780 |
| 360.0 | .4000 | 1.08311 | -6.68042 | -14.22445 |
| 390.0 | .4333 | 1.17337 | -6.23995 | -14.21882 |
| 420.0 | .4667 | 1.26363 | -5.79949 | -14.13710 |
| 450.0 | .5000 | 1.35389 | -5.35902 | -13.96352 |
| 480.0 | .5333 | 1.44415 | -4.91854 | -13.68104 |
| 510.0 | .5667 | 1.53441 | -4.47810 | -13.27172 |
| 540.0 | .6000 | 1.62467 | -4.03761 | -12.71720 |
| 570.0 | .6333 | 1.71493 | -3.59716 | -12.00087 |
| 600.0 | .6667 | 1.80519 | -3.15668 | -11.10866 |
| 630.0 | .7000 | 1.89545 | -2.71622 | -10.03183 |
| 660.0 | .7333 | 1.98571 | -2.27575 | -8.76874 |
| 690.0 | .7667 | 2.07597 | -1.83528 | -7.32725 |
| 720.0 | .8000 | 2.16623 | -1.39481 | -5.72606 |
| 750.0 | .8333 | 2.25649 | -1.02775 | -4.30890 |
| 780.0 | .8667 | 2.34675 | -.80753 | -3.44312 |
| 810.0 | .9000 | 2.43701 | -.58730 | -2.53543 |
| 840.0 | .9333 | 2.52727 | -.36705 | -1.59711 |
| 870.0 | .9667 | 2.61753 | -.22024 | -.96286 |
| 900.0 | 1.0000 | 2.70778 | -.07340 | -.32142 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-7

EVAPORATION EXPERIMENT NO. GLF7 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME | ************* | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 15.0 | .0313 | .10123 | -24.67042 | -26.27069 |
| 30.0 | .0625 | .20245 | -23.34407 | -26.48384 |
| 45.0 | .0938 | .30368 | -22.54822 | -27.30565 |
| 60.0 | .1250 | .40491 | -21.75241 | -28.17445 |
| 75.0 | .1563 | .50614 | -20.69135 | -28.69925 |
| 90.0 | .1875 | .60736 | -19.89550 | -29.61314 |
| 105.0 | .2188 | .70859 | -19.09967 | -30.57477 |
| 120.0 | .2500 | .80982 | -18.30387 | -31.58603 |
| 135.0 | .2813 | .91104 | -17.50803 | -32.64822 |
| 150.0 | .3125 | 1.01227 | -16.71223 | -33.76220 |
| 165.0 | .3438 | 1.11350 | -15.91640 | -34.92748 |
| 180.0 | .3750 | 1.21472 | -14.85532 | -35.45266 |
| 195.0 | .4063 | 1.31595 | -14.05946 | -36.58424 |
| 210.0 | .4375 | 1.41718 | -13.26369 | -37.72876 |
| 225.0 | .4688 | 1.51841 | -12.20256 | -37.96404 |
| 240.0 | .5000 | 1.61963 | -11.14147 | -37.90721 |
| 255.0 | .5313 | 1.72086 | -10.08038 | -37.47011 |
| 270.0 | .5625 | 1.82209 | -9.01929 | -36.55162 |
| 285.0 | .5938 | 1.92331 | -7.95822 | -35.04207 |
| 300.0 | .6250 | 2.02454 | -7.16240 | -34.20115 |
| 315.0 | .6563 | 2.12577 | -6.36655 | -32.86811 |
| 330.0 | .6875 | 2.22699 | -5.30547 | -29.37688 |
| 345.0 | .7188 | 2.32822 | -4.24437 | -24.94926 |
| 360.0 | .7500 | 2.42945 | -3.44855 | -21.33934 |
| 375.0 | .7813 | 2.53068 | -2.91803 | -18.89915 |
| 390.0 | .8125 | 2.63190 | -2.38746 | -16.07659 |
| 405.0 | .8438 | 2.73313 | -1.85691 | -12.90238 |
| 420.0 | .8750 | 2.83436 | -1.32637 | -9.43058 |
| 435.0 | .9063 | 2.93558 | -1.06109 | -7.68765 |
| 450.0 | .9375 | 3.03681 | -.79582 | -5.84902 |
| 465.0 | .9688 | 3.13804 | -.53055 | -3.93726 |
| 480.0 | 1.0000 | 3.23926 | -.26527 | -1.97823 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

## TABLE E-8

EVAPORATION EXPERIMENT NO. GL[illegible] SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 50%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME | *************** | | ***** EVAPORATION RATE | ***** |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 15.0 | .0313 | .09641 | -24.37395 | -25.83440 |
| 30.0 | .0625 | .19282 | -23.54300 | -26.48659 |
| 45.0 | .0938 | .28923 | -22.98908 | -27.51385 |
| 60.0 | .1250 | .38565 | -22.15812 | -28.25737 |
| 75.0 | .1563 | .48206 | -21.32719 | -29.02887 |
| 90.0 | .1875 | .57847 | -20.49627 | -29.82788 |
| 105.0 | .2188 | .67488 | -19.66534 | -30.65329 |
| 120.0 | .2500 | .77129 | -19.11136 | -32.00077 |
| 135.0 | .2813 | .86770 | -18.28047 | -32.94863 |
| 150.0 | .3125 | .96412 | -17.44952 | -33.92565 |
| 165.0 | .3438 | 1.06053 | -16.61860 | -34.92755 |
| 180.0 | .3750 | 1.15694 | -15.78766 | -35.94760 |
| 195.0 | .4063 | 1.25335 | -14.95675 | -36.97628 |
| 210.0 | .4375 | 1.34976 | -14.12584 | -37.99992 |
| 225.0 | .4688 | 1.44617 | -13.29488 | -38.99957 |
| 240.0 | .5000 | 1.54259 | -12.46394 | -39.94978 |
| 255.0 | .5313 | 1.63900 | -11.63302 | -40.81627 |
| 270.0 | .5625 | 1.73541 | -10.80208 | -41.55352 |
| 285.0 | .5938 | 1.83182 | -9.97117 | -42.10278 |
| 300.0 | .6250 | 1.92823 | -9.14025 | -42.38855 |
| 315.0 | .6563 | 2.02464 | -8.30929 | -42.31702 |
| 330.0 | .6875 | 2.12105 | -7.47839 | -41.77560 |
| 345.0 | .7188 | 2.21747 | -6.64745 | -40.63344 |
| 360.0 | .7500 | 2.31388 | -5.53952 | -36.74697 |
| 375.0 | .7813 | 2.41029 | -4.70859 | -33.67440 |
| 390.0 | .8125 | 2.50670 | -3.87764 | -29.63795 |
| 405.0 | .8438 | 2.60311 | -3.04676 | -24.61686 |
| 420.0 | .8750 | 2.69952 | -2.21583 | -18.57884 |
| 435.0 | .9063 | 2.79594 | -1.38490 | -11.99923 |
| 450.0 | .9375 | 2.89235 | -.83093 | -7.32167 |
| 465.0 | .9688 | 2.98876 | -.55397 | -4.93718 |
| 480.0 | 1.0000 | 3.08517 | -.27699 | -2.48282 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-9

EVAPORATION EXPERIMENT NO. GLF9 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 44%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME ************* | | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 30.0 | .0385 | .12257 | -15.59807 | -17.[illegible]5682 |
| 60.0 | .0769 | .24514 | -11.74921 | -13.97530 |
| 90.0 | .1154 | .36771 | -11.20901 | -14.45533 |
| 120.0 | .1538 | .49028 | -10.60127 | -14.85447 |
| 150.0 | .1923 | .61285 | -9.79101 | -14.91062 |
| 180.0 | .2308 | .73542 | -9.18328 | -15.22535 |
| 210.0 | .2692 | .85799 | -8.57556 | -15.50151 |
| 240.0 | .3077 | .98056 | -7.96786 | -15.72196 |
| 270.0 | .3462 | 1.10313 | -7.36012 | -15.86478 |
| 300.0 | .3846 | 1.22570 | -6.75241 | -15.90308 |
| 330.0 | .4231 | 1.34827 | -6.14470 | -15.80396 |
| 360.0 | .4615 | 1.47085 | -5.53698 | -15.52903 |
| 390.0 | .5000 | 1.59342 | -4.92927 | -15.03535 |
| 420.0 | .5385 | 1.71599 | -4.32155 | -14.27790 |
| 450.0 | .5769 | 1.83856 | -3.71382 | -13.21447 |
| 480.0 | .6154 | 1.96113 | -3.10612 | -11.81258 |
| 510.0 | .6538 | 2.08370 | -2.56591 | -10.34623 |
| 540.0 | .6923 | 2.20627 | -2.09324 | -8.87674 |
| 570.0 | .7308 | 2.32884 | -1.68810 | -7.47014 |
| 600.0 | .7692 | 2.45141 | -1.28296 | -5.87148 |
| 630.0 | .8077 | 2.57398 | -.94534 | -4.43818 |
| 660.0 | .8462 | 2.69655 | -.67524 | -3.22975 |
| 690.0 | .8846 | 2.81912 | -.47267 | -2.29103 |
| 720.0 | .9231 | 2.94169 | -.33762 | -1.65220 |
| 750.0 | .9615 | 3.06426 | -.20257 | -.99704 |
| 780.0 | 1.0000 | 3.18683 | -.06753 | -.33302 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-10

EVAPORATION EXPERIMENT NO. GLF10 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 52%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME | ************* | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 30.0 | .0313 | .10450 | -15.89597 | -17.16138 |
| 60.0 | .0625 | .20900 | -12.88123 | -14.86560 |
| 90.0 | .0938 | .31350 | -12.12753 | -14.96751 |
| 120.0 | .1250 | .41800 | -11.57940 | -15.30564 |
| 150.0 | .1563 | .52250 | -11.09978 | -15.74312 |
| 180.0 | .1875 | .62700 | -10.55164 | -16.08210 |
| 210.0 | .2188 | .73149 | -10.07202 | -16.52803 |
| 240.0 | .2500 | .83599 | -9.59239 | -16.98086 |
| 270.0 | .2813 | .94049 | -9.11277 | -17.43660 |
| 300.0 | .3125 | 1.04499 | -8.56465 | -17.73606 |
| 330.0 | .3438 | 1.14949 | -8.01650 | -17.98594 |
| 360.0 | .3750 | 1.25399 | -7.53688 | -18.34916 |
| 390.0 | .4063 | 1.35849 | -6.98875 | -18.47266 |
| 420.0 | .4375 | 1.46299 | -6.44061 | -18.48339 |
| 450.0 | .4688 | 1.56749 | -5.82397 | -18.11846 |
| 480.0 | .5000 | 1.67199 | -5.13878 | -17.26731 |
| 510.0 | .5313 | 1.77649 | -4.52214 | -16.34756 |
| 540.0 | .5625 | 1.88099 | -3.97398 | -15.39165 |
| 570.0 | .5938 | 1.98549 | -3.42585 | -14.13893 |
| 600.0 | .6250 | 2.08998 | -2.94624 | -12.88631 |
| 630.0 | .6563 | 2.19448 | -2.46663 | -11.35694 |
| 660.0 | .6875 | 2.29898 | -2.05552 | -9.89866 |
| 690.0 | .7188 | 2.40348 | -1.78145 | -8.93437 |
| 720.0 | .7500 | 2.50798 | -1.50738 | -7.83460 |
| 750.0 | .7813 | 2.61248 | -1.23331 | -6.60657 |
| 780.0 | .8125 | 2.71698 | -.95923 | -5.26385 |
| 810.0 | .8438 | 2.82148 | -.75369 | -4.21684 |
| 840.0 | .8750 | 2.92598 | -.61665 | -3.50620 |
| 870.0 | .9063 | 3.03048 | -.47962 | -2.76203 |
| 900.0 | .9375 | 3.13498 | -.27407 | -1.58993 |
| 930.0 | .9688 | 3.23948 | -.13703 | -.79788 |
| 960.0 | 1.0000 | 3.34398 | -.068[illegible] | -.39965 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-11

EVAPORATION EXPERIMENT NO. GLF11 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 55%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME ************* | | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 10.0 | .0278 | .10015 | -34.68059 | -36.93630 |
| 20.0 | .0556 | .20029 | -33.04211 | -37.51610 |
| 30.0 | .0833 | .30044 | -31.67679 | -38.39779 |
| 40.0 | .1111 | .40059 | -30.31138 | -39.28443 |
| 50.0 | .1389 | .50073 | -28.94597 | -40.16839 |
| 60.0 | .1667 | .60088 | -27.58063 | -41.03967 |
| 70.0 | .1944 | .70102 | -26.21529 | -41.88517 |
| 80.0 | .2222 | .80117 | -25.12292 | -43.19287 |
| 90.0 | .2500 | .90132 | -24.03068 | -44.55667 |
| 100.0 | .2778 | 1.00146 | -22.66522 | -45.38341 |
| 110.0 | .3056 | 1.10161 | -21.29991 | -46.11280 |
| 120.0 | .3333 | 1.20176 | -19.93452 | -46.70634 |
| 130.0 | .361 | 1.30190 | -18.56915 | -47.11711 |
| 140.0 | .388 | 1.40205 | -17.47685 | -48.10176 |
| 150.0 | .4167 | 1.50220 | -16.11145 | -48.09969 |
| 160.0 | .44 | 1.60234 | -14.74608 | -47.72309 |
| 170.0 | .4722 | 1.70249 | -13.65376 | -47.91645 |
| 180.0 | .5000 | 1.80264 | -12.56148 | -47.79329 |
| 190.0 | .5278 | 1.90278 | -11.19612 | -46.05299 |
| 200.0 | .5556 | 2.00293 | -9.83070 | -43.53673 |
| 210.0 | .5833 | 2.10307 | -8.73841 | -41.52947 |
| 220.0 | .6111 | 2.20322 | -7.64612 | -38.82258 |
| 230.0 | .6389 | 2.30337 | -6.82691 | -36.91644 |
| 240.0 | .6667 | 2.40351 | -6.00764 | -34.45740 |
| 250.0 | .6944 | 2.50366 | -5.18843 | -31.40448 |
| 260.0 | .7222 | 2.60381 | -4.64230 | -29.56156 |
| 270.0 | .7500 | 2.70395 | -4.09612 | -27.33929 |
| 280.0 | .7778 | 2.80410 | -3.54994 | -24.72547 |
| 290.0 | .8056 | 2.90425 | -3.00387 | -21.72238 |
| 300.0 | .8333 | 3.00439 | -2.45766 | -18.34667 |
| 310.0 | .8611 | 3.10454 | -1.91155 | -14.63769 |
| 320.0 | .8889 | 3.20469 | -1.63843 | -12.82975 |
| 330.0 | .9167 | 3.30483 | -1.36534 | -10.89648 |
| 340.0 | .9444 | 3.40498 | -.81926 | -6.61449 |
| 350.0 | .9722 | 3.50512 | -.54617 | -4.44417 |
| 360.0 | 1.0000 | 3.60527 | -.27306 | -2.23057 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-12

EVAPORATION EXPERIMENT NO. GLF12 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME | ************* | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 10.0 | .0256 | .07332 | -28.53246 | -29.84934 |
| 20.0 | .0513 | .14664 | -27.72496 | -30.36642 |
| 30.0 | .0769 | .21996 | -26.91746 | -30.89013 |
| 40.0 | .1026 | .29329 | -25.84080 | -31.07965 |
| 50.0 | .1282 | .36661 | -25.03316 | -31.57837 |
| 60.0 | .1538 | .43993 | -24.49490 | -32.44973 |
| 70.0 | .1795 | .51325 | -23.68740 | -32.98020 |
| 80.0 | .2051 | .58657 | -22.87980 | -33.50616 |
| 90.0 | .2308 | .65989 | -22.34145 | -34.46112 |
| 100.0 | .2564 | .73321 | -21.80315 | -35.47555 |
| 110.0 | .2821 | .80654 | -21.26482 | -36.55530 |
| 120.0 | .3077 | .87986 | -20.72638 | -37.70702 |
| 130.0 | .3333 | .95318 | -19.91894 | -38.38909 |
| 140.0 | .3590 | 1.02650 | -19.11139 | -39.05708 |
| 150.0 | .3846 | 1.09982 | -18.57299 | -40.32334 |
| 160.0 | .4103 | 1.17314 | -18.03469 | -41.67789 |
| 170.0 | .4359 | 1.24647 | -17.49636 | -43.13031 |
| 180.0 | .4615 | 1.31979 | -16.68881 | -43.93431 |
| 190.0 | .4872 | 1.39311 | -15.88129 | -44.69795 |
| 200.0 | .5128 | 1.46643 | -15.34298 | -46.27251 |
| 210.0 | .5385 | 1.53975 | -14.80458 | -47.95976 |
| 220.0 | .5641 | 1.61307 | -13.99705 | -48.76253 |
| 230.0 | .5897 | 1.68639 | -13.18958 | -49.46379 |
| 240.0 | .6154 | 1.75972 | -12.38198 | -50.02701 |
| 250.0 | .6410 | 1.83304 | -11.57451 | -50.40962 |
| 260.0 | .6667 | 1.90636 | -10.76699 | -50.55847 |
| 270.0 | .6923 | 1.97968 | -9.95947 | -50.41199 |
| 280.0 | .7179 | 2.05300 | -9.42110 | -51.48296 |
| 290.0 | .7436 | 2.12632 | -8.61358 | -50.76488 |
| 300.0 | .7692 | 2.19964 | -7.80610 | -49.52919 |
| 310.0 | .7949 | 2.27297 | -6.99855 | -47.67896 |
| 320.0 | .8205 | 2.34629 | -5.92181 | -43.02753 |
| 330.0 | .8462 | 2.41961 | -5.11432 | -39.42571 |
| 340.0 | .8718 | 2.49293 | -4.57596 | -37.31059 |
| 350.0 | .8974 | 2.56625 | -3.76844 | -32.25900 |
| 360.0 | .9231 | 2.63957 | -2.96092 | 26.38024 |
| 370.0 | .9487 | 2.71290 | -2.15340 | -19.77226 |
| 380.0 | .9744 | 2.78622 | -1.34585 | -12.59811 |
| 390.0 | 1.0000 | 2.85954 | -.53837 | -5.07915 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-13

EVAPORATION EXPERIMENT NO. GLF13 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 44%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME ************* | | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 40.0 | .0313 | .10895 | -8.98071 | -9.61886 |
| 80.0 | .0625 | .21790 | -8.30548 | -9.52134 |
| 120.0 | .0938 | .32685 | -7.96784 | -9.79524 |
| 160.0 | .1250 | .43580 | -7.63023 | -10.07860 |
| 200.0 | .1563 | .54475 | -7.29260 | -10.37059 |
| 240.0 | .1875 | .65369 | -7.02251 | -10.78192 |
| 280.0 | .2188 | .76264 | -6.75242 | -11.22709 |
| 320.0 | .2500 | .87159 | -6.48230 | -11.71035 |
| 360.0 | .2813 | .98054 | -6.21222 | -12.23694 |
| 400.0 | .3125 | 1.08949 | -5.80708 | -12.49473 |
| 440.0 | .3438 | 1.19844 | -5.40193 | -12.71470 |
| 480.0 | .3750 | 1.30739 | -5.06431 | -13.07104 |
| 520.0 | .4063 | 1.41634 | -4.65916 | -13.19777 |
| 560.0 | .4375 | 1.52529 | -4.18650 | -12.99754 |
| 600.0 | .4688 | 1.63424 | -3.64631 | -12.35354 |
| 640.0 | .5000 | 1.74319 | -3.10610 | -11.41040 |
| 680.0 | .5313 | 1.85214 | -2.63345 | -10.41867 |
| 720.0 | .5625 | 1.96108 | -2.22829 | -9.42986 |
| 760.0 | .5938 | 2.07003 | -1.82316 | -8.18171 |
| 800 0 | .6250 | 2.17898 | -1.48553 | -7.01187 |
| 840.0 | .6563 | 2.28793 | -1.21544 | -5.99091 |
| 880.0 | .6875 | 2.39688 | -1.01286 | -5.18359 |
| 920.0 | .7188 | 2.50583 | -.87781 | -4.64664 |
| 960.0 | .7500 | 2.61478 | -.74277 | -4.04941 |
| 1000.0 | .7813 | 2.72373 | -.60772 | -3.39628 |
| 1040.0 | .8125 | 2.83268 | -.47267 | -2.69411 |
| 1080.0 | .8438 | 2.94163 | -.33761 | -1.95206 |
| 1120.0 | .8750 | 3.05058 | -.27011 | -1.57999 |
| 1160.0 | .9063 | 3.15953 | -.27010 | -1.59861 |
| 1200.0 | .9375 | 3.26847 | -.20258 | -1.20967 |
| 1240.0 | .9688 | 3.37742 | -.13505 | -.81128 |
| 1280.0 | 1.0000 | 3.48637 | -.06753 | -.40686 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-14

EVAPORATION EXPERIMENT NO. GLF14 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 43%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME ************* | | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 40.0 | .0345 | .09901 | -9.52289 | -10.11887 |
| 80.0 | .0690 | .19801 | -9.10582 | -10.29158 |
| 120.0 | .1034 | .29702 | -8.75827 | -10.54432 |
| 160.0 | .1379 | .39603 | -8.48025 | -10.89774 |
| 200.0 | .1724 | .49503 | -8.20218 | -11.27547 |
| 240.0 | .2069 | .59404 | -7.85465 | -11.57041 |
| 280.0 | .2414 | .69305 | -7.50709 | -11.87031 |
| 320.0 | .2759 | .79205 | -7.22907 | -12.30029 |
| 360.0 | .3103 | .89106 | -6.95101 | -12.76062 |
| 400.0 | .3448 | .99007 | -6.60346 | -13.10515 |
| 440.0 | .3793 | 1.08907 | -6.25591 | -13.44808 |
| 480.0 | .4138 | 1.18808 | -5.90836 | -13.78372 |
| 520.0 | .4483 | 1.28709 | -5.49130 | -13.91314 |
| 560.0 | .4828 | 1.38609 | -5.07424 | -13.96702 |
| 600.0 | .5172 | 1.48510 | -4.65718 | -13.92292 |
| 640.0 | .5517 | 1.58411 | -4.24013 | -13.75447 |
| 680.0 | .5862 | 1.68311 | -3.75355 | -13.16769 |
| 720.0 | .6207 | 1.78212 | -3.26697 | -12.33510 |
| 760.0 | .6552 | 1.88113 | -2.91943 | -11.82934 |
| 800.0 | .6897 | 1.98013 | -2.57189 | -11.13909 |
| 840.0 | .7241 | 2.07914 | -2.22432 | -10.24410 |
| 880.0 | .7586 | 2.17815 | -1.94629 | -9.48977 |
| 920.0 | .7931 | 2.27715 | -1.52922 | -7.81666 |
| 960.0 | .8276 | 2.37616 | -1.04265 | -5.51123 |
| 1000.0 | .8621 | 2.47516 | -.76461 | -4.14519 |
| 1040.0 | .8966 | 2.57417 | -.69510 | -3.85825 |
| 1080.0 | .9310 | 2.67318 | -.55608 | -3.14670 |
| 1120.0 | .9655 | 2.77218 | -.34755 | -1.99087 |
| 1160.0 | 1.0000 | 2.87119 | -.13903 | -.80033 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

## TABLE E-15

EVAPORATION EXPERIMENT NO. GLF15 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.3 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME ************* | | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 15.0 | .0323 | .10017 | -22.55406 | -23.98281 |
| 30.0 | .0645 | .20036 | -21.48005 | -24.30728 |
| 45.0 | .0968 | .30051 | -20.67455 | -24.93679 |
| 60.0 | .1290 | .40068 | -19.86905 | -25.58479 |
| 75.0 | .1613 | .50085 | -19.06355 | -26.24959 |
| 90.0 | .1935 | .60102 | -18.52652 | -27.35325 |
| 105.0 | .2258 | .70119 | -17.98955 | -28.56444 |
| 120.0 | .2581 | .80136 | -17.18403 | -29.40466 |
| 135.0 | .2903 | .90153 | -16.37855 | -30.26697 |
| 150.0 | .3226 | 1.00169 | -15.84155 | -31.72801 |
| 165.0 | .3548 | 1.10186 | -15.03603 | -32.71719 |
| 180.0 | .3871 | 1.20203 | -14.23053 | -33.72264 |
| 195.0 | .4194 | 1.30220 | -13.69353 | -35.49227 |
| 210.0 | .4516 | 1.40237 | -13.15653 | -37.47598 |
| 225.0 | .4839 | 1.50254 | -12.35102 | -38.78583 |
| 240.0 | .5161 | 1.60271 | -11.27704 | -39.06760 |
| 255.0 | .5484 | 1.70288 | -10.20301 | -38.98681 |
| 270.0 | .5806 | 1.80305 | -9.12903 | -38.42331 |
| 285.0 | .6129 | 1.90322 | -8.05504 | -37.23769 |
| 300.0 | .6452 | 2.00339 | -6.98102 | -35.28001 |
| 315.0 | .6774 | 2.10356 | -5.90701 | -32.40769 |
| 330.0 | .7097 | 2.20373 | -4.83302 | -28.51239 |
| 345.0 | .7419 | 2.30390 | -3.75899 | -23.55598 |
| 360.0 | .7742 | 2.40407 | -2.95354 | -19.45993 |
| 375.0 | .8065 | 2.50424 | -2.41650 | -16.62053 |
| 390.0 | .[illegible]87 | 2.60441 | -1.87951 | -13.38414 |
| 405.0 | [illegible]10 | 2.70458 | -[illegible].34251 | -9.80[illegible] |
| 420.0 | .9032 | 2.80474 | -.80550 | -5.97756 |
| 435.0 | .9355 | 2.90491 | -.53702 | -4.02755 |
| 450.0 | .9677 | 3.00508 | -.53701 | -4.07083 |
| 465.0 | 1.0000 | 3.10525 | -.26848 | -2.04625 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

## TABLE E-16

EVAPORATION EXPERIMENT NO. GLF16 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.3 MPH, AIR TEMPERATURE 60 DEG F., RELAT HUMIDITY 38%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME | ************* | | ***** EVAPORATION RATE | ***** |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 15.0 | .0345 | .09229 | -22.89067 | -24.23070 |
| 30.0 | .0690 | .18458 | -21.80065 | -24.43944 |
| 45.0 | .1034 | .27687 | -20.98313 | -24.94035 |
| 60.0 | .1379 | .36916 | -20.16562 | -25.44194 |
| 75.0 | .1724 | .46145 | -19.34807 | -25.94031 |
| 90.0 | .2069 | .55374 | -18.80306 | -26.84459 |
| 105.0 | .2414 | .64603 | -18.25805 | -27.81838 |
| 120.0 | .2759 | .73832 | -17.71301 | -28.87034 |
| 135.0 | .3103 | .83061 | -17.16800 | -30.01088 |
| 150.0 | .3448 | .92290 | -16.62302 | -31.25224 |
| 165.0 | .3793 | 1.01519 | -15.80546 | -32.01345 |
| 180.0 | .4138 | 1.10749 | -15.26044 | -33.40401 |
| 195.0 | .4483 | 1.19978 | -14.71546 | -34.92931 |
| 210.0 | .4828 | 1.29207 | -13.89791 | -35.84563 |
| 225.0 | .5172 | 1.38436 | -13.35291 | -37.56566 |
| 240.0 | .5517 | 1.47665 | -12.53535 | -38.55011 |
| 255.0 | .5862 | 1.56894 | -11.71786 | -39.47263 |
| 270.0 | .6207 | 1.66123 | -11.17281 | -41.40115 |
| 285.0 | .6552 | 1.75352 | -10.35532 | -42.29266 |
| 300.0 | .6897 | 1.84581 | -9.26527 | -41.64830 |
| 315.0 | .7241 | 1.93810 | -8.17525 | -40.32910 |
| 330.0 | .7586 | 2.03039 | -7.08521 | -38.17547 |
| 345.0 | .7931 | 2.12268 | -5.72269 | -33.31601 |
| 360.0 | .8276 | 2.21497 | -4.36011 | -27.04178 |
| 375.0 | .8621 | 2.30726 | -3.27011 | -21.32649 |
| 390.0 | .8966 | 2.39955 | -2.18009 | -14.72352 |
| 405.0 | .9310 | 2.49184 | -1.36254 | -9.41129 |
| 420.0 | .9655 | 2.58413 | -.81753 | -5.72491 |
| 435.0 | 1.0000 | 2.67642 | -.27249 | -1.91703 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-17

EVAPORATION EXPERIMENT NO. BLF1 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME ************* | | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 45.0 | .0370 | .13264 | -11.08510 | -12.03189 |
| 90.0 | .0741 | .26528 | -10.42439 | -12.30293 |
| 135.0 | .1111 | .39792 | -9.91051 | -12.75555 |
| 180.0 | .1481 | .53056 | -9.47005 | -13.34315 |
| 225.0 | .1852 | .66320 | -9.02959 | -13.98565 |
| 270.0 | .2222 | .79584 | -8.51569 | -14.55223 |
| 315.0 | .2593 | .92849 | -8.00183 | -15.14413 |
| 360.0 | .2963 | 1.06113 | -7.41452 | -15.58509 |
| 405.0 | .3333 | 1.19377 | -6.75384 | -15.78736 |
| 450.0 | .3704 | 1.32641 | -6.09313 | -15.84497 |
| 495.0 | .4074 | 1.45905 | -5.43243 | -15.70143 |
| 540.0 | .4444 | 1.59169 | -4.77173 | -15.28863 |
| 585.0 | .4815 | 1.72433 | -4.03762 | -14.24467 |
| 630.0 | .5185 | 1.85697 | -3.37691 | -13.01437 |
| 675.0 | .5556 | 1.98961 | -2.71621 | -11.30840 |
| 720.0 | .5926 | 2.12225 | -2.12893 | -9.45849 |
| 765.0 | .6296 | 2.25489 | -1.61504 | -7.56045 |
| 810.0 | .6667 | 2.38753 | -1.17458 | -5.72191 |
| 855.0 | .7037 | 2.52017 | -.80753 | -4.04685 |
| 900.0 | .7407 | 2.65281 | -.51388 | -2.62320 |
| 945.0 | .7778 | 2.78546 | -.36705 | -1.89895 |
| 990.0 | .8148 | 2.91810 | -.29364 | -1.53573 |
| 1035.0 | .8519 | 3.05074 | -.22024 | -1.16133 |
| 1080.0 | .8889 | 3.18338 | .14682 | -.77847 |
| 1125.0 | .9259 | 3.31602 | -.14681 | -.78275 |
| 1170.0 | .9630 | 3.44866 | -.14682 | -.78717 |
| 1215.0 | 1.0000 | 3.58130 | -.07340 | -.39464 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-18

EVAPORATION EXPERIMENT NO. BLF2 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 2.9 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME | ************* | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 40.0 | .0313 | .12697 | -11.92095 | -12.86984 |
| 80.0 | .0625 | .25395 | -11.30078 | -13.19605 |
| 120.0 | .0938 | .38092 | -10.81844 | -13.70350 |
| 160.0 | .1250 | .50790 | -10.40499 | -14.34949 |
| 200.0 | .1563 | .63487 | -9.99154 | -15.06303 |
| 240.0 | .1875 | .76184 | -9.57810 | -15.85578 |
| 280.0 | .2188 | .88882 | -9.16467 | -16.74236 |
| 320.0 | .2500 | 1.01579 | -8.75122 | -17.74128 |
| 360.0 | .2813 | 1.14276 | -8.33778 | -18.87652 |
| 400.0 | .3125 | 1.26974 | -7.92433 | -20.17962 |
| 440.0 | .3438 | 1.39671 | -7.44198 | -21.46754 |
| 480.0 | .3750 | 1.52369 | -6.95962 | -22.92232 |
| 520.0 | .4063 | 1.65066 | -6.47728 | -24.57644 |
| 560.0 | .4375 | 1.77763 | -5.85712 | -25.76472 |
| 600.0 | .4688 | 1.90461 | -5.23695 | -26.86428 |
| 640.0 | .5000 | 2.03158 | -4.68569 | -28.23376 |
| 680.0 | .5313 | 2.15856 | -4.13444 | -29.44975 |
| 720.0 | .5625 | 2.28553 | -3.58317 | -30.30728 |
| 760.0 | .5938 | 2.41250 | -3.03193 | -30.47896 |
| 800.0 | .6250 | 2.53948 | -2.54957 | -30.45814 |
| 840.0 | .6563 | 2.66645 | -2.13613 | -30.30152 |
| 880.0 | .6875 | 2.79342 | -1.79159 | -30.15383 |
| 920.0 | .7188 | 2.92040 | -1.44704 | -28.67402 |
| 960.0 | .7500 | 3.04737 | -1.17143 | -27.10377 |
| 1000.0 | .7813 | 3.17435 | -.96470 | -25.89553 |
| 1040.0 | .8125 | 3.30132 | -.68908 | -20.88639 |
| 1080.0 | .8438 | 3.42829 | -.48235 | -16.07384 |
| 1120.0 | .8750 | 3.55527 | -.34453 | -12.35866 |
| 1160.0 | .9063 | 3.68224 | -.27563 | -10.53128 |
| 1200.0 | .9375 | 3.80921 | -.20673 | -8.30423 |
| 1240.0 | .9688 | 3.93619 | -.13782 | -5.73256 |
| 1280.0 | 1.0000 | 4.06316 | -.06891 | -2.91781 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-19

EVAPORATION EXPERIMENT NO. BLF3 SERIES TD 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME ************ | | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 15.0 | .0333 | .10560 | -27.18661 | -29.05578 |
| 30.0 | .0667 | .21120 | -25.84076 | -29.54838 |
| 45.0 | .1000 | .31680 | -24.49487 | -29.99754 |
| 60.0 | .1333 | .42239 | -23.14902 | -30.38781 |
| 75.0 | .1667 | .52799 | -22.34147 | -31.51477 |
| 90.0 | .2000 | .63359 | -21.53395 | -32.72807 |
| 105.0 | .2333 | .73919 | -20.45729 | -33.56083 |
| 120.0 | .2667 | .84479 | -19.38054 | -34.38100 |
| 135.0 | .3000 | .95039 | -18.57304 | -35.73452 |
| 150.0 | .3333 | 1.05598 | -17.76550 | -37.18866 |
| 165.0 | .3667 | 1.16158 | -16.95799 | -38.75349 |
| 180.0 | .4000 | 1.26718 | -16.15047 | -40.43987 |
| 195.0 | .4333 | 1.37278 | -15.07377 | -41.44542 |
| 210.0 | .4667 | 1.47838 | -13.99706 | -42.34081 |
| 225.0 | .5000 | 1.58398 | -12.92039 | -43.06683 |
| 240.0 | .5333 | 1.68958 | -11.57450 | -42.45657 |
| 255.0 | .5667 | 1.79517 | -10.22863 | -41.17537 |
| 270.0 | .6000 | 1.90077 | -9.15193 | -40.35946 |
| 285.0 | .6333 | 2.00637 | -8.07526 | -38.88835 |
| 300.0 | .6667 | 2.11197 | -6.99851 | -36.62376 |
| 315.0 | .7000 | 2.21757 | -5.92184 | -33.44169 |
| 330.0 | .7333 | 2.32317 | -4.84516 | -29.25563 |
| 345.0 | .7667 | 2.42877 | -3.76842 | -24.04899 |
| 360.0 | .8000 | 2.53436 | -2.69174 | -17.90578 |
| 375.0 | .8333 | 2.63996 | -1.88422 | -12.91715 |
| 390.0 | .8667 | 2.74556 | -1.34587 | -9.43248 |
| 405.0 | .9000 | 2.85116 | -1.07670 | -7.68317 |
| 420.0 | .9333 | 2.95676 | -.80752 | -5.84203 |
| 435.0 | .9667 | 3.06236 | -.53835 | -3.93090 |
| 450.0 | 1.0000 | 3.16795 | -.26918 | -1.97465 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-20

EVAPORATION EXPERIMENT NO. BLF4  SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2  MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON [illegible]K/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60  DEG F.,  RELATIVE HUMIDITY 20%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| *********** TIME | ************* | | ***** EVAPORATION RATE | ***** |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 20.0 | .0357 | .14506 | -27.18661 | -29.57765 |
| 40.0 | .0714 | .29013 | -26.37911 | -31.37671 |
| 60.0 | .1071 | .43519 | -25.30240 | -33.05405 |
| 80.0 | .1429 | .58025 | -24.49488 | -35.36398 |
| 100.0 | .1786 | .72532 | -23.68735 | -38.06933 |
| 120.0 | .2143 | .87038 | -22.34146 | -40.19811 |
| 140.0 | .2500 | 1.01544 | -20.99561 | -42.55693 |
| 160.0 | .2857 | 1.16051 | -19.91891 | -45.88292 |
| 180.0 | .3214 | 1.30557 | -18.84220 | -49.83426 |
| 200.0 | .3571 | 1.45063 | -17.49633 | -53.65784 |
| 220.0 | .3929 | 1.59570 | -16.15047 | -58.08504 |
| 240.0 | .4286 | 1.74076 | -14.80459 | -63.26011 |
| 260.0 | .4643 | 1.88582 | -13.45874 | -69.37216 |
| 280.0 | .5000 | 2.03089 | -12.11283 | -76.66820 |
| 300.0 | .5357 | 2.17595 | -10.49782 | -82.80666 |
| 320.0 | .5714 | 2.32101 | -8.88275 | -88.50693 |
| 340.0 | .6071 | 2.46608 | -7.26772 | -92.28659 |
| 360.0 | .6429 | 2.61114 | -5.65266 | -91.25497 |
| 380.0 | .6786 | 2.75620 | -4.03760 | -80.85277 |
| 400.0 | .7143 | 2.90127 | -2.69176 | -64.19083 |
| 420.0 | .7500 | 3.04633 | -1.88422 | -51.86247 |
| 440.0 | .7857 | 3.19140 | -1.34586 | -41.62996 |
| 460.0 | .8214 | 3.33646 | -1.07671 | -36.96549 |
| 480.0 | .8571 | 3.48152 | -.80750 | -30.21372 |
| 500.0 | .8929 | 3.62659 | -.53836 | -21.42661 |
| 520.0 | .9286 | 3.77165 | -.53838 | -22.88552 |
| 540.0 | .9643 | 3.91671 | -.53836 | -24.55564 |
| 560.0 | 1.0000 | 4.06178 | -.26917 | -12.74254 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

## TABLE E-21

EVAPORATION EXPERIMENT NO. BLF5 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME ************* | | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 30.0 | .0263 | .08808 | -11.08510 | -11.72705 |
| 60.0 | .0526 | .17617 | -10.20416 | -11.40298 |
| 90.0 | .0789 | .26425 | -9.69027 | -11.44050 |
| 120.0 | .1053 | .35234 | -9.39664 | -11.73683 |
| 150.0 | .1316 | .44042 | -9.10298 | -12.04642 |
| 180.0 | .1579 | .52851 | -8.88277 | -12.47943 |
| 210.0 | .1842 | .61659 | -8.66253 | -12.94818 |
| 240.0 | .2105 | .70467 | -8.36887 | -13.33287 |
| 270.0 | .2368 | .79276 | -8.07524 | -13.73785 |
| 300.0 | .2632 | .88084 | -7.78159 | -14.16[illegible]26 |
| 330.0 | .2895 | .96893 | -7.48795 | -14.61336 |
| 360.0 | .3158 | 1.05701 | -7.12088 | -14.92097 |
| 390.0 | .3421 | 1.14510 | -6.68042 | -15.03754 |
| 420.0 | .3684 | 1.23318 | -6.23995 | -15.09294 |
| 450.0 | .3947 | 1.32127 | -5.79948 | -15.07157 |
| 480.0 | .4211 | 1.40935 | -5.35902 | -14.95547 |
| 510.0 | .4474 | 1.49743 | -4.91855 | -14.72432 |
| 540.0 | .4737 | 1.58552 | -4.55150 | -14.60847 |
| 570.0 | .5000 | 1.67360 | -4.18443 | -14.38433 |
| 600.0 | .5263 | 1.76169 | -3.74397 | -13.74373 |
| 630.0 | .5526 | 1.84977 | -3.30349 | -12.89925 |
| 660.0 | .5789 | 1.93786 | -2.86304 | -11.[illegible]262 |
| 690.0 | .6053 | 2.02594 | -2.42257 | -10.53301 |
| 720.0 | .6316 | 2.11402 | -1.98210 | -9.00095 |
| 750.0 | .6579 | 2.20211 | -1.61506 | -7.60978 |
| 780.0 | .6842 | 2.29019 | -1.39481 | -6.79250 |
| 810.0 | .7105 | 2.37828 | -1.24800 | -6.26556 |
| 840.0 | .7368 | 2.46636 | -1.10115 | -5.68350 |
| 870.0 | .7632 | 2.55445 | -.95435 | -5.04857 |
| 900.0 | .[illegible]95 | 2.64253 | -.80753 | -4.36395 |
| 930.0 | .8158 | 2.73062 | -.58729 | -3.22429 |
| 960.0 | .8421 | 2.81870 | -.44047 | -2.44746 |
| 990.0 | .8684 | 2.90678 | -.44047 | -2.47738 |
| 1020.0 | .3947 | 2.99487 | -.36706 | -2.08579 |
| 1050.0 | .9211 | 3.08295 | -.29365 | -1.68250 |
| 1080.0 | .9474 | 3.17104 | -.22023 | -1.26973 |
| 1110.0 | .9737 | 3.25912 | -.14682 | -.85005 |
| 1140.0 | 1.0000 | 3.34721 | -.07341 | -.42591 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-22

EVAPORATION EXPERIMENT NO. BLF6 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 2.9 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME ************ | | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 40.0 | .0323 | .12691 | -11.42523 | -12.31308 |
| 80.0 | .0645 | .25382 | -11.07041 | -12.90216 |
| 120.0 | .0968 | .38074 | -10.64462 | -13.45975 |
| 160.0 | .1290 | .50765 | -10.21884 | -14.06863 |
| 200.0 | .1613 | .63456 | -9.86402 | -14.85313 |
| 240.0 | .1935 | .76147 | -9.43824 | -15.61232 |
| 280.0 | .2258 | .88838 | -9.01245 | -16.45630 |
| 320.0 | .2581 | 1.01530 | -8.58666 | -17.40063 |
| 360.0 | .2903 | 1.14221 | -8.16088 | -18.46501 |
| 400.0 | .3226 | 1.26912 | -7.73509 | -19.67479 |
| 440.0 | .3548 | 1.39603 | -7.23834 | -20.83183 |
| 480.0 | .3871 | 1.52294 | -6.59967 | -21.58064 |
| 520.0 | .4194 | 1.64986 | -5.89003 | -21.92523 |
| 560.0 | .4516 | 1.77677 | -5.25134 | -22.29869 |
| 600.0 | .4839 | 1.90368 | -4.61267 | -22.34940 |
| 640.0 | .5161 | 2.03059 | -3.90302 | -21.47388 |
| 680.0 | .5484 | 2.15751 | -3.19339 | -19.76075 |
| 720.0 | .5806 | 2.28442 | -2.62568 | -18.10416 |
| 760.0 | .6129 | 2.41133 | -2.19988 | -16.77397 |
| 800.0 | .6452 | 2.53824 | -1.84507 | -15.43943 |
| 840.0 | .6774 | 2.66515 | -1.55121 | -14.23799 |
| 880.0 | .7097 | 2.79207 | -1.27736 | -12.57373 |
| 920.0 | .7419 | 2.91898 | -1.06446 | -11.22003 |
| 960.0 | .7742 | 3.04589 | -.92252 | -10.35966 |
| 1000.0 | .8065 | 3.17280 | -.78061 | -9.27940 |
| 1040.0 | .8387 | 3.29971 | -.63868 | -7.97431 |
| 1080.0 | .8710 | 3.42663 | -.49675 | -6.45488 |
| 1120.0 | .9032 | 3.55354 | -.35482 | -4.74876 |
| 1160.0 | .9355 | 3.68045 | -.28386 | -3.89245 |
| 1200.0 | .9677 | 3.80736 | -.21290 | -2.97412 |
| 1240.0 | 1.0000 | 3.93427 | -.07097 | -.99762 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

## TABLE E-23

EVAPORATION EXPERIMENT NO. BLF7 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************* TIME ************* | | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 15.0 | .0294 | .10311 | -23.41817 | -24.92490 |
| 30.0 | .0588 | .20622 | -22.61065 | -25.65944 |
| 45.0 | .0882 | .30934 | -21.80316 | -26.43126 |
| 60.0 | .1176 | .41245 | -21.26476 | -27.61628 |
| 75.0 | .1471 | .51556 | -20.45728 | -28.52379 |
| 90.0 | .1765 | .61867 | -19.38054 | -29.04878 |
| 105.0 | .2059 | .72178 | 18.57304 | -29.99384 |
| 120.0 | .2353 | .82489 | -17.76554 | -30.98447 |
| 135.0 | [illegible] | .92801 | -16.95797 | -32.02069 |
| 150.0 | .2941 | 1.03112 | -16.41964 | -33.70141 |
| 165.0 | .3235 | 1.13423 | -15.61212 | -34.93359 |
| 180.0 | .3529 | 1.23734 | -14.80458 | -36.22427 |
| 195.0 | .3824 | 1.34045 | -13.99708 | -37.56993 |
| 210.0 | .4118 | 1.44356 | -12.92038 | -38.08979 |
| 225.0 | .4412 | 1.54668 | -11.84367 | -38.37428 |
| 240.0 | .4706 | 1.64979 | -10.76700 | -38.33827 |
| 255.0 | .5000 | 1.75290 | -9.42110 | -36.72621 |
| 270.0 | .5294 | 1.85601 | -8.07523 | -34.26392 |
| 285.0 | .5588 | 1.95912 | -7.26773 | -33.50469 |
| 30[illegible].0 | .5882 | 2.06223 | -6.46018 | -32.26208 |
| 315.0 | .6176 | 2.16535 | -5.38349 | -28.89006 |
| 330.0 | .6471 | 2.26846 | -4.57595 | -26.21846 |
| 345.0 | .6765 | 2.37157 | -4.03762 | -24.60325 |
| 360.0 | .7059 | 2.47468 | -3.49927 | -22.56484 |
| 375.0 | .7353 | 2.57779 | -2.96094 | -20.08332 |
| 390.0 | .7647 | 2.68090 | -2.42256 | -17.15947 |
| 405.0 | .7941 | 2.78402 | -1.88422 | -13.82247 |
| 420.0 | .8235 | 2.88713 | -1.61505 | -12.22169 |
| 435.0 | .8529 | 2.99024 | -1.34587 | -10.45964 |
| 450.0 | .8824 | 3.09335 | -1.07670 | -8.55252 |
| 465.0 | .9118 | 3.19646 | -.80751 | -6.52229 |
| 480.0 | .9412 | 3.29957 | -.53837 | [illegible] |
| 495.0 | .9706 | 3.40269 | -.53835 | -4.44811 |
| 510.0 | 1.0000 | 3.50580 | -.26916 | -2.23680 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

# TABLE E-24

EVAPORATION EXPERIMENT NO. BLF8  SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2  MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60  DEG F.,  RELATIVE HUMIDITY 50%

EVAPORATION RATE FOR A DROPLET IN A UNIFORM ARRAY

| ************ TIME ************* | | | ***** EVAPORATION RATE ***** | |
|---|---|---|---|---|
| MINUTES | FRACTIONAL | HALF-LIFES | MICROGRAMS PER MINUTE | NORMALIZED |
| .0 | .0000 | .00000 | .00000 | .00000 |
| 15.0 | .0313 | .10001 | -25.99681 | -27.63011 |
| 30.0 | .0625 | .20002 | -24.93570 | -28.20183 |
| 45.0 | .0938 | .30003 | -23.87458 | -28.76802 |
| 60.0 | .1250 | .40004 | -22.81352 | -29.32234 |
| 75.0 | .1563 | .50005 | -22.01771 | -30.24575 |
| 90.0 | .1875 | .60006 | -21.48710 | -31.64047 |
| 105.0 | .2188 | .70008 | -20.69135 | -32.73674 |
| 120.0 | .2500 | .80009 | -19.89549 | -33.90428 |
| 135.0 | .2813 | .90010 | -19.36496 | -35.67734 |
| 150.0 | .3125 | 1.00011 | -18.83440 | -37.67228 |
| 165.0 | .3438 | 1.10012 | -18.30386 | -39.93567 |
| 180.0 | .3750 | 1.20013 | -17.77331 | -42.52806 |
| 195.0 | .4063 | 1.30014 | -17.24279 | -45.53006 |
| 210.0 | .4375 | 1.40015 | -16.44695 | -48.18713 |
| 225.0 | .4688 | 1.50016 | -15.65112 | -51.19332 |
| 240.0 | .5000 | 1.60017 | -14.85529 | -54.62565 |
| 255.0 | .5313 | 1.70018 | -14.05949 | -58.58659 |
| 270.0 | .5625 | 1.80019 | -13.52894 | -64.66519 |
| 285.0 | .5938 | 1.90020 | -12.20258 | -67.24358 |
| 300.0 | .6250 | 2.00022 | -10.61095 | -67.43937 |
| 315.0 | .6563 | 2.10023 | -9.54984 | -70.41322 |
| 330.0 | .6875 | 2.20024 | -8.48874 | -72.97523 |
| 345.0 | .7188 | 2.30025 | -7.42766 | -74.69927 |
| 360.0 | .7500 | 2.40026 | -6.36656 | -74.93804 |
| 375.0 | .7813 | 2.50027 | -5.30548 | -72.78369 |
| 390.0 | .8125 | 2.60028 | -4.24437 | -67.11245 |
| 405.0 | .8438 | 2.70029 | -3.18326 | -56.83954 |
| 420.0 | .8750 | 2.80030 | -2.38746 | -47.20572 |
| 435.0 | .9063 | 2.90031 | -1.59166 | -33.89648 |
| 450.0 | .9375 | 3.00032 | -.79583 | -17.62754 |
| 465.0 | .9688 | 3.10033 | -.53055 | -12.07436 |
| 480.0 | 1.0000 | 3.20035 | -.26[illegible]25 | -6.12060 |

NORMALIZED: MICROGRAMS PER MINUTE PER FRACTION OF LIQUID CONTAMINATION REMAINING.

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# APPENDIX F

## SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

## TABLE F-1

EVAPORATION EXPERIMENT NO. GLF1 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 45%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 4.700 | 4.700 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 27.861 | 27.861 |
| GRAMS PER DROPLET | .00000 | .00639 | .00639 |

ESTIMATED MEAN DROPLET MASS .00639 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.26 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0155945 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 69.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 69.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) 3.01621 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) 2.84553 PERCENT

TABLE -2

EVAPORATION EXPERIMENT NO. GLF2 SERIES 1D 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 5.000 | 5.000 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 29.636 | 29.636 |
| GRAMS PER DROPLET | .00000 | .00679 | .00679 |

| | |
|---|---|
| ESTIMATED MEAN DROPLET MASS | .00679 GRAMS |
| STANDARD DEVIATION OF TEST DROPLET MASS | .00000 GRAMS |
| STANDARD ERROR OF MEAN MASS ESTIMANT | .00000 GRAMS |

EQUIVALENT DROPLET DIAMETER 2.31 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0137671 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 69.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 69 000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) 3.29408 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) 3.14947 PERCENT

# TABLE F-3

EVAPORATION EXPERIMENT NO. GLF3 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 4.200 | 4.200 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 24.902 | 24.902 |
| GRAMS PER DROPLET | .00000 | .00571 | .00571 |

ESTIMATED MEAN DROPLET MASS .00571 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.18 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0052388 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 69.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 69.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) .92962 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) .85546 PERCENT

# TABLE F-4

EVAPORATION EXPERIMENT NO. GLF4 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 5.000 | 5.000 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 29.636 | 29.636 |
| GRAMS PER DROPLET | .00000 | .00679 | .00679 |

ESTIMATED MEAN DROPLET MASS .00679 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.31 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0029646 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 69.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 69.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) .99138 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) .96024 PERCENT

## TABLE F-5

EVAPORATION EXPERIMENT NO. GLF5 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 58%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 4.200 | 4.200 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 24.902 | 24.902 |
| GRAMS PER DROPLET | .00000 | .00571 | .00571 |

ESTIMATED MEAN DROPLET MASS .00571 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.[illegible]8 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0095029 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 69.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 69.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) 2.92763 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) 2.81124 PERCENT

# TABLE F-6

EVAPORATION EXPERIMENT NO. GLF6  SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2  MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 3.0  MPH, AIR TEMPERATURE 60  DEG F.,  RELATIVE HUMIDITY 55%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 4.700 | 4.700 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 27.861 | 27.861 |
| GRAMS PER DROPLET | .00000 | .00639 | .00639 |

ESTIMATED MEAN DROPLET MASS  .00639 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS  .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT  .00000 GRAMS

EQUIVALENT DROPLET DIAMETER  2.26 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES  .0092592  GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION *  69.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION *  69.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT  75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB)  3.00333  PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB)  2.89986  PERCENT

# TABLE F-7

EVAPORATION EXPERIMENT NO. GLF7 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 30%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 4.600 | 4.600 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 27.269 | 27.269 |
| GRAMS PER DROPLET | .00000 | .00625 | .00625 |

ESTIMATED MEAN DROPLET MASS .00625 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.25 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0028816 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 68.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 68.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) .91973 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) .88750 PERCENT

## TABLE F-8

EVAPORATION EXPERIMENT NO. GLF8 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON HICKORY/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 50%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 5.000 | 5.000 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 29.636 | 29.636 |
| GRAMS PER DROPLET | .00000 | .00679 | .00679 |

ESTIMATED MEAN DROPLET MASS .00679 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.31 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0028207 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 71.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 71.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) .94023 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) .91060 PERCENT

## TABLE F-9

EVAPORATION EXPERIMENT NO. GLF9 SERIES 1D 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 64%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 3.900 | 3.900 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 23.127 | 23.127 |
| GRAMS PER DROPLET | .00000 | .00530 | .00530 |

ESTIMATED MEAN DROPLET MASS .00530 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.13 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0169294 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 68.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 68.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) 3.43337 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) 3.21008 PERCENT

TABLE F-10

EVAPORATION EXPERIMENT NO. GLF10 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 52%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 5.000 | 5.000 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 29.636 | 29.636 |
| GRAMS PER DROPLET | .00000 | .00679 | .00679 |

ESTIMATED MEAN DROPLET MASS .00679 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.31 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0164475 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 69.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 69.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) 3.50908 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) 3.33631 PERCENT

TABLE F-11

EVAPORATION EXPERIMENT NO. GLF11 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 55%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 4.300 | 4.300 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 25.494 | 25.494 |
| GRAMS PER DROPLET | .00000 | .00584 | .00584 |

ESTIMATED MEAN DROPLET MASS .00584 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.20 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0026779 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 70.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 70.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) .93151 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) .89947 PERCENT

TABLE F-12

EVAPORATION EXPERIMENT NO. GLF12 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 5.000 | 5.000 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 29.636 | 29.636 |
| GRAMS PER DROPLET | .00000 | .00679 | .00679 |

ESTIMATED MEAN DROPLET MASS .00679 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.31 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0023392 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 69.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 69.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) .94087 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) .91630 PERCENT

# TABLE F-13

EVAPORATION EXPERIMENT NO. GLF13 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 44%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 4.100 | 4.100 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 24.310 | 24.310 |
| GRAMS PER DROPLET | .00000 | .00557 | .00557 |

ESTIMATED MEAN DROPLET MASS .00557 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.16 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0112063 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 68.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 68.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) 3.49889 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) 3.35829 PERCENT

## TABLE F-14

EVAPORATION EXPERIMENT NO. GLF14 SERIES 3D 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 43%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 5.000 | 5.000 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 29.636 | 29.636 |
| GRAMS PER DROPLET | .00000 | .00679 | .00679 |

ESTIMATED MEAN DROPLET MASS 00679 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.31 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0115358 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 70.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 70.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) 3.44828 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) 3.32711 PERCENT

## TABLE F-15

EVAPORATION EXPERIMENT NO. GLF15 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.3 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 4.300 | 4.300 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 25.494 | 25.494 |
| GRAMS PER DROPLET | .00000 | .00584 | .00584 |

ESTIMATED MEAN DROPLET MASS .00584 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.20 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0025435 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 67.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 57.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) .09725 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) .06682 PERCENT

# TABLE F-16

EVAPORATION EXPERIMENT NO. GLF16 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.3 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 4.800 | 4.800 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 28.452 | 28.452 |
| GRAMS PER DROPLET | .00000 | .00652 | .00652 |

ESTIMATED MEAN DROPLET MASS .00652 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.28 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0025814 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 68.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 68.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) .88416 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) .85591 PERCENT

## TABLE F-17

EVAPORATION EXPERIMENT NO 9LF1 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 4.800 | 4.800 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 28.452 | 28.452 |
| GRAMS PER DROPLET | .00000 | .00652 | .00652 |

ESTIMATED MEAN DROPLET MASS .00652 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.28 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0142544 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 69.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 69.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) 3.21189 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) 3.05913 PERCENT

# TABLE F-18

EVAPORATION EXPERIMENT NO. BLF2 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 2.9 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 5.000 | 5.000 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 29.636 | 29.636 |
| GRAMS PER DROPLET | .00000 | .00679 | .00679 |

ESTIMATED MEAN DROPLET MASS .00679 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.31 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0140384 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 67.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 67.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) 3.94337 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) 3.79591 PERCENT

TABLE F-19

EVAPORATION EXPERIMENT NO. BLF3 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 4.800 | 4.800 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 28.452 | 28.452 |
| GRAMS PER DROPLET | .00000 | .00652 | .00652 |

ESTIMATED MEAN DROPLET MASS .00652 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.28 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0031677 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 69.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 69.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) .91917 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) .88523 PERCENT

# TABLE F-20

EVAPORATION EXPERIMENT NO. BLF4 SERIES TO 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/TOP SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 20%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 5.200 | 5.200 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 30.819 | 30.819 |
| GRAMS PER DROPLET | .00000 | .00707 | .00707 |

ESTIMATED MEAN DROPLET MASS .00707 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.34 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0041423 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 69.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 69.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) 1.04513 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) 1.00329 PERCENT

TABLE F-21

EVAPORATION EXPERIMENT NO. BLF5 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 4.600 | 4.600 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 27.269 | 27.269 |
| GRAMS PER DROPLET | .00000 | .00625 | .00625 |

ESTIMATED MEAN DROPLET MASS .00625 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.25 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0096249 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 69.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 9.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) 3.21802 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) 3.11039 PERCENT

## TABLE F-22

EVAPORATION EXPERIMENT NO. BLF6 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 2.9 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 4.900 | 4.900 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 29.044 | 29.044 |
| GRAMS PER DROPLET | .00000 | .00666 | .00666 |

ESTIMATED MEAN DROPLET MASS .00666 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.30 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0133203 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 69.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 69.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) 3.75394 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) 3.61117 PERCENT

# TABLE F-23

EVAPORATION EXPERIMENT NO. BLF7 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 10G CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 4.400 | 4.400 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 26.086 | 26.086 |
| GRAMS PER DROPLET | .00000 | .00598 | .00598 |

ESTIMATED MEAN DROPLET MASS .00598 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.22 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES [illegible] GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULAT[illegible] * 69.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 69.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) .93294 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) .90161 PERCENT

## TABLE F-24

EVAPORATION EXPERIMENT NO. BLF3 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 GMS/SQ METER ON OAK/BOTTOM SURFACE
WINDSPEED 11.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 50%

SUMMARY OF LIQUID CONTAMINATION BY SUBSTRATE POSITION

| | SUBSTRATE 1 | SUBSTRATE 2 | SUBSTRATE 3 |
|---|---|---|---|
| CONTAMINATION, GRAMS | .000 | 5.100 | 5.100 |
| NUMBER OF DROPLETS | .000 | 736.000 | 736.000 |
| GRAMS PER SQ METER | .000 | 30.228 | 30.228 |
| GRAMS PER DROPLET | .00000 | .00693 | .00693 |

ESTIMATED MEAN DROPLET MASS .00693 GRAMS
STANDARD DEVIATION OF TEST DROPLET MASS .00000 GRAMS
STANDARD ERROR OF MEAN MASS ESTIMANT .00000 GRAMS

EQUIVALENT DROPLET DIAMETER 2.33 MILLIMETERS

DIFFERENCE BETWEEN SAMPLE MASS ESTIMATES .0030017 GRAMS

FOR CONVERSION FACTOR PPM/AB * CALCULATION * 68.000

FOR CONVERSION FACTOR PPM/AB * CALIBRATION * 68.000

RATIO OF TEST MASS ANALYZED BY MIRAN SAMPLING AT 75 LITERS PER MINUTE TO TOTAL MASS

BASED ON CALCULATED CONVERSION FACTOR (PPM/AB) 1.01144 PERCENT

BASE ON CALIBRATION CONVERSION FACTOR (PPM/AB) .98053 PERCENT

Blank

# APPENDIX G

# PLOTS OF DROPLET RESIDUAL MASS VERSUS TIME

EVAPORATION EXPERIMENT NO. GLF1    SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA.,   100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F.,   RELATIVE HUMIDITY 45%

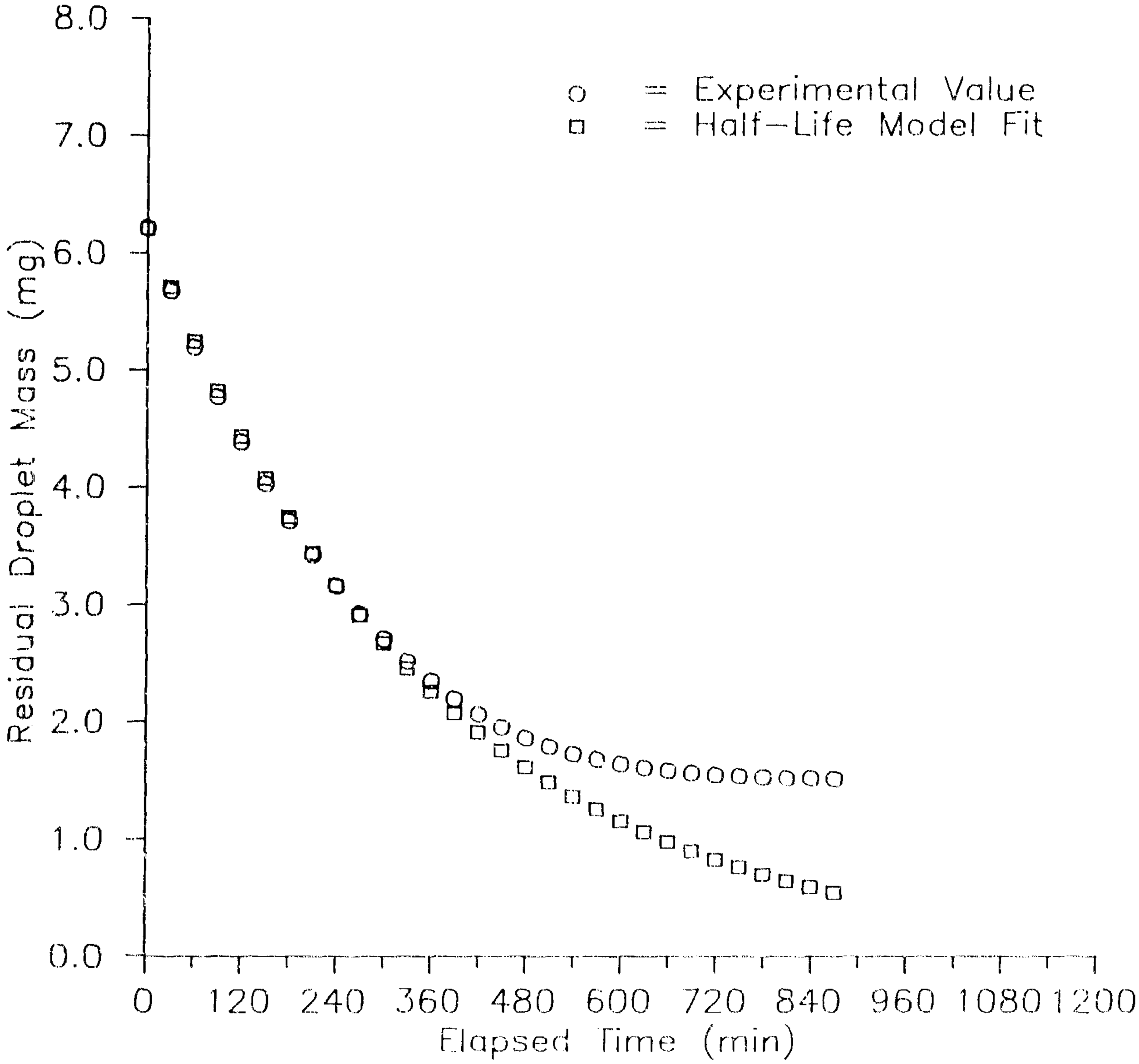


Figure G-1. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. GLF2 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/TOP SURFACE
WINDSPEED 3 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

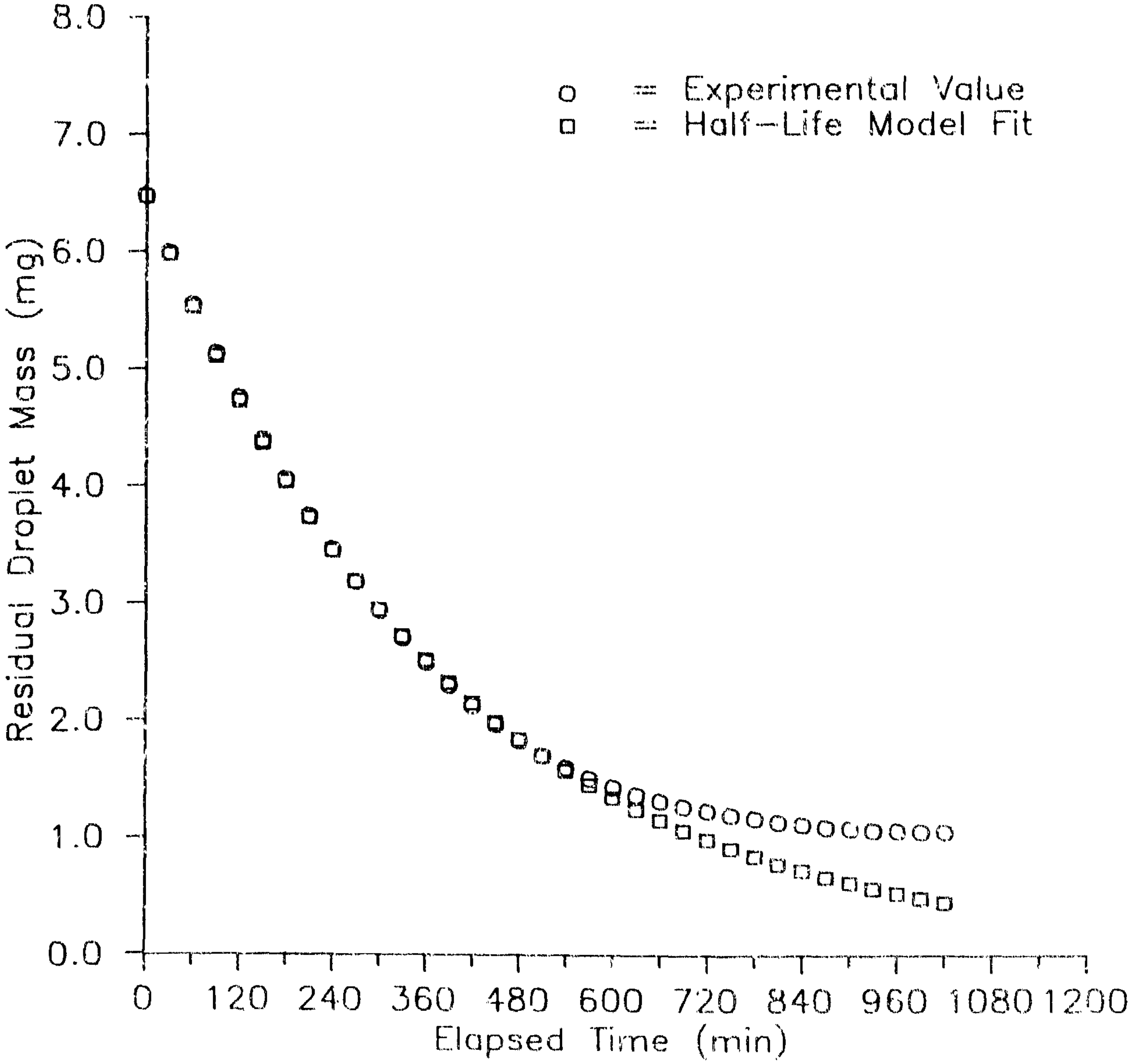


Figure G-2. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. GLF3 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/TOP SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

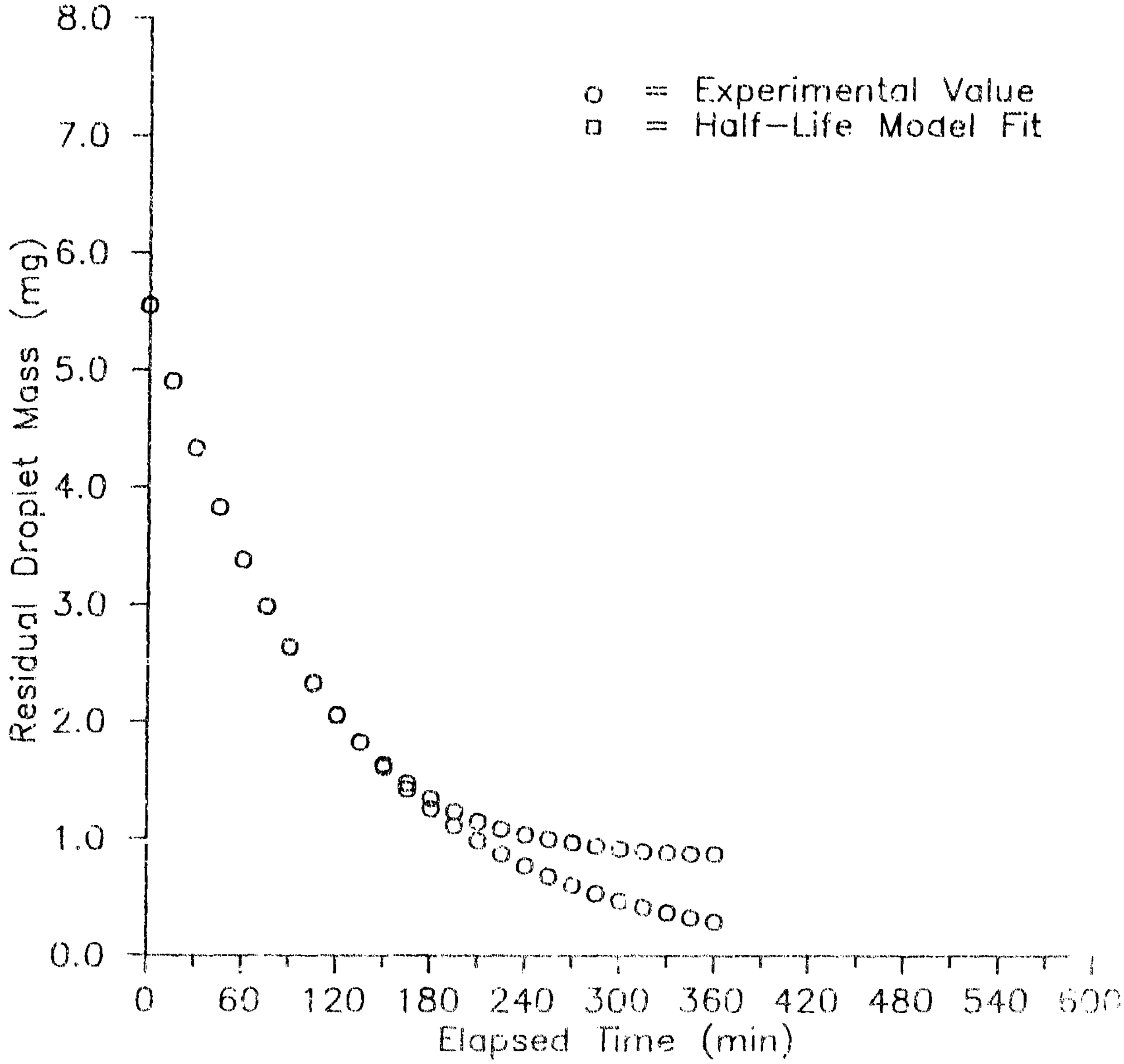


Figure G-3. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. GLF4 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/TOP SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

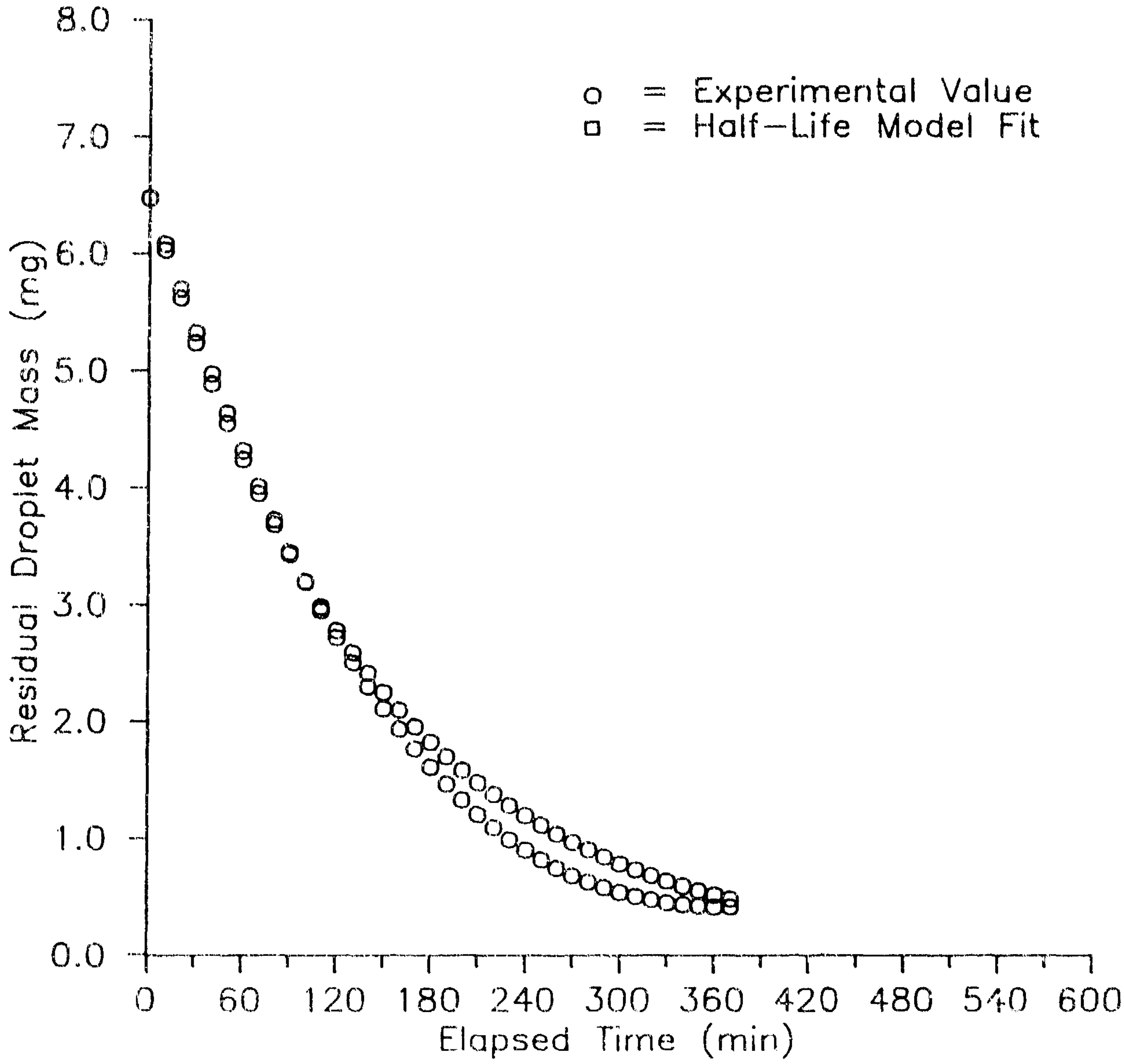


Figure G-4. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. GLF5 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/BOTTOM
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 58%

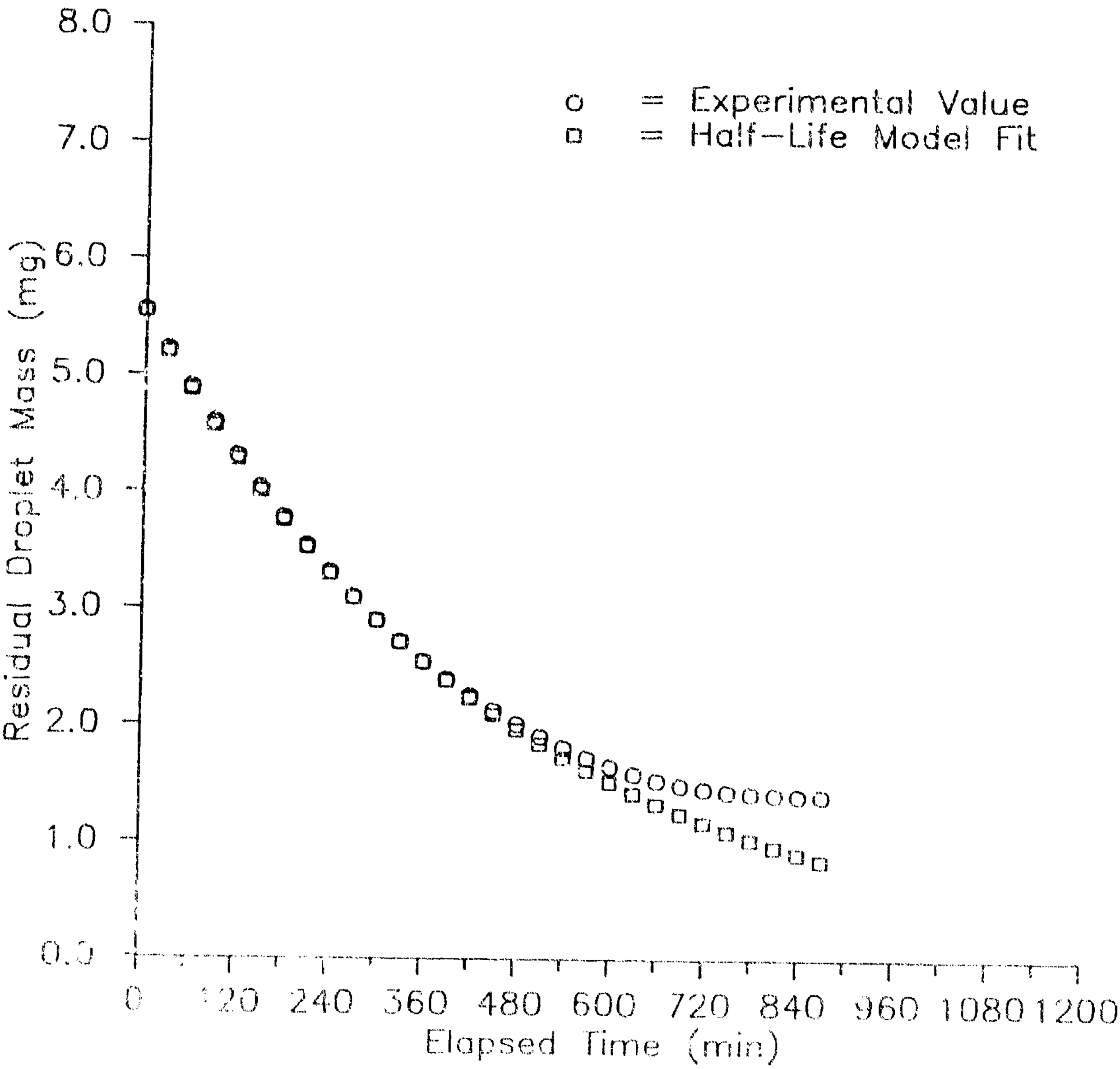


Figure G-5. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. GLF6 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/BOTTOM
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 55%

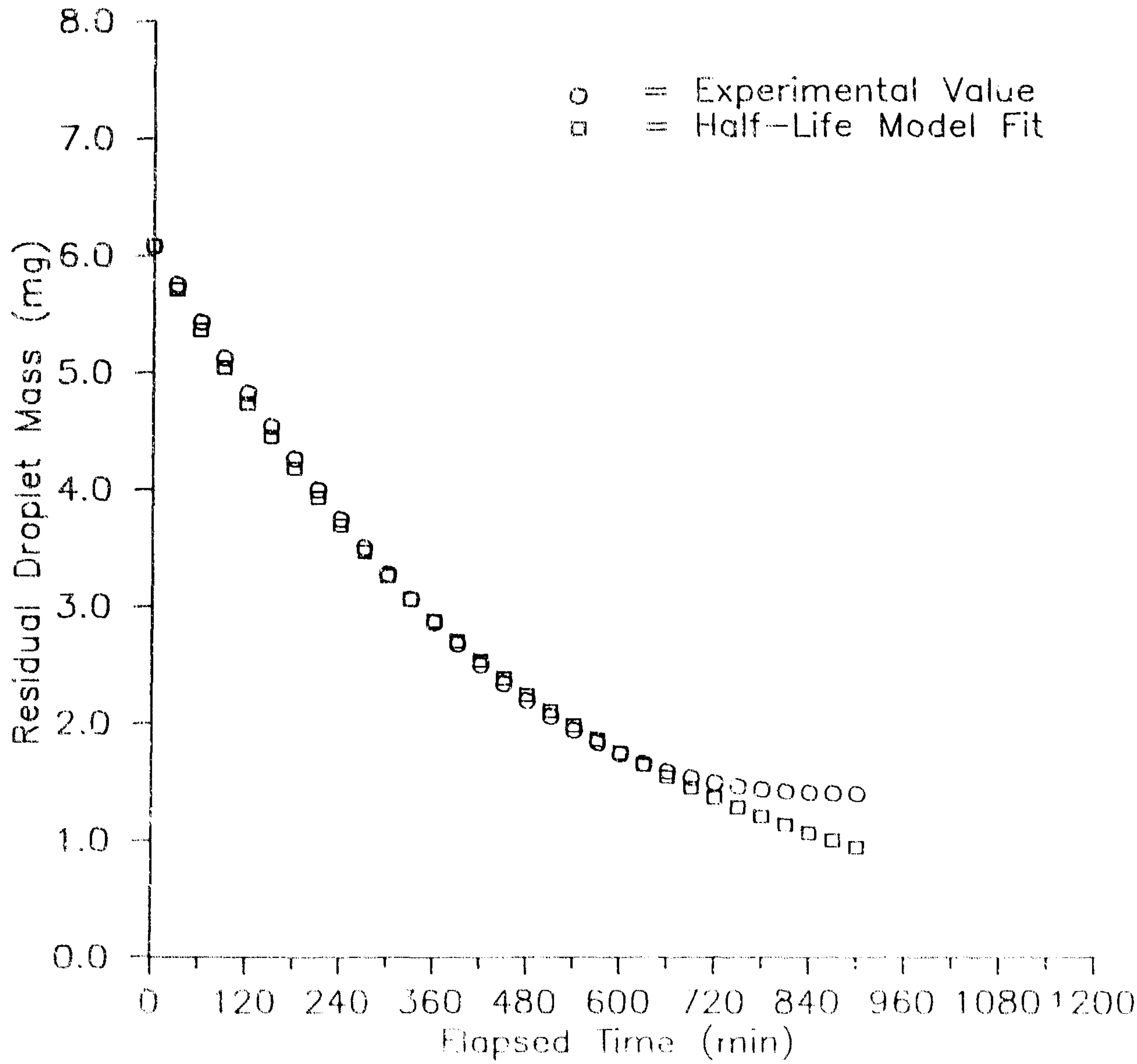


Figure G-6. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. GLF7 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/BOTTOM
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

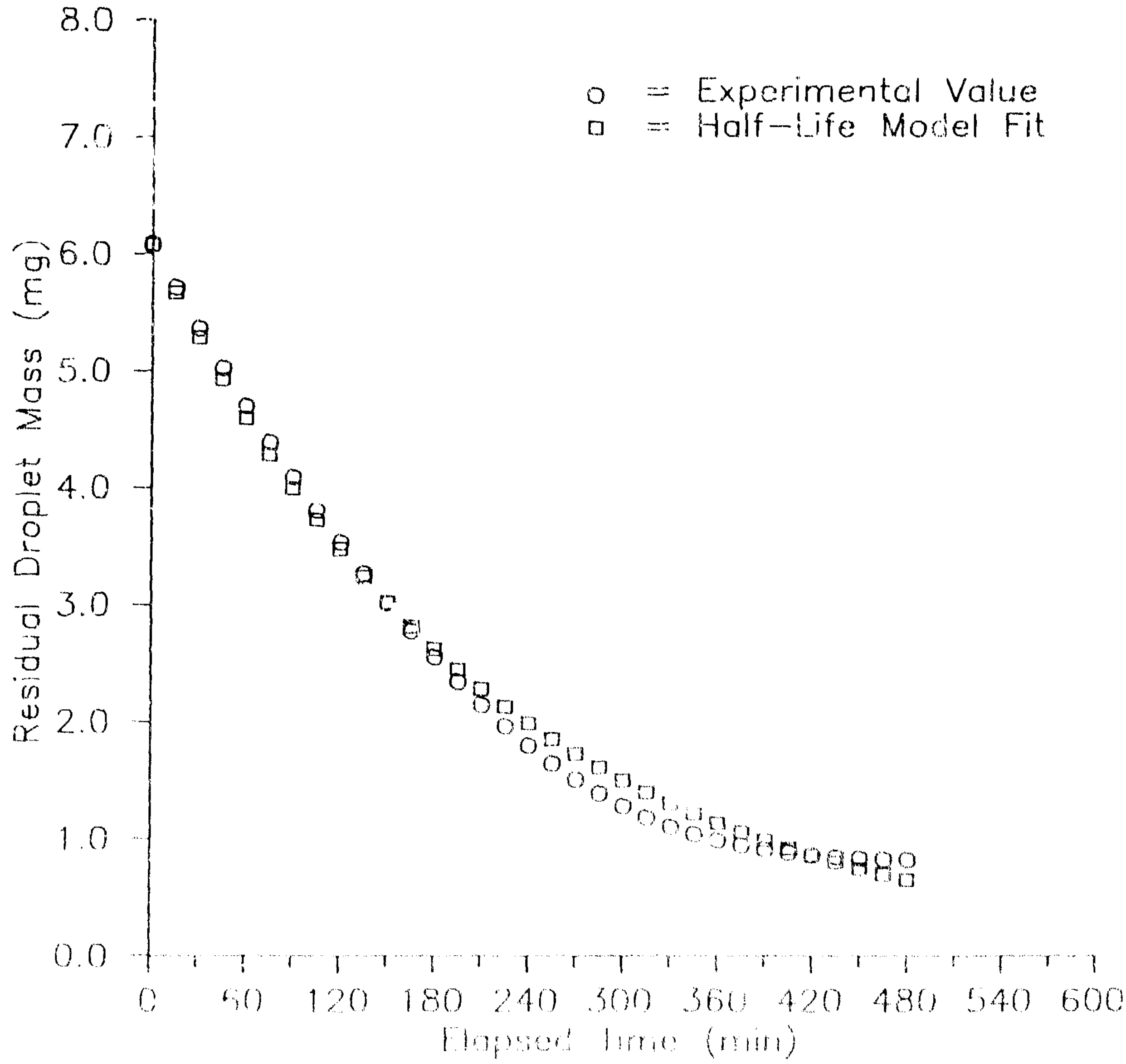


Figure G-7. Droplet Residual Mass Versus Time

EVAPORATION EXPERIMENT NO. GLF8 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/BOTTOM
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 50%

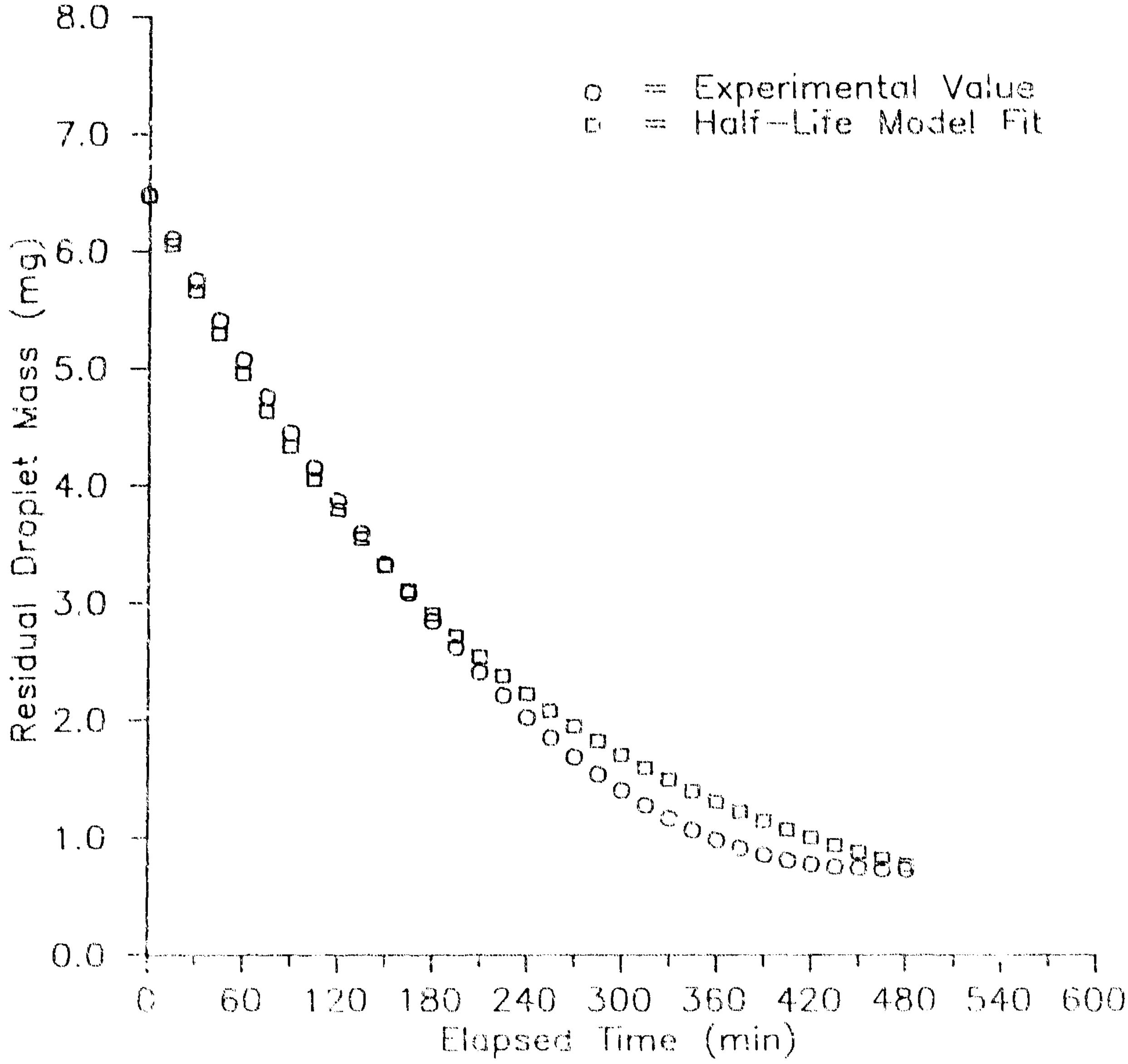


Figure C-8 Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. GLF9 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F. RELATIVE HUMIDITY 44%

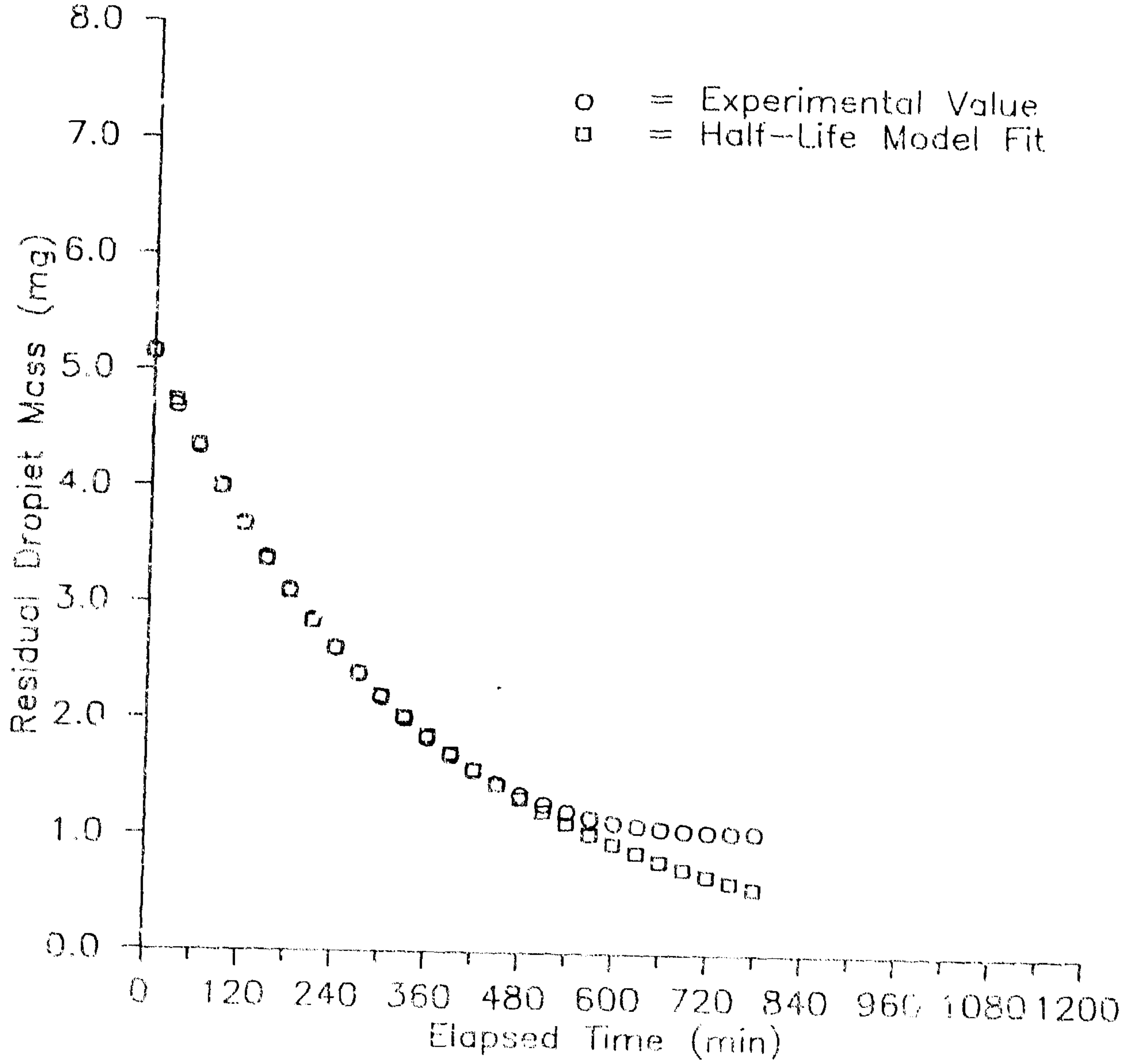


Figure G-9. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. GLF10 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 50 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 2.3 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 52%

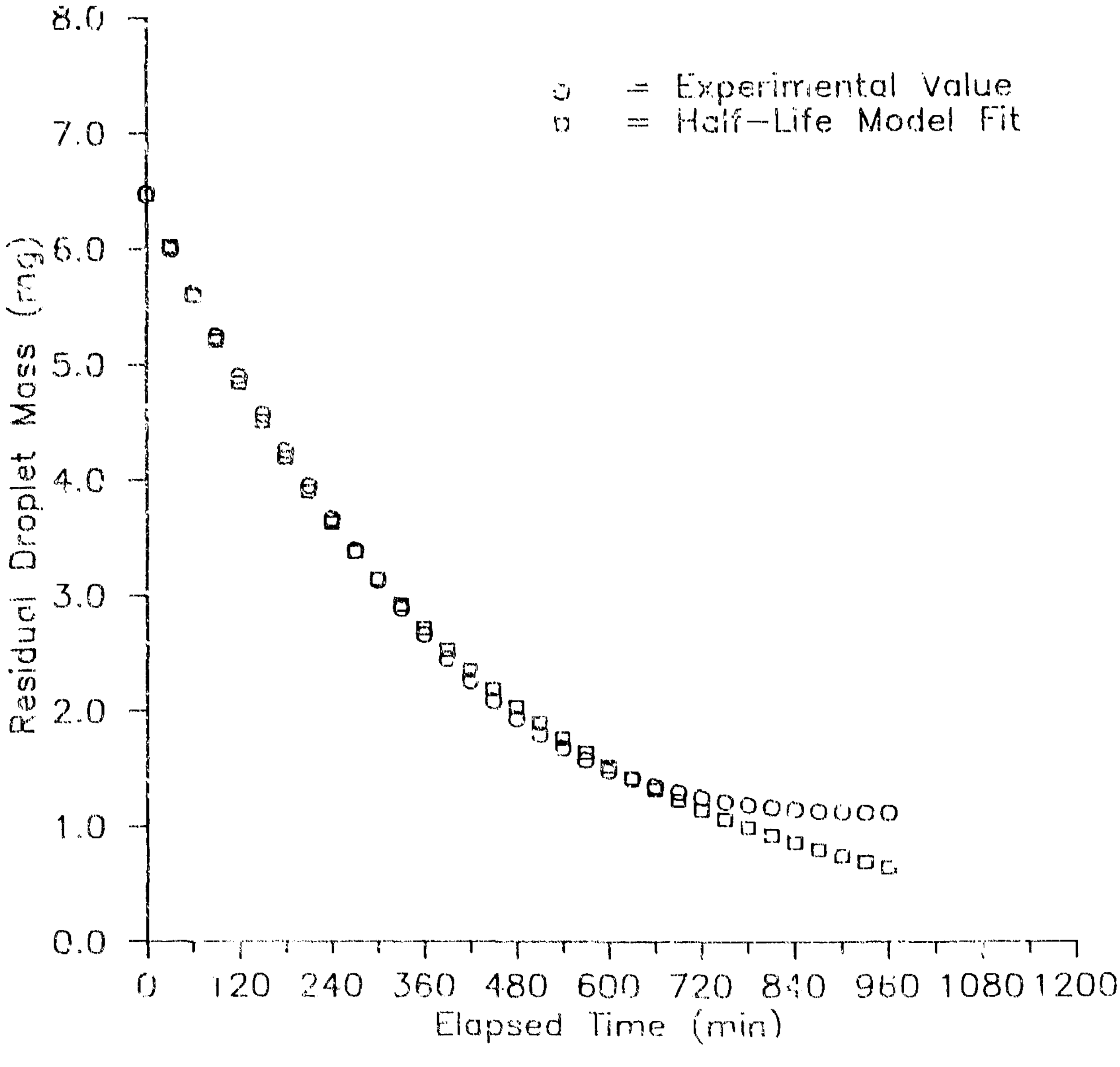


Figure G-10. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. GLF11 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 55%

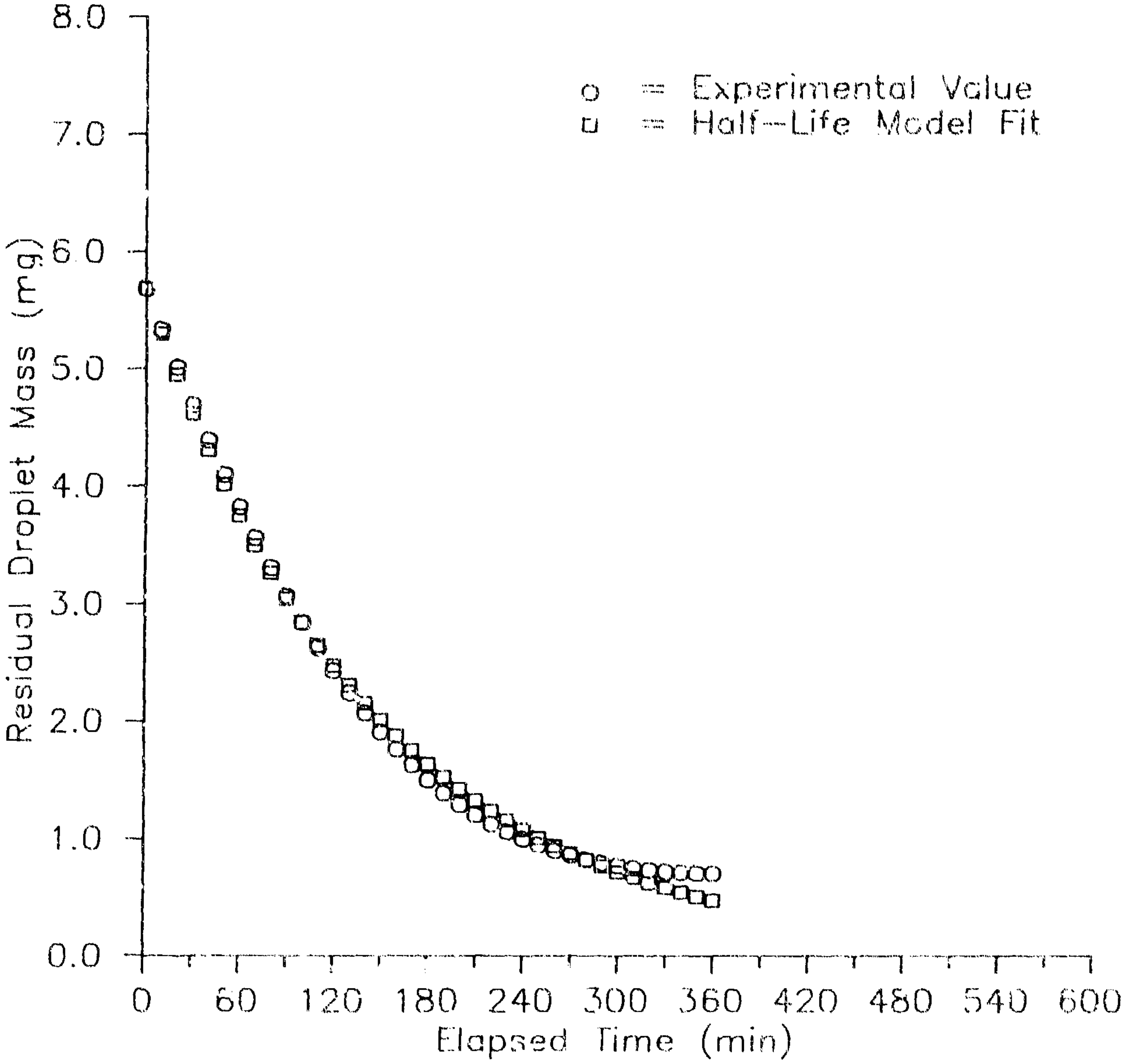


Figure G-11. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. GLF12 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

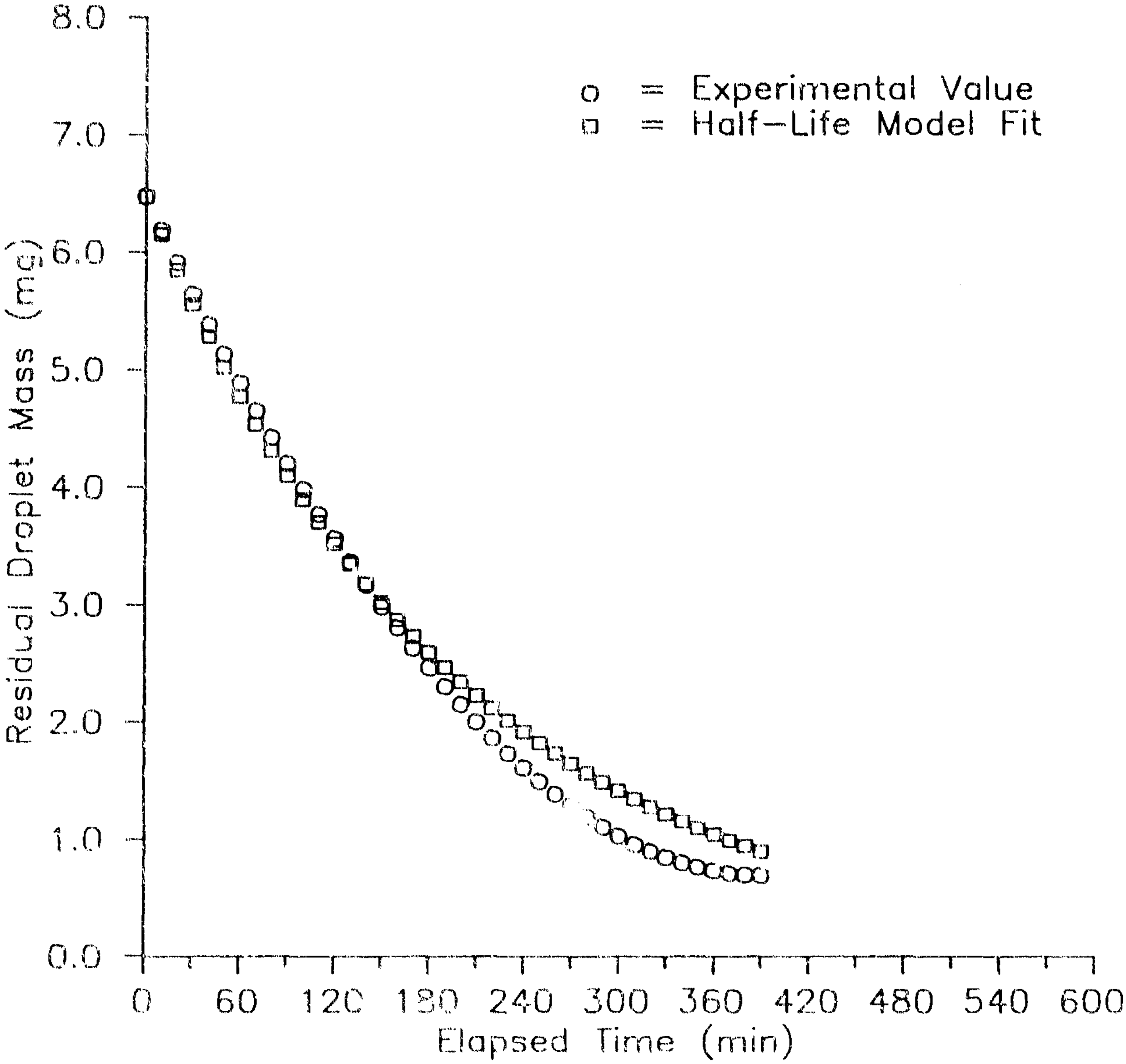


Figure G-12. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. GLF13 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 44%

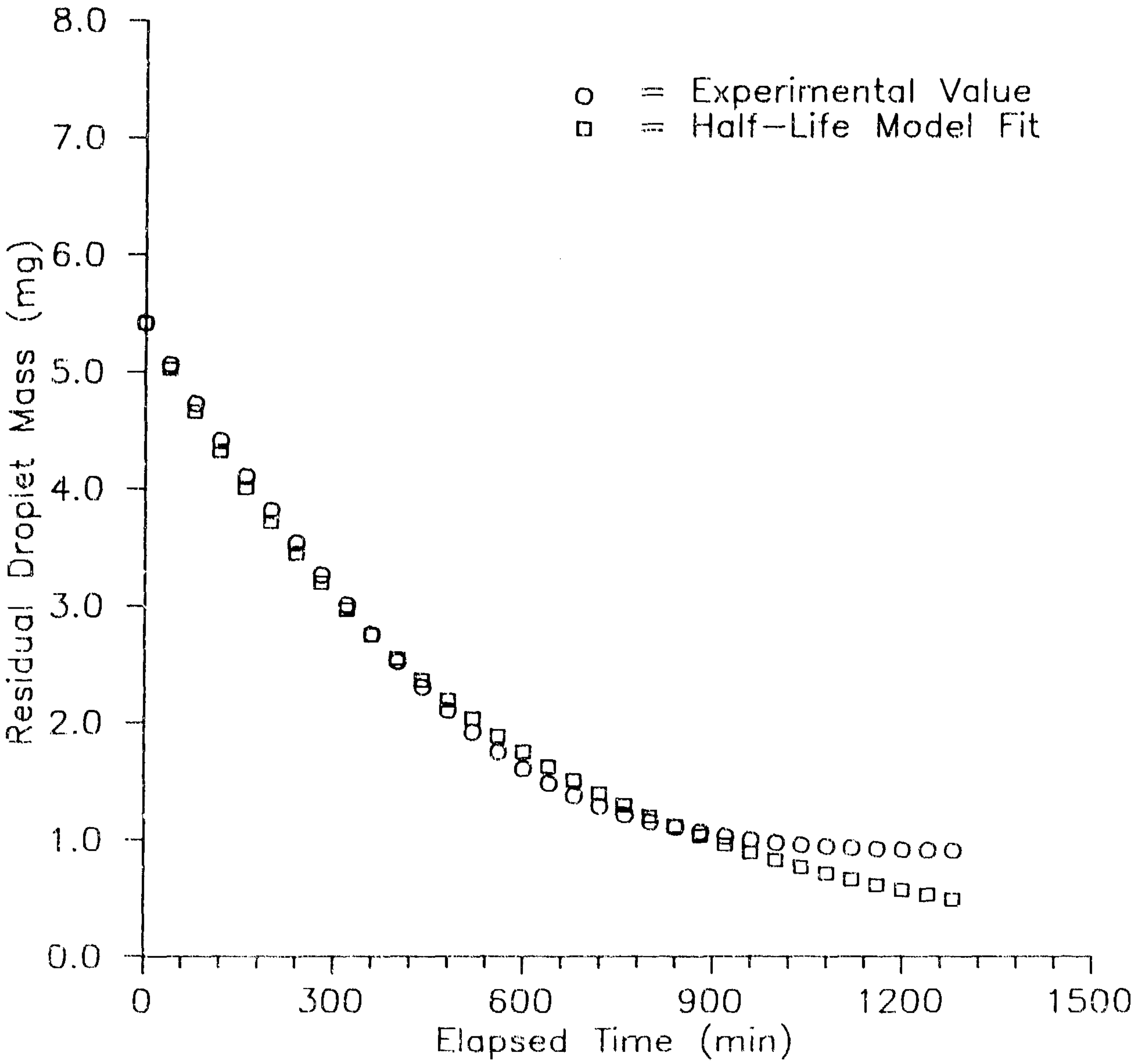


Figure G-13. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. GLF14 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 43%

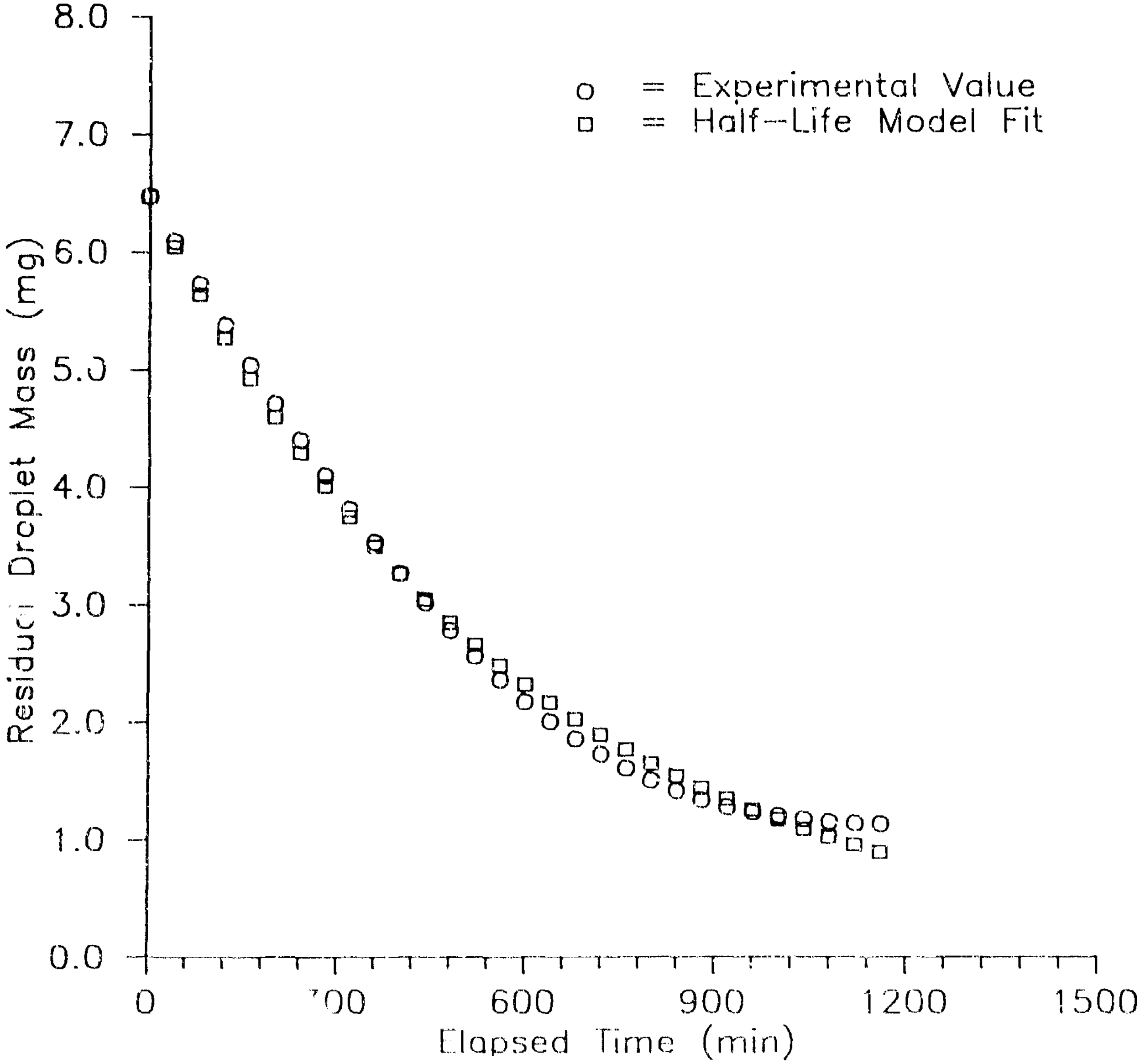


Figure G-14. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO GLF15 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

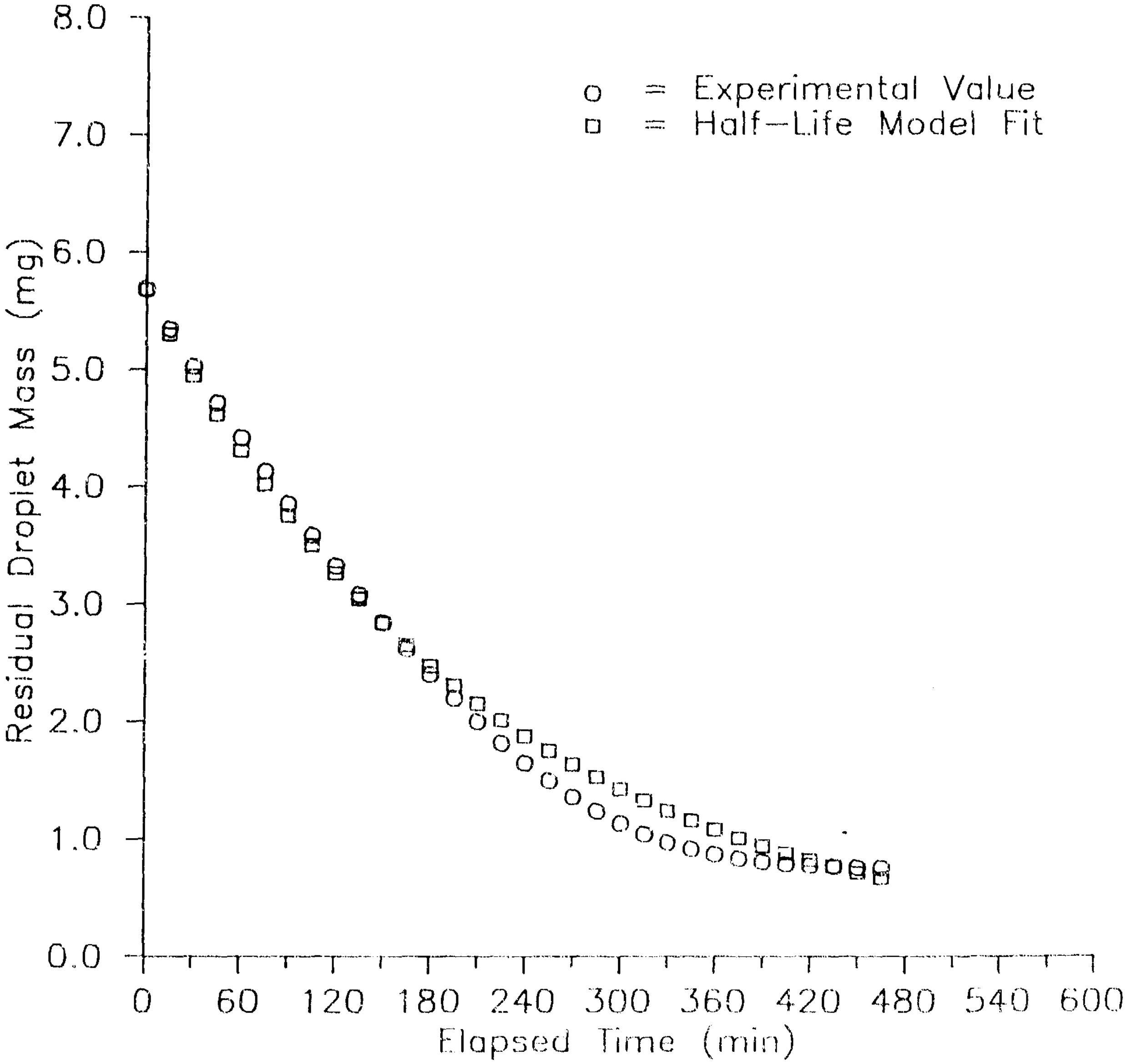


Figure G-15. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. GLF16 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

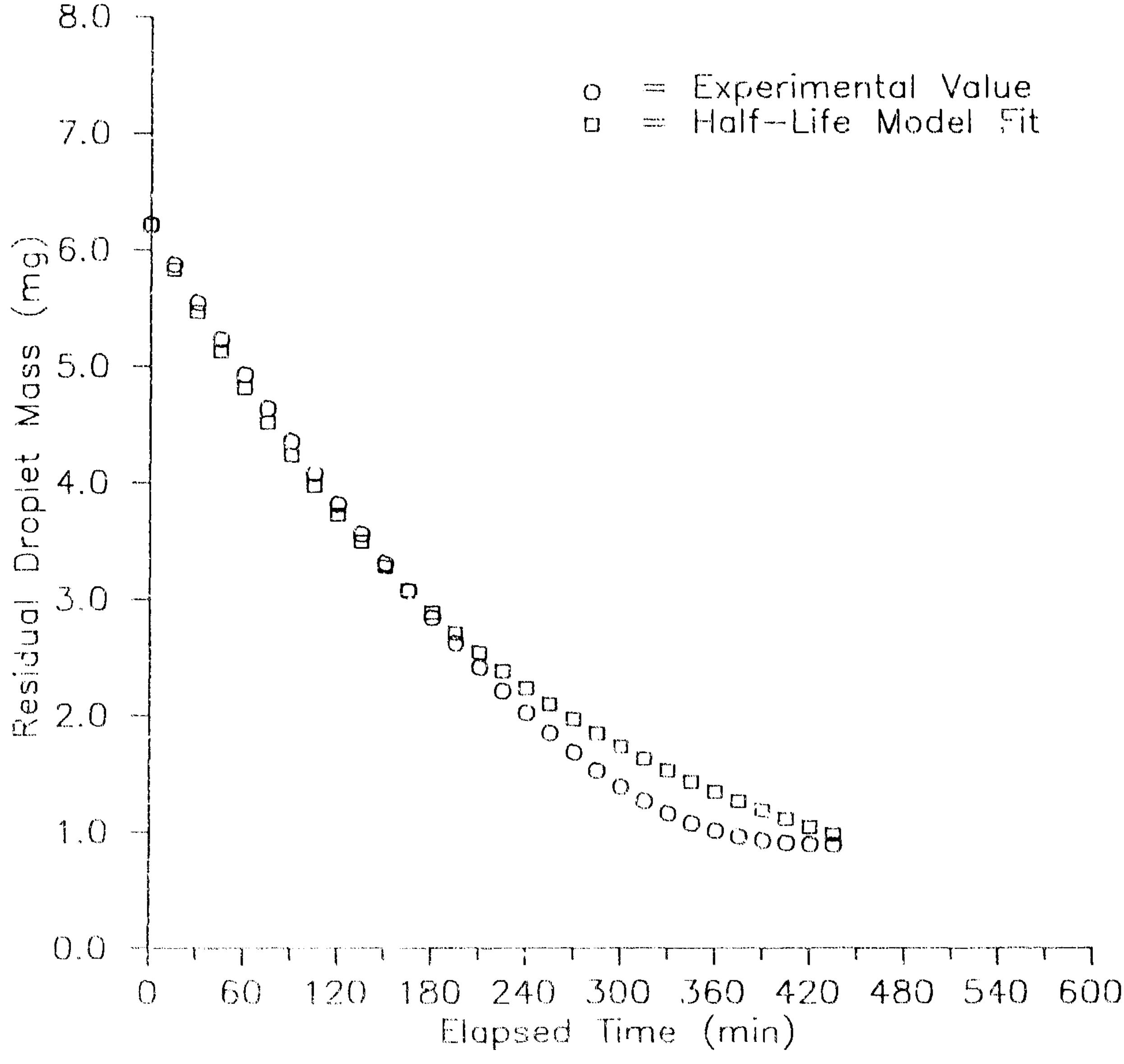


Figure G-16. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. BLF1    SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA.,    100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 3 MPH,    AIR TEMPERATURE 60 DEG F.,    RELATIVE HUMIDITY 39%

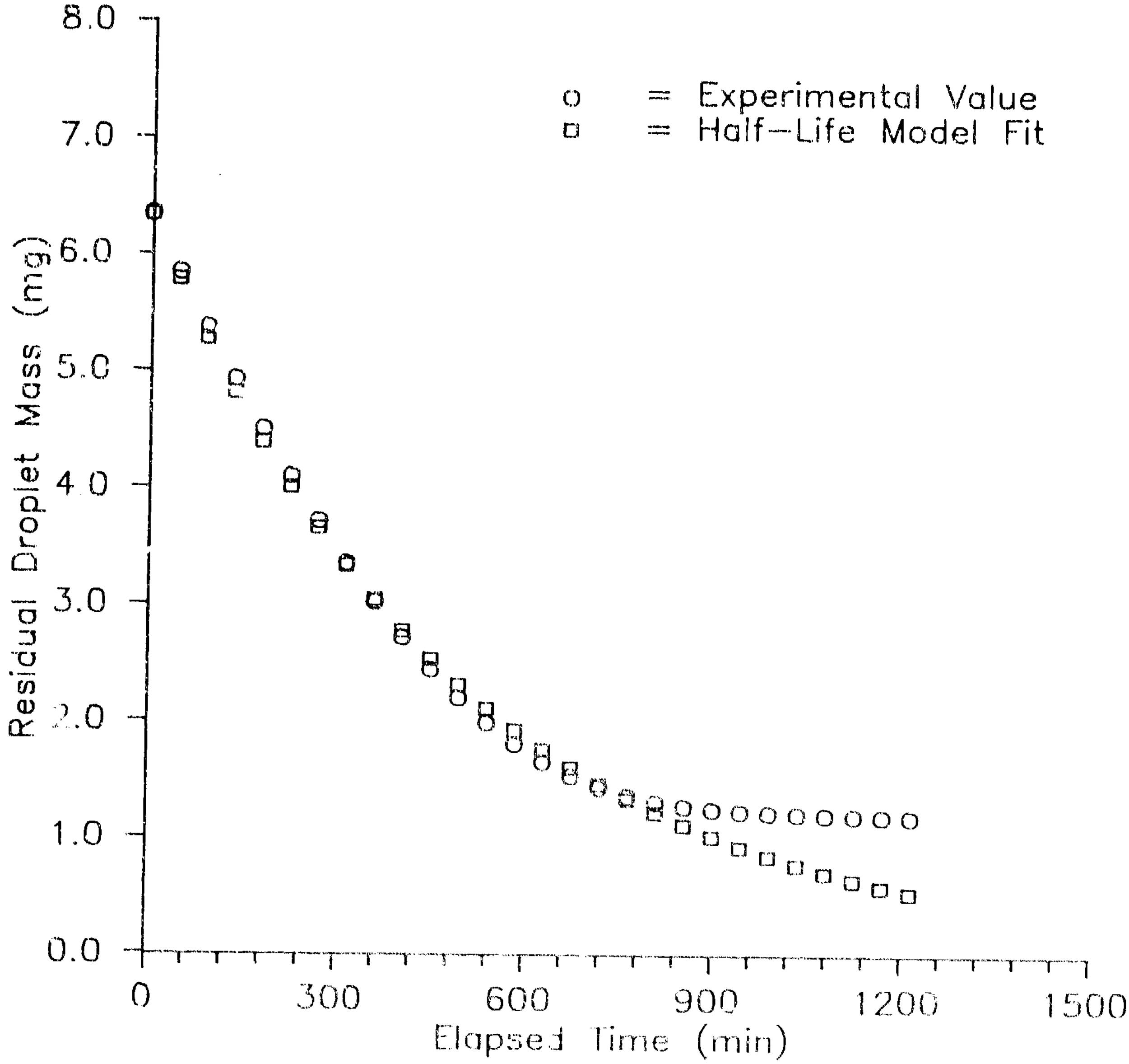


Figure G-17. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. BLF2 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 2.9 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

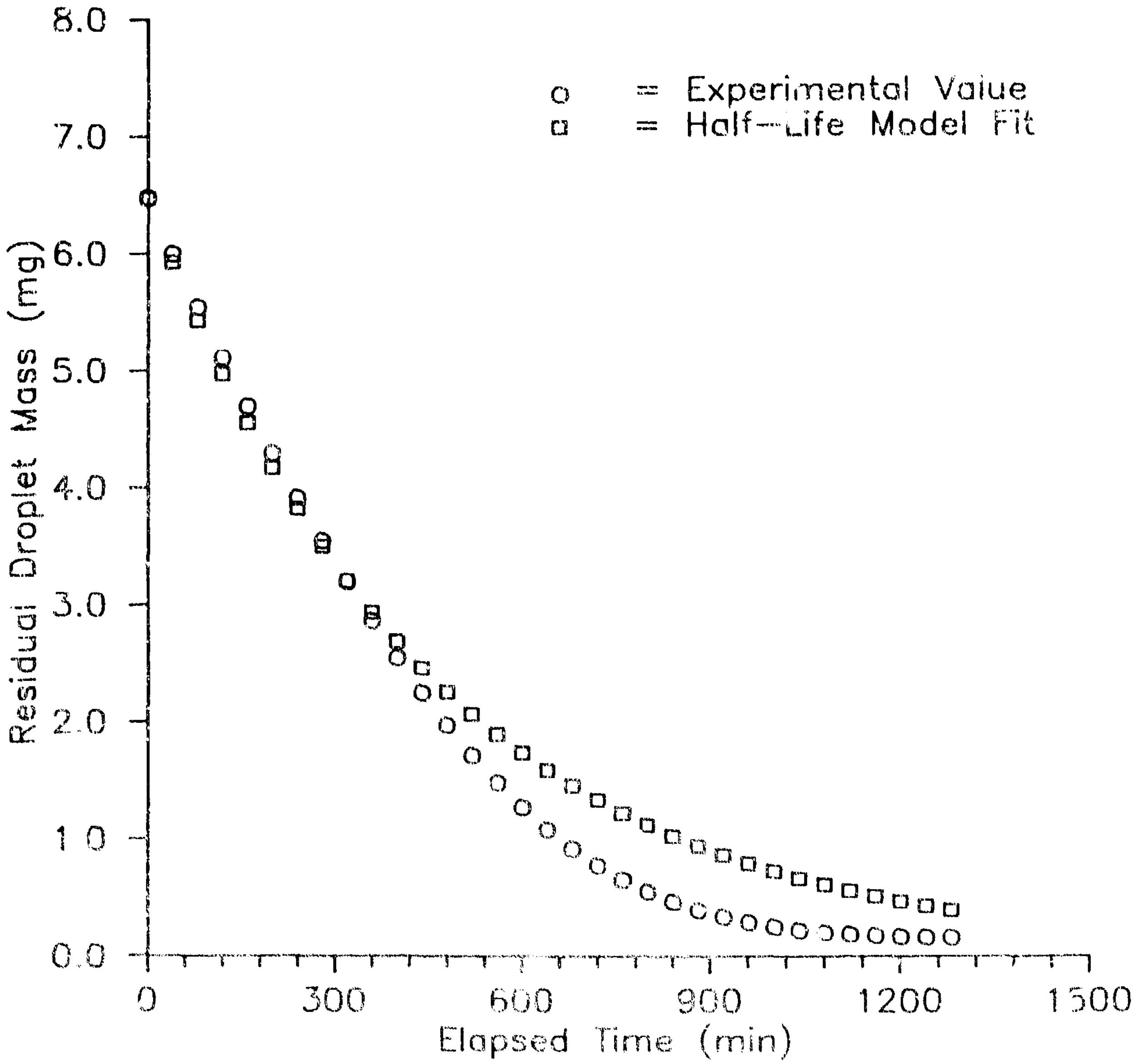


Figure G-18. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. BLF3 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

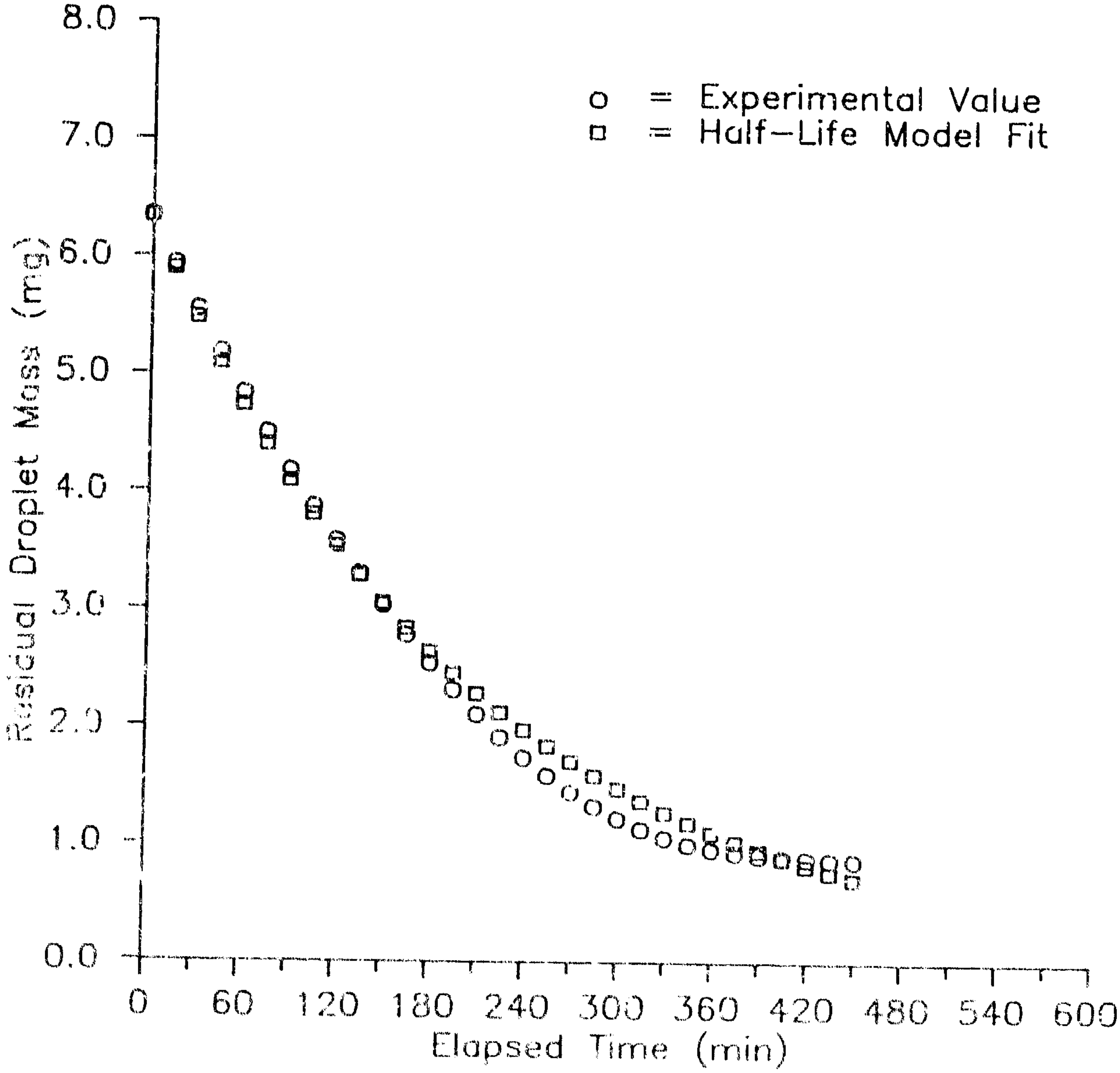


Figure G-19 Droplet Residual Mass Versus Time

EVAPORATION EXPERIMENT NO. BLF4 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 20%

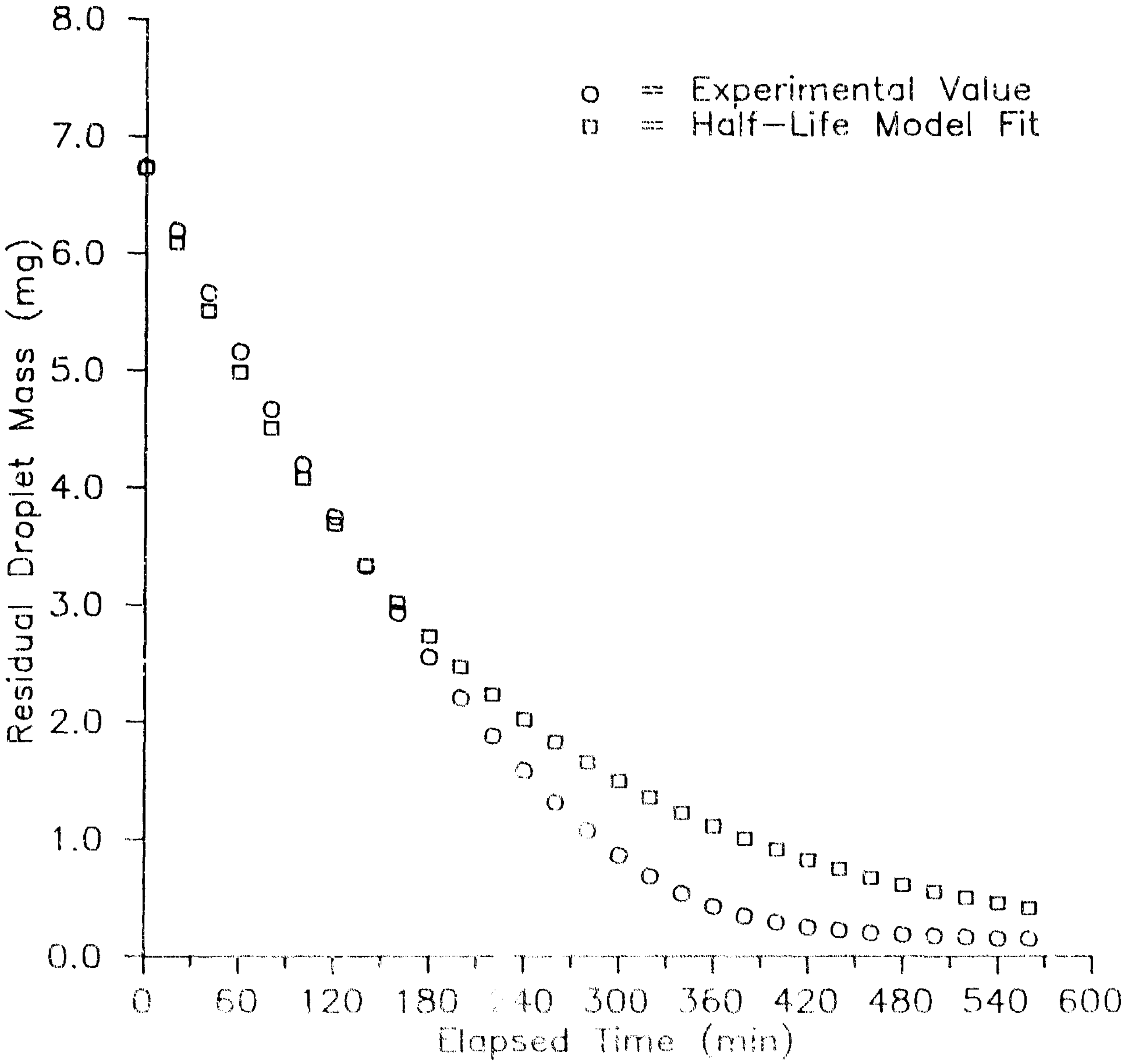


Figure G-20. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. BLF5 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

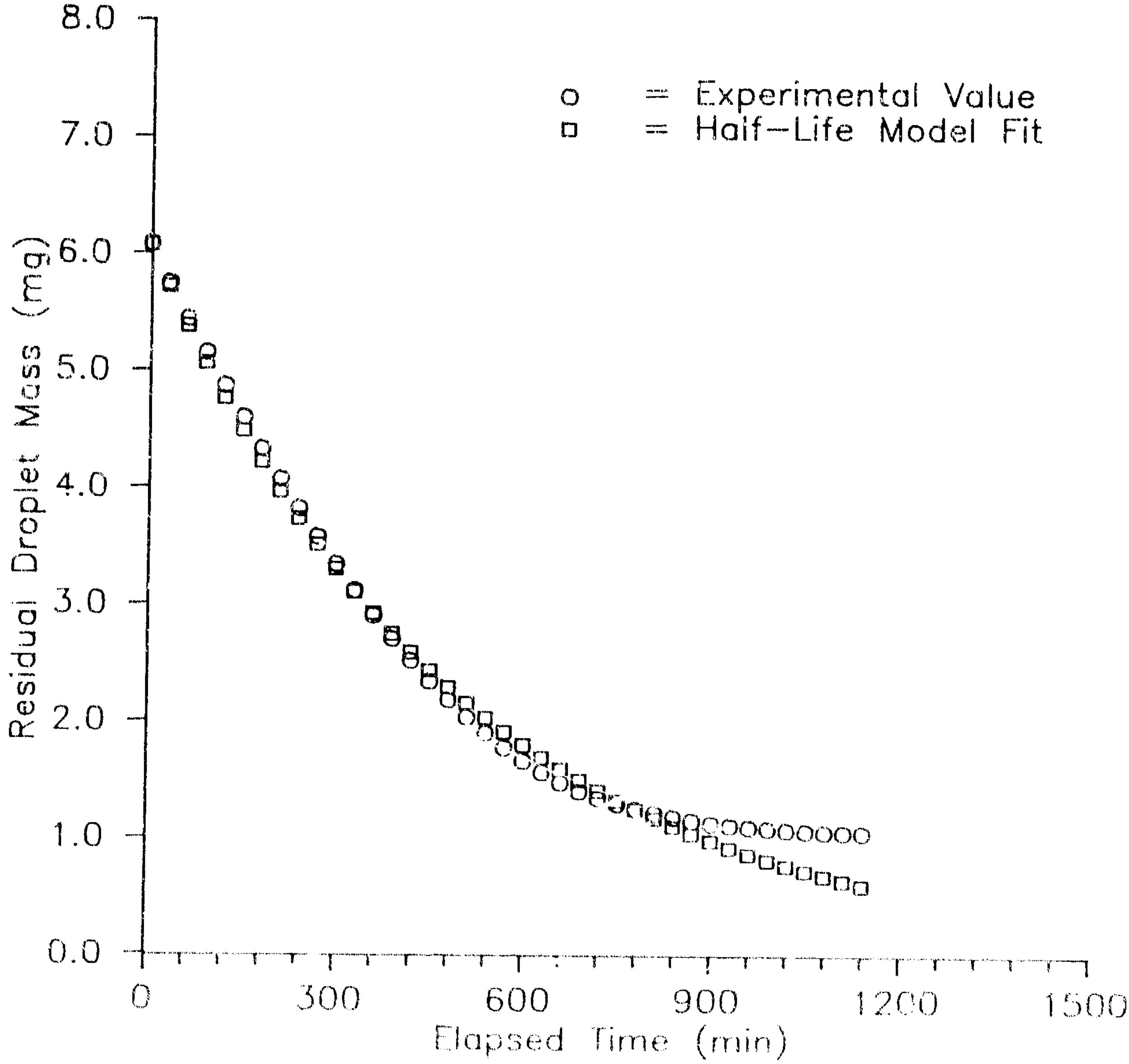


Figure G-21. Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. BLF6 SERIES III 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 2.9 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

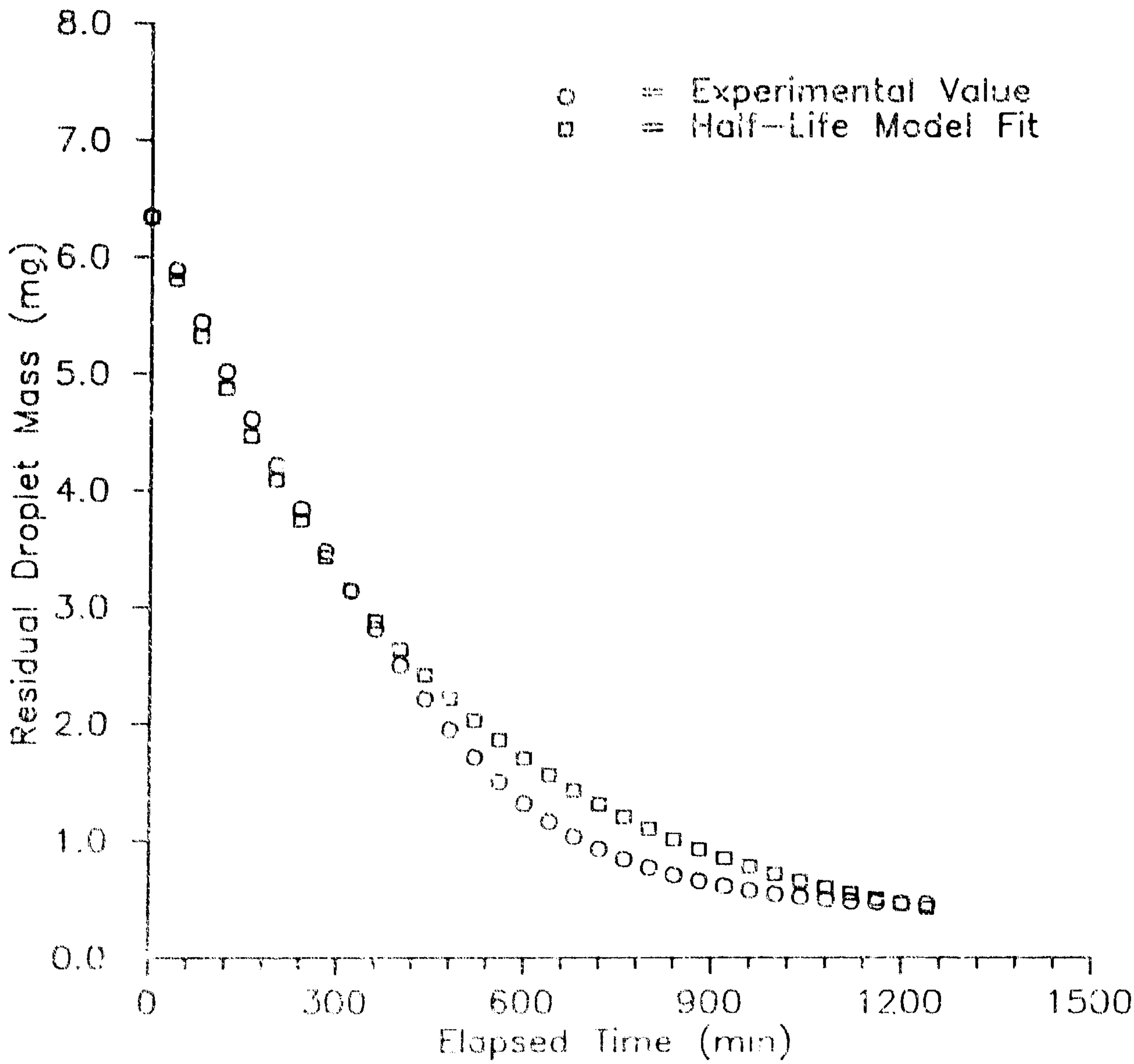


Figure G-22 Droplet Residual Mass Versus Time.

EVAPORATION EXPERIMENT NO. BLF7 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

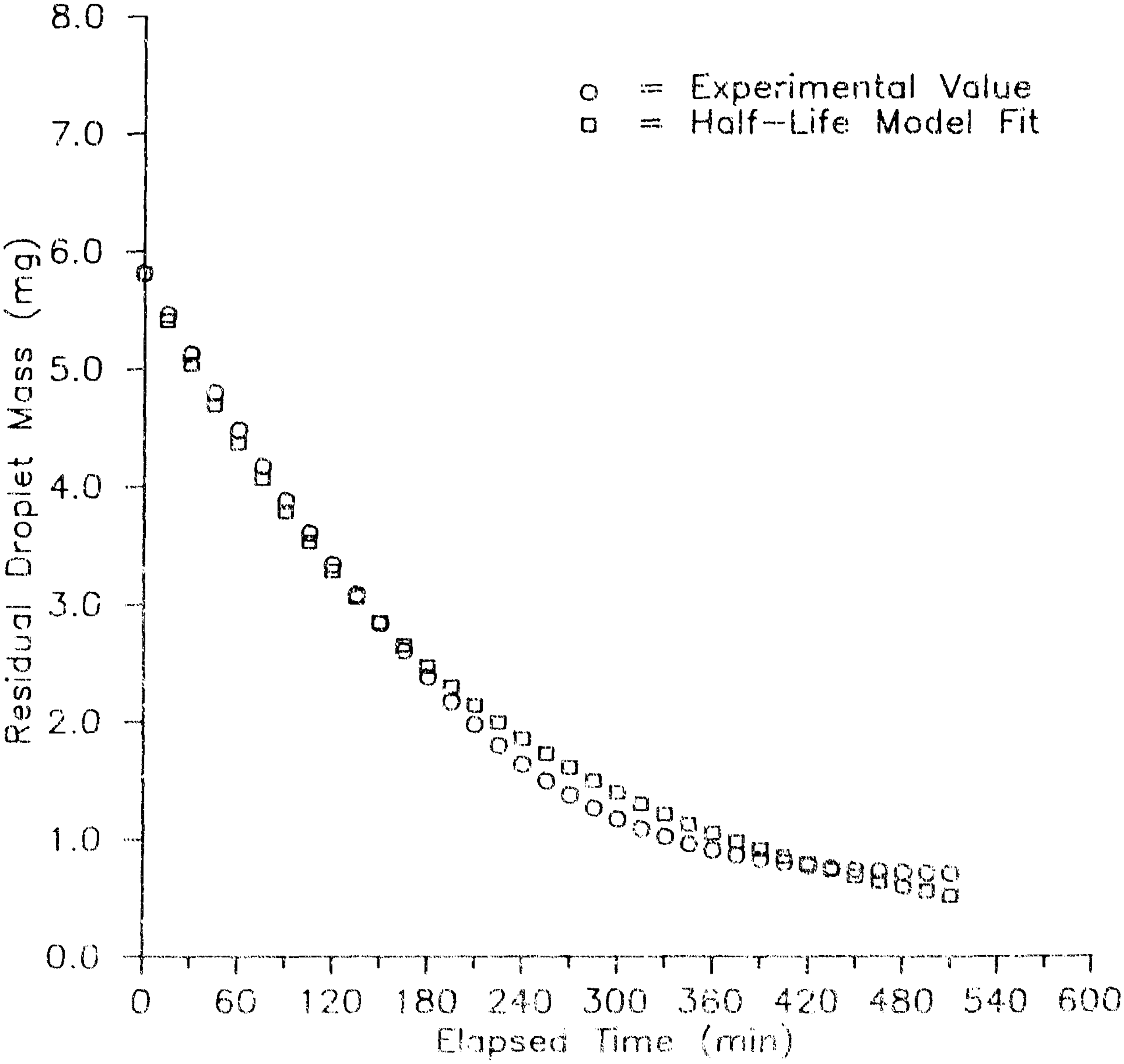


Figure G-23. Droplet Residual Mass Versus Time

EVAPORATION EXPERIMENT NO. BLF8 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 50%

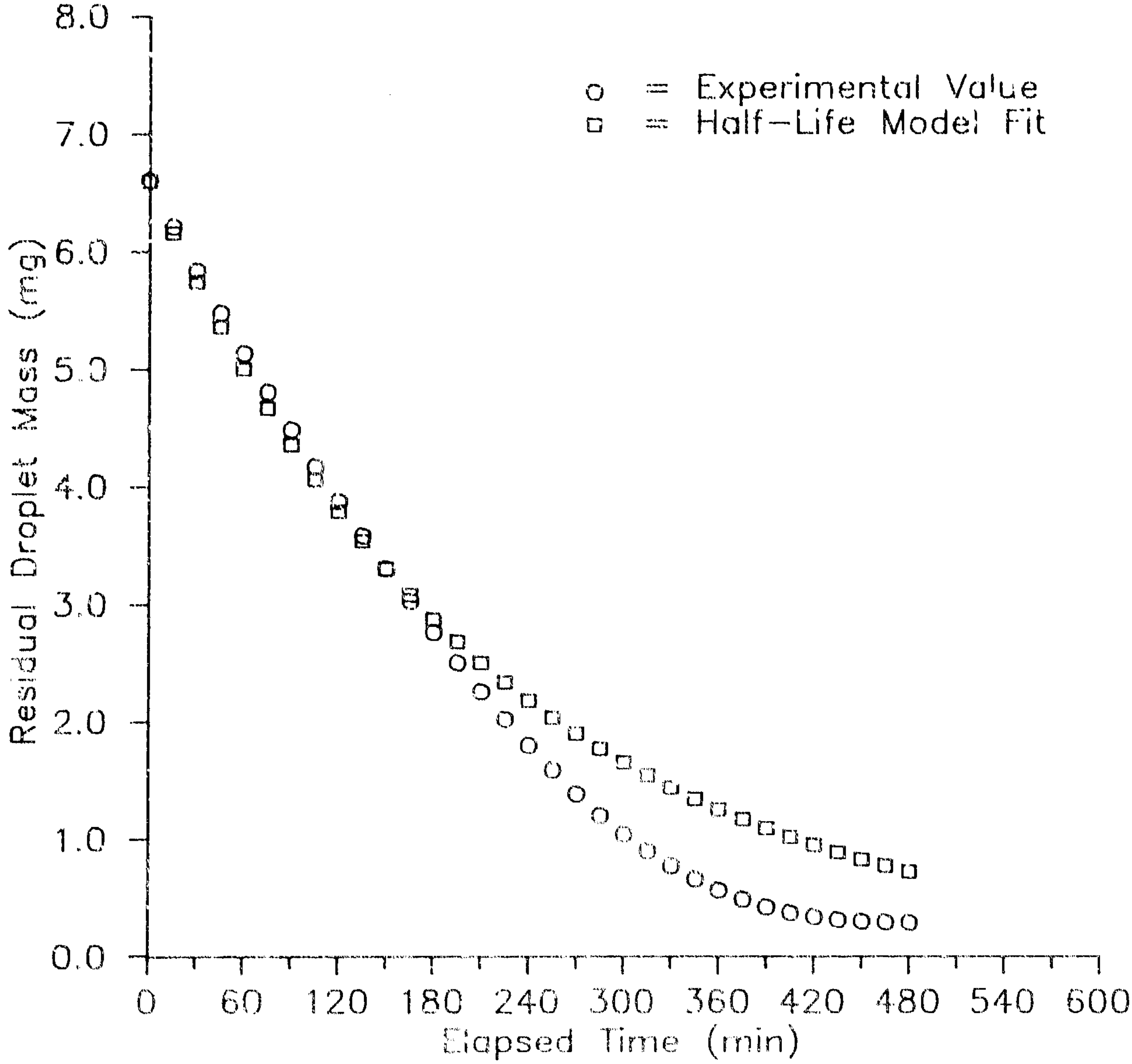


Figure G-24. Droplet Residual Mass Versus Time.

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# APPENDIX H

## PLOTS OF DROPLET EVAPORATION RATE VERSUS TIME

EVAPORATION EXPERIMENT NO. GLF1    SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 45%

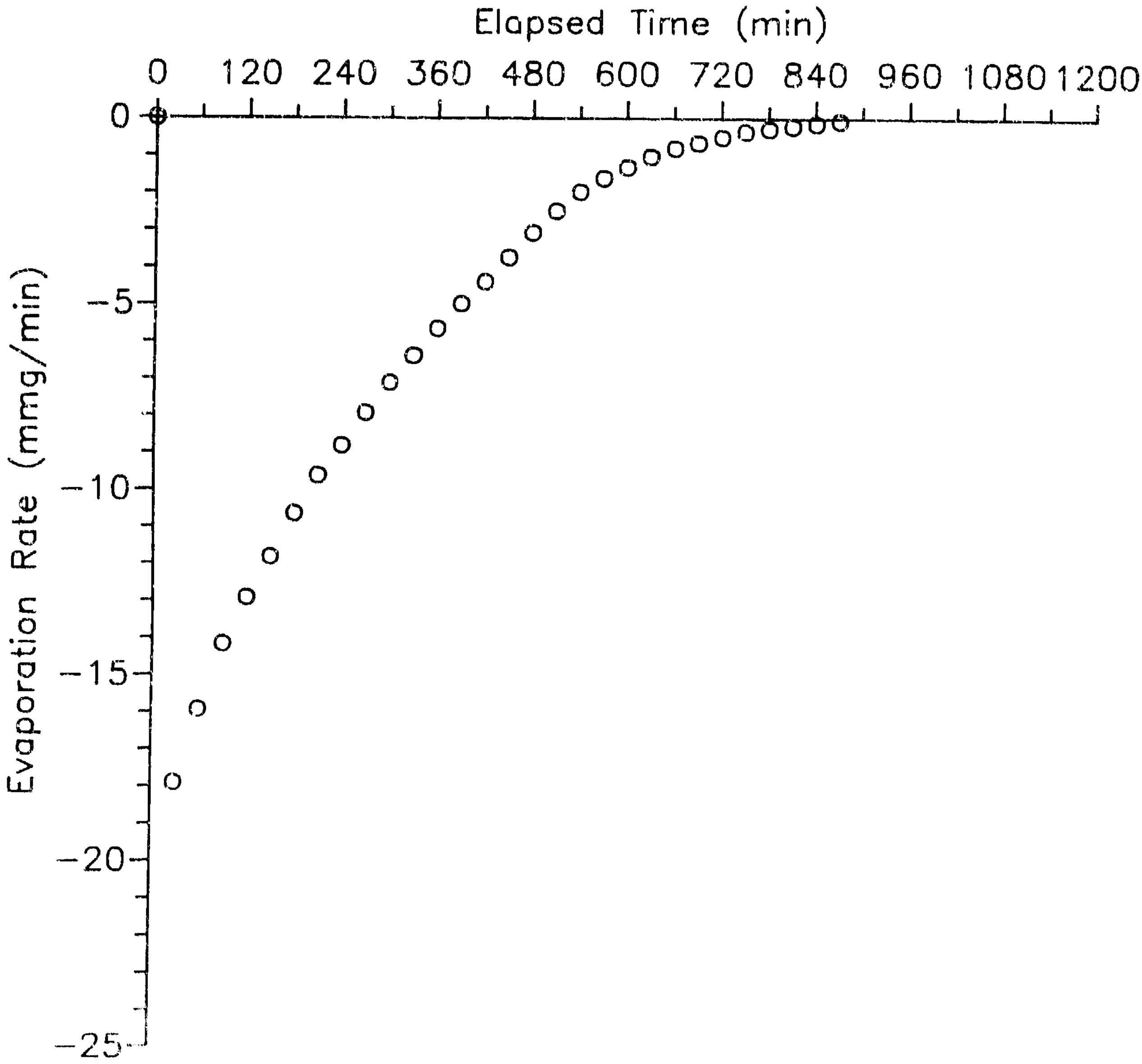


Figure H-1. Droplet Evaporation Rate Versus Time.

EVAPORATION EXPERIMENT NO. GLF2 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 30%

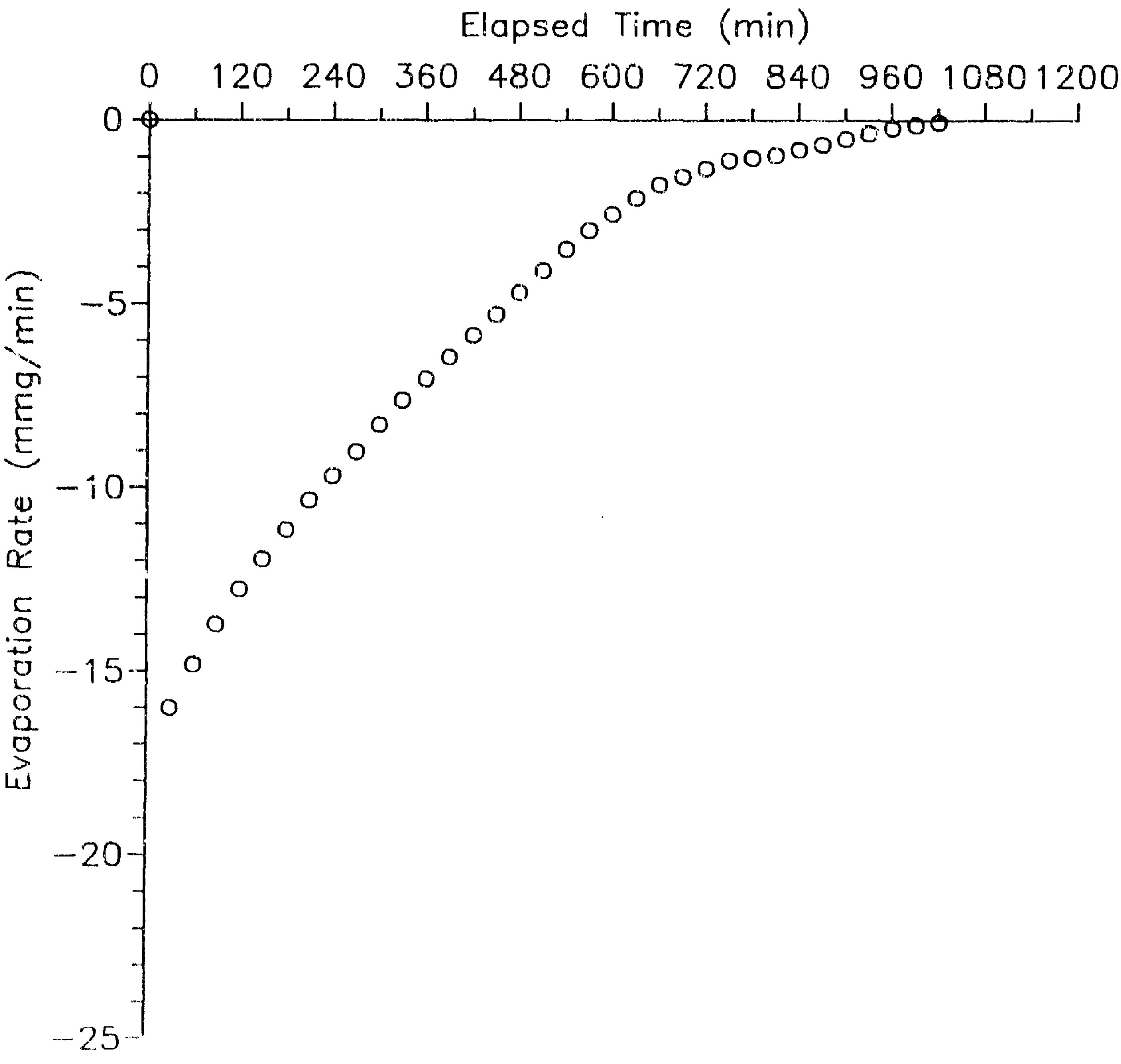


Figure H-2. Droplet Evaporation Rate Versus Time.

EVAPORATION EXPERIMENT NO. GLF3 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/TOP SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

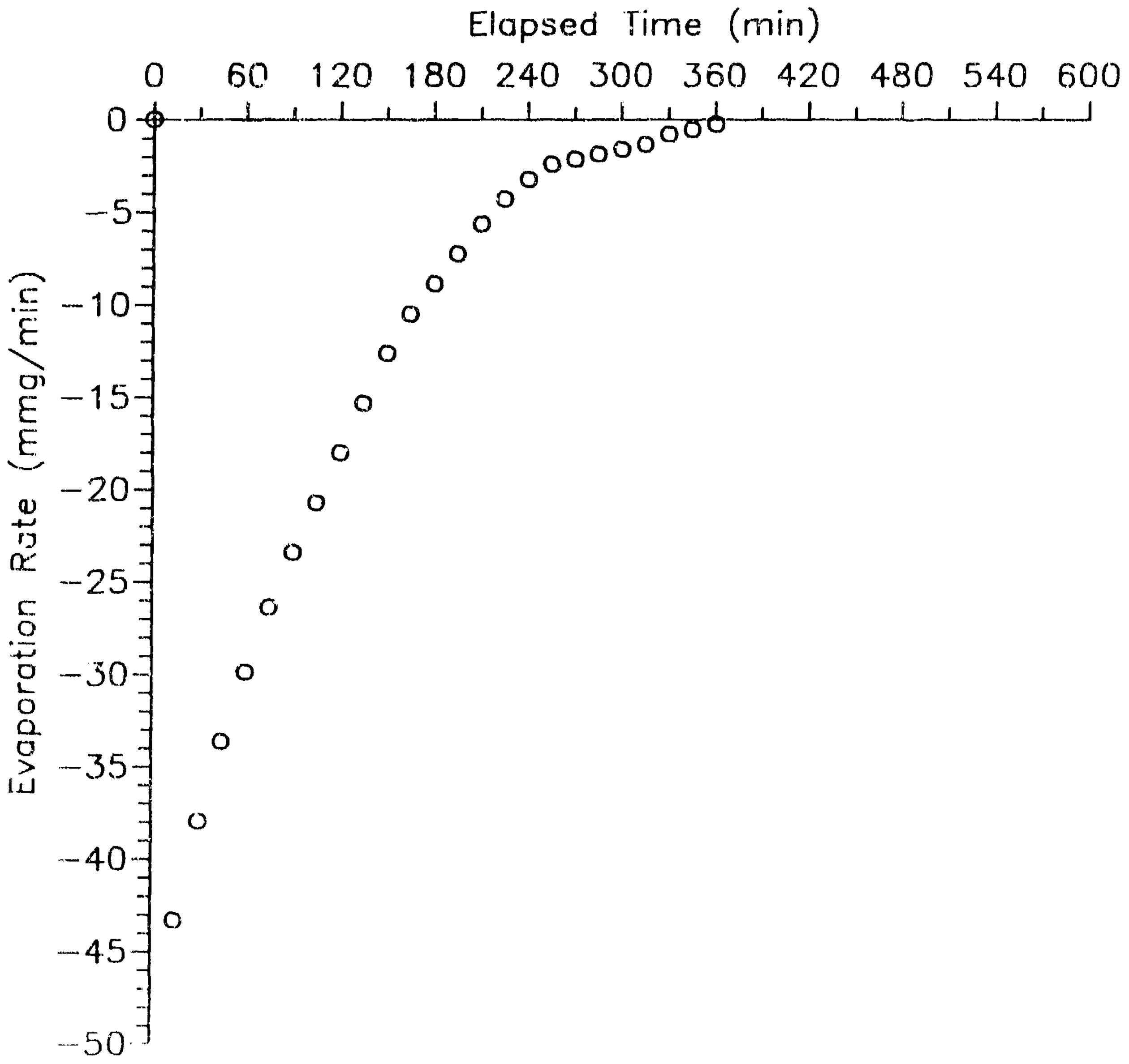


Figure H-3. Droplet Evaporation Rate Versus Time.

EVAPORATION EXPERIMENT NO. GLF4    SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/TOP SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

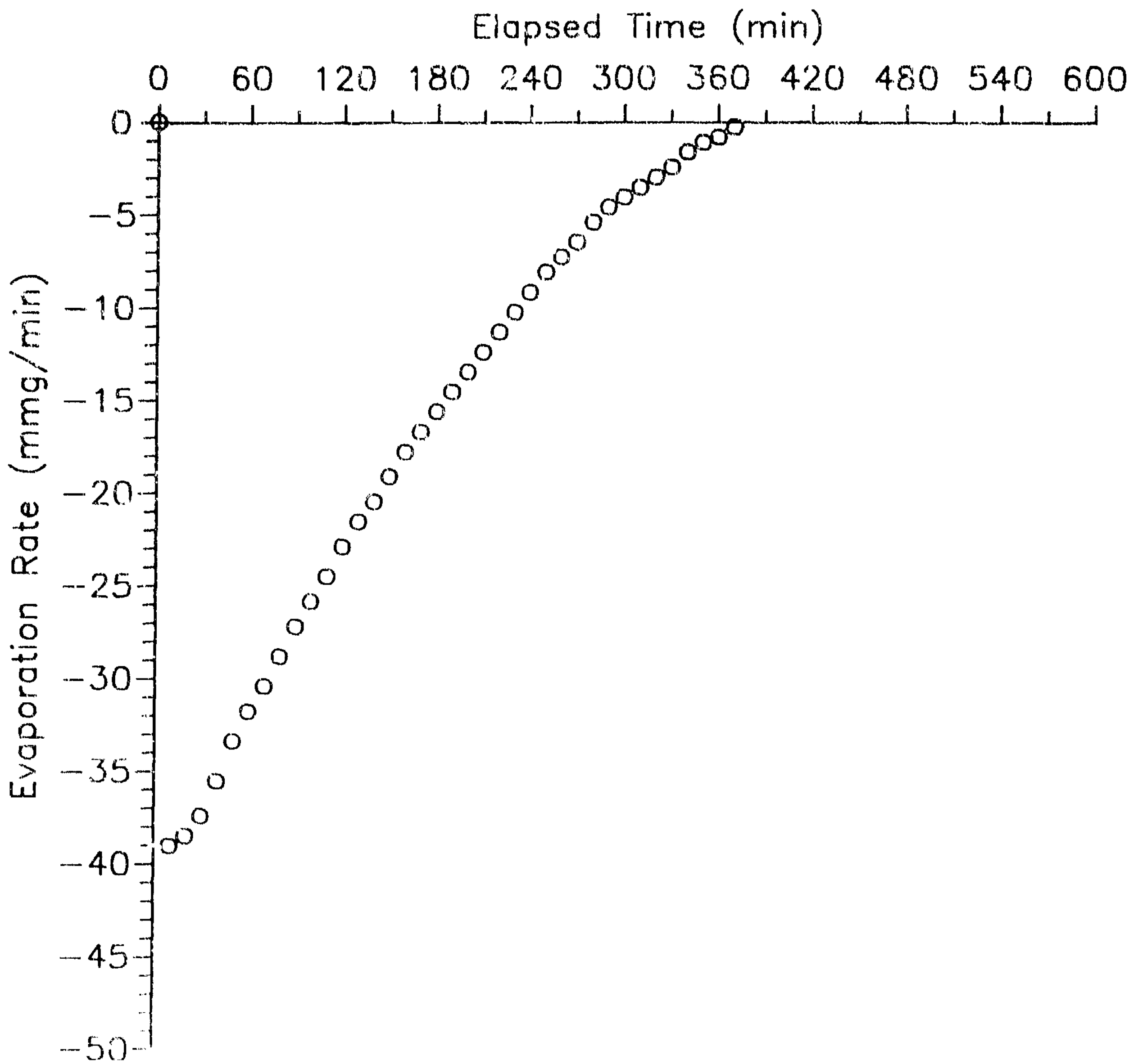


Figure H-4. Droplet Evaporation Rate Versus Time.

EVAPORATION EXPERIMENT NO. GLF5 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/BOTTOM
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 58%

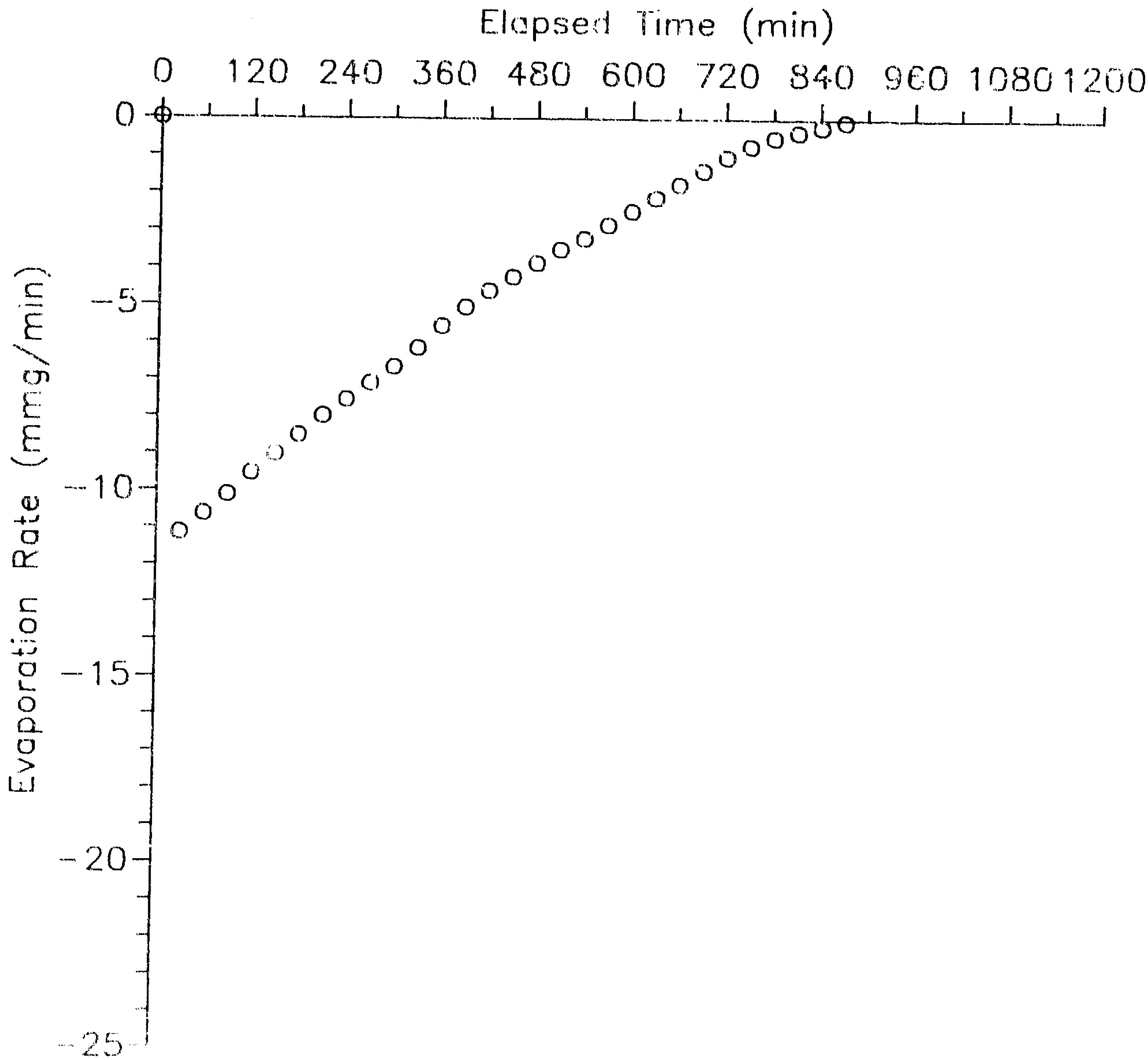


Figure H-5. Droplet Evaporation Rate Versus Time

EVAPORATION EXPERIMENT NO. GLF6 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/BOTTOM
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 55%

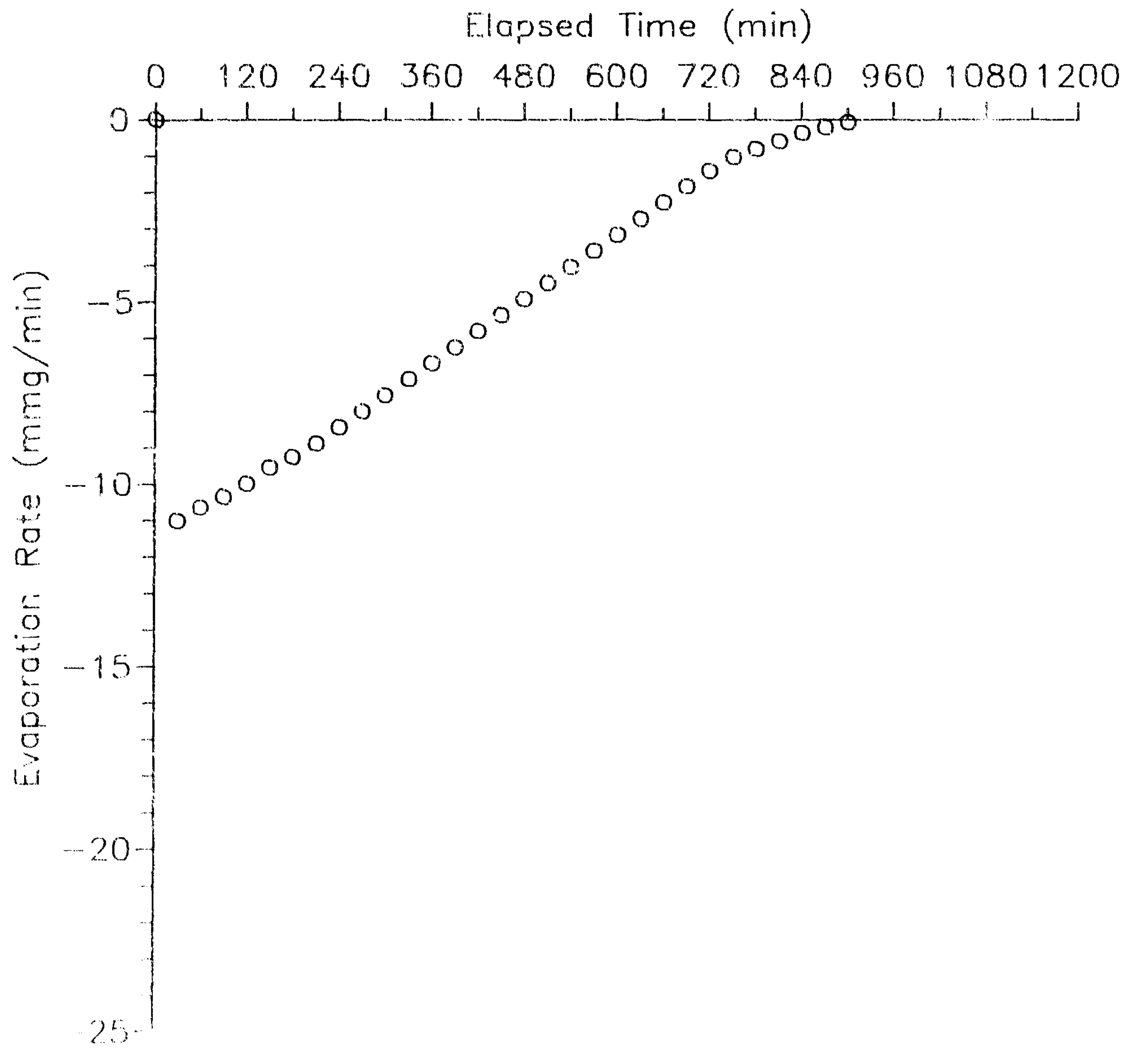


Figure H-6. Droplet Evaporation Rate Versus Time.

EVAPORATION EXPERIMENT NO. GLF7 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/BOTTOM
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

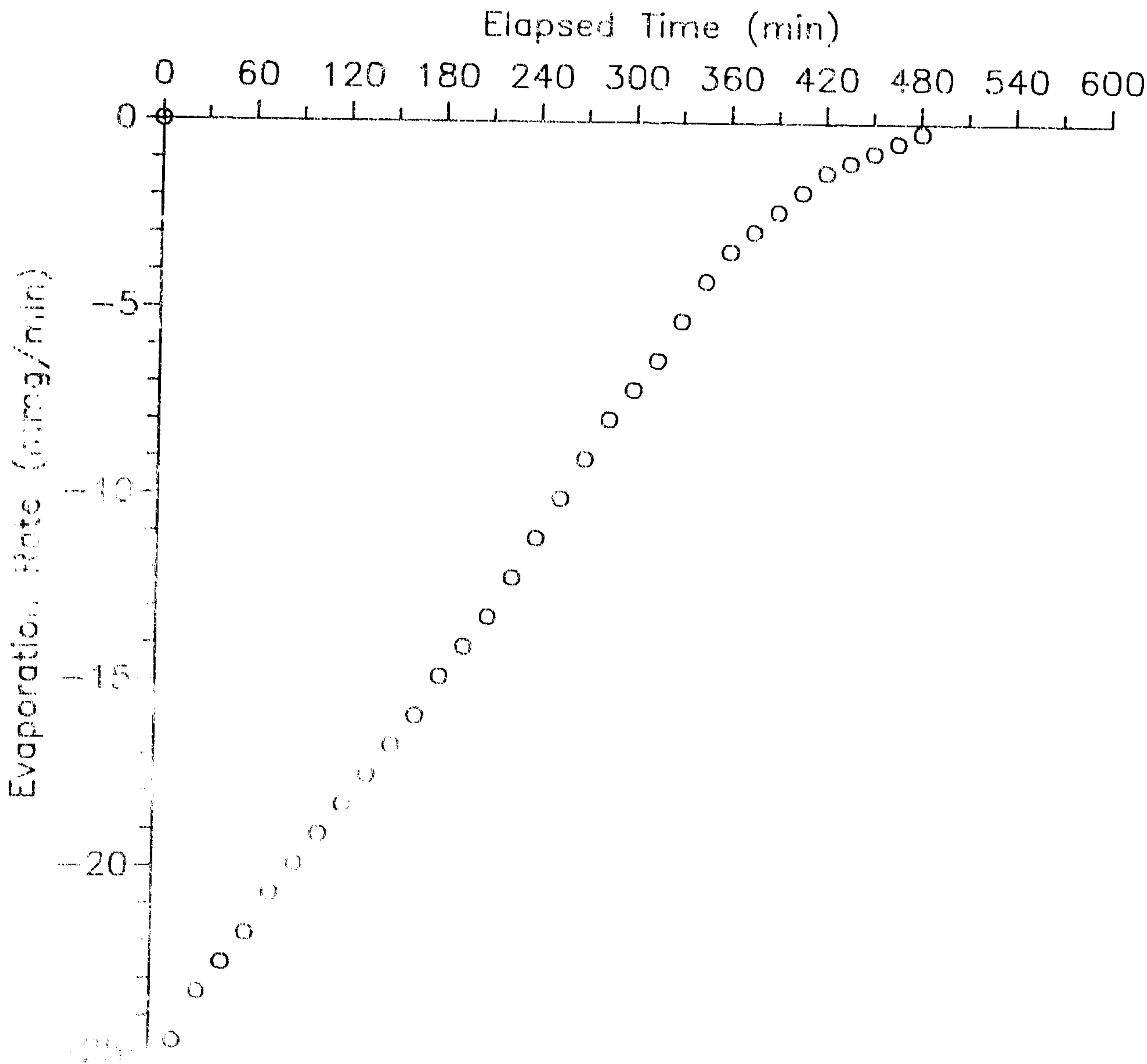


Figure H-7. Droplet Evaporation Rate Versus Time.

EVAPORATION EXPERIMENT NO. GLF8    SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/BOTTOM
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 50%

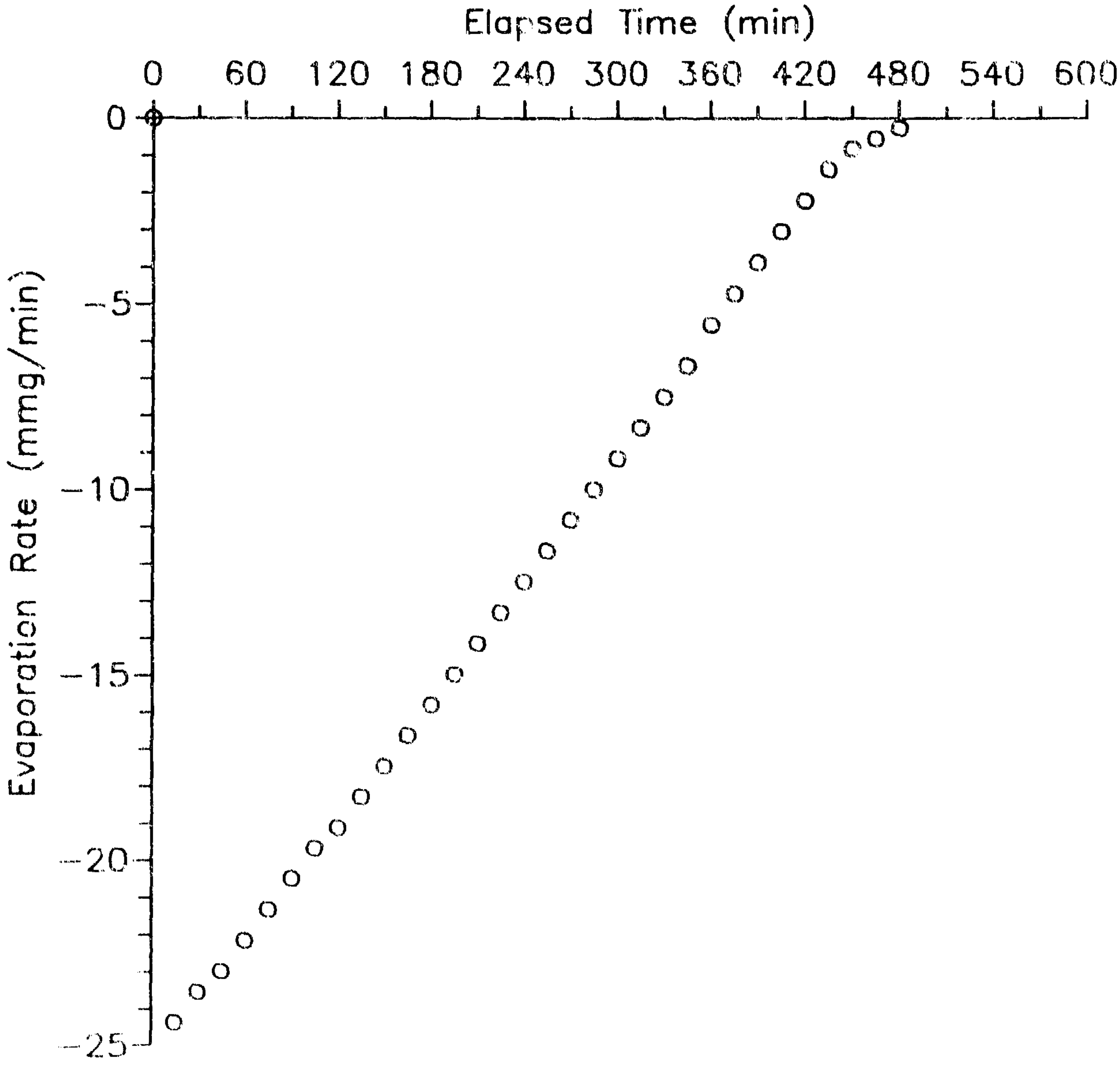


Figure H-8. Droplet Evaporation Rate Versus Time.

EVAPORATION EXPERIMENT NO. GLF9 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 44%

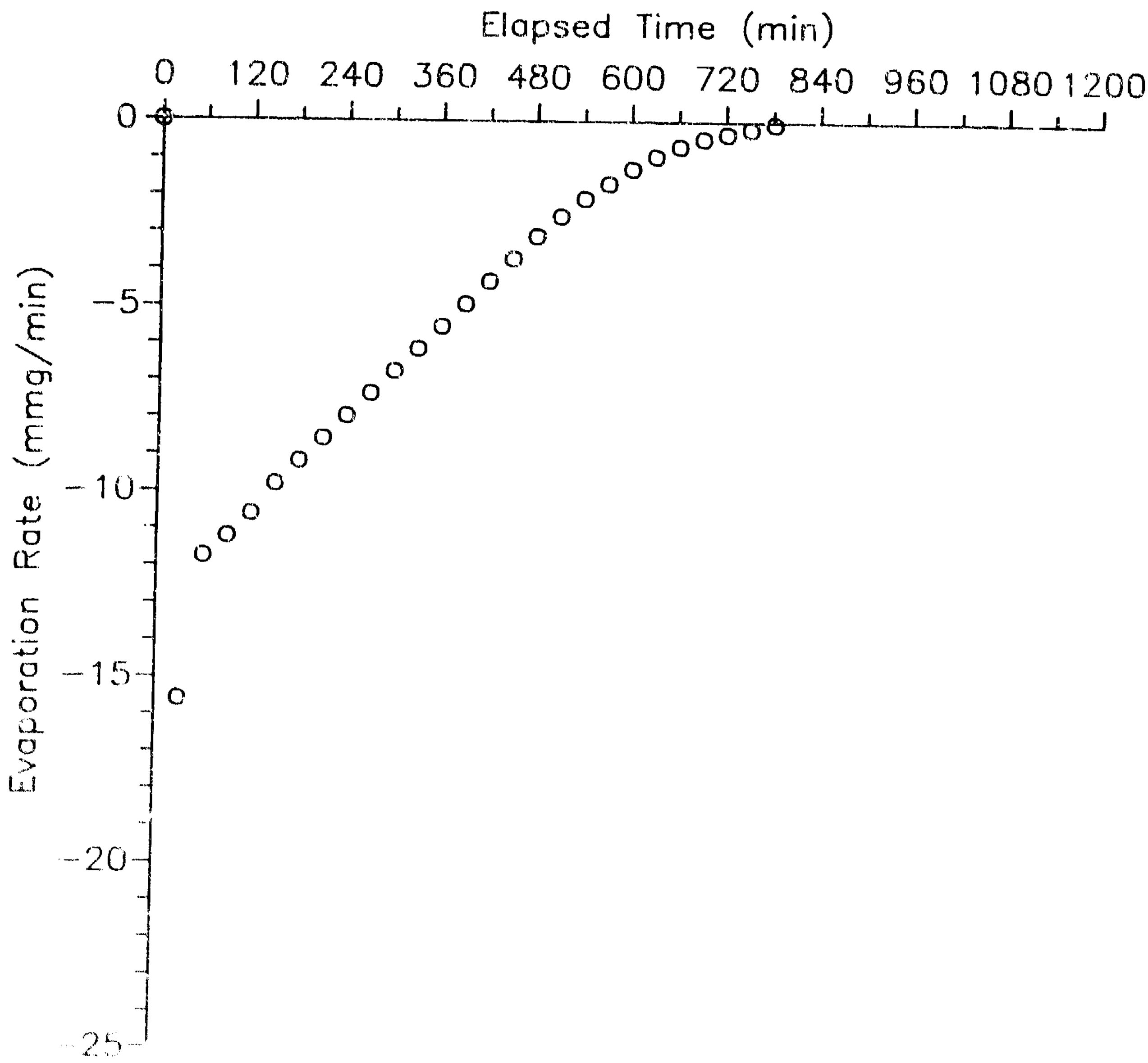


Figure H-9. Droplet Evaporation Rate Versus Time

EVAPORATION EXPERIMENT NO. GLF10 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 52%

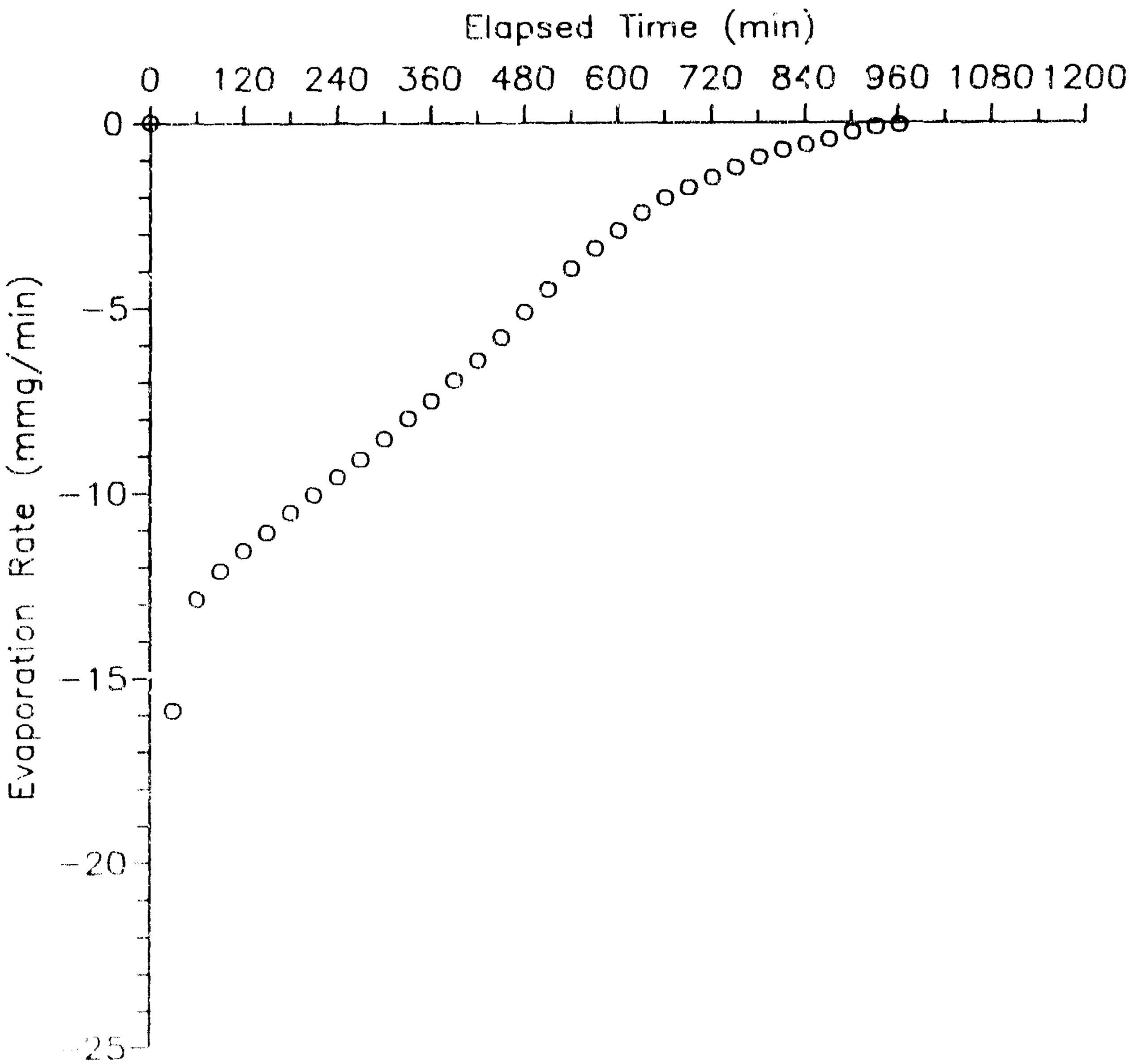


Figure H-10. Droplet Evaporation Rate Versus Time.

EVAPORATION EXPERIMENT NO. GLF11 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 55%

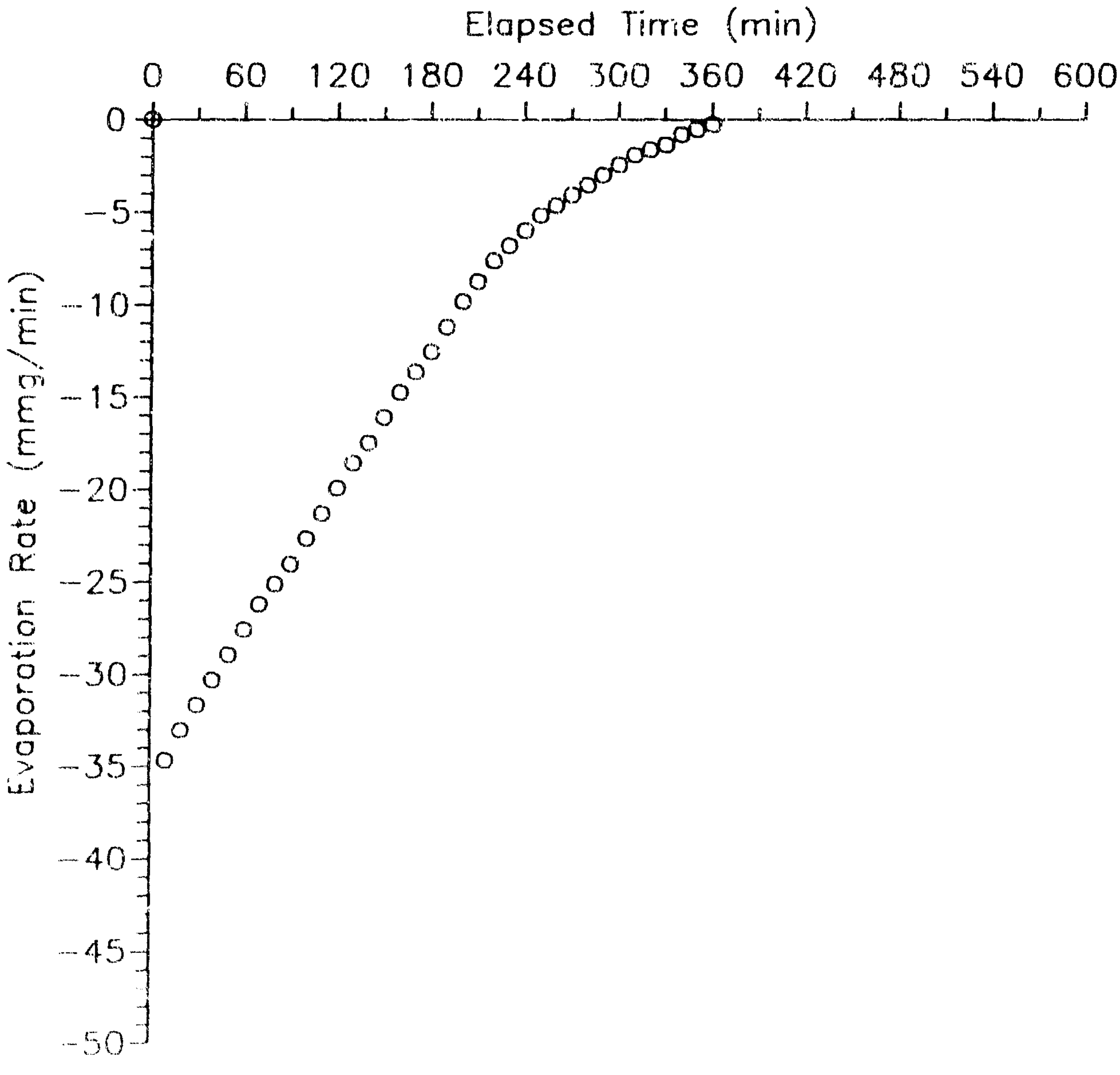


Figure H-11. Droplet Evaporation Rate Versus Time

EVAPORATION EXPERIMENT NO. GLF12 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

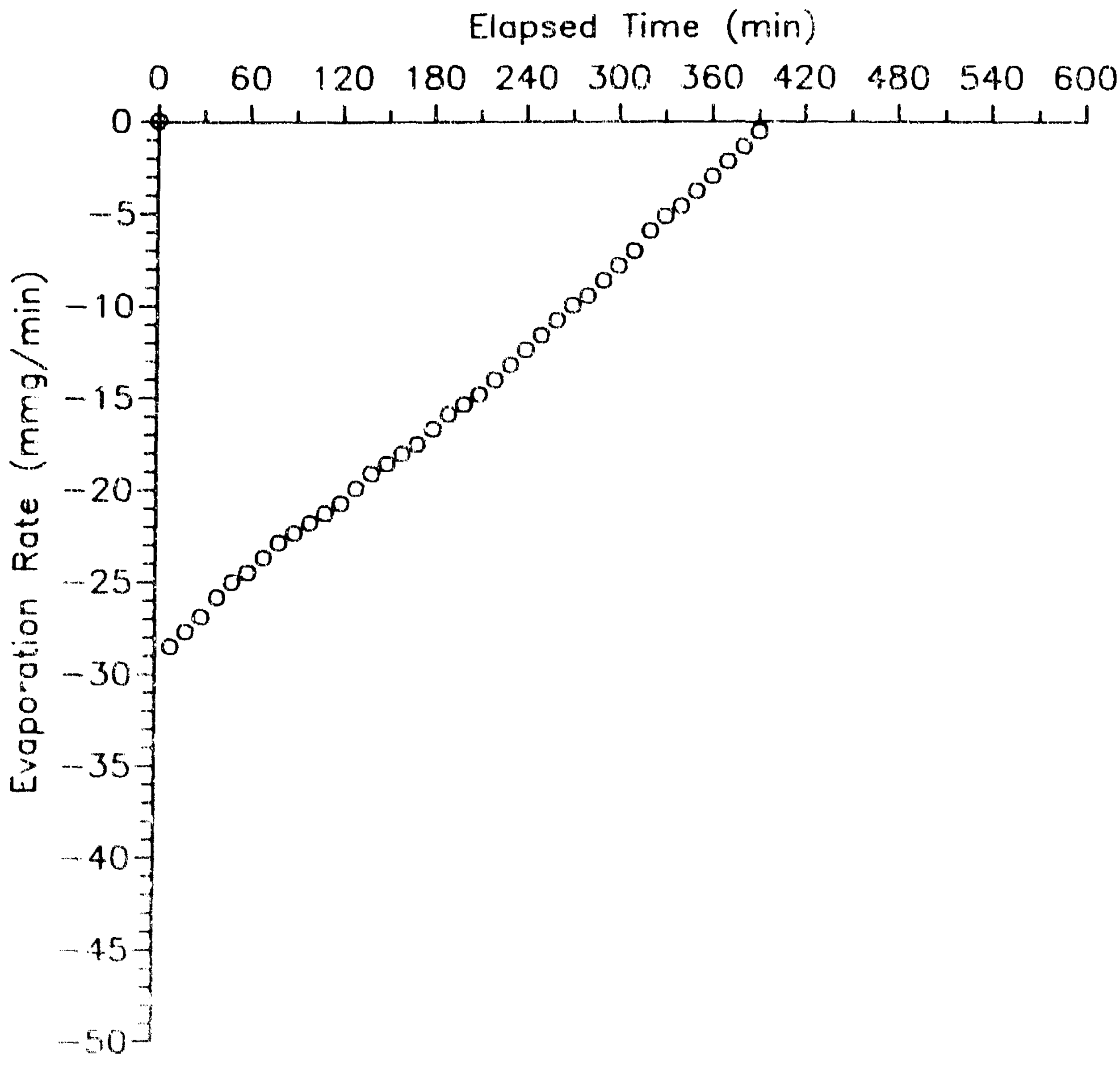


Figure H-12 Droplet Evaporation Rate Versus Time

EVAPORATION EXPERIMENT NO. GLF13 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 44%

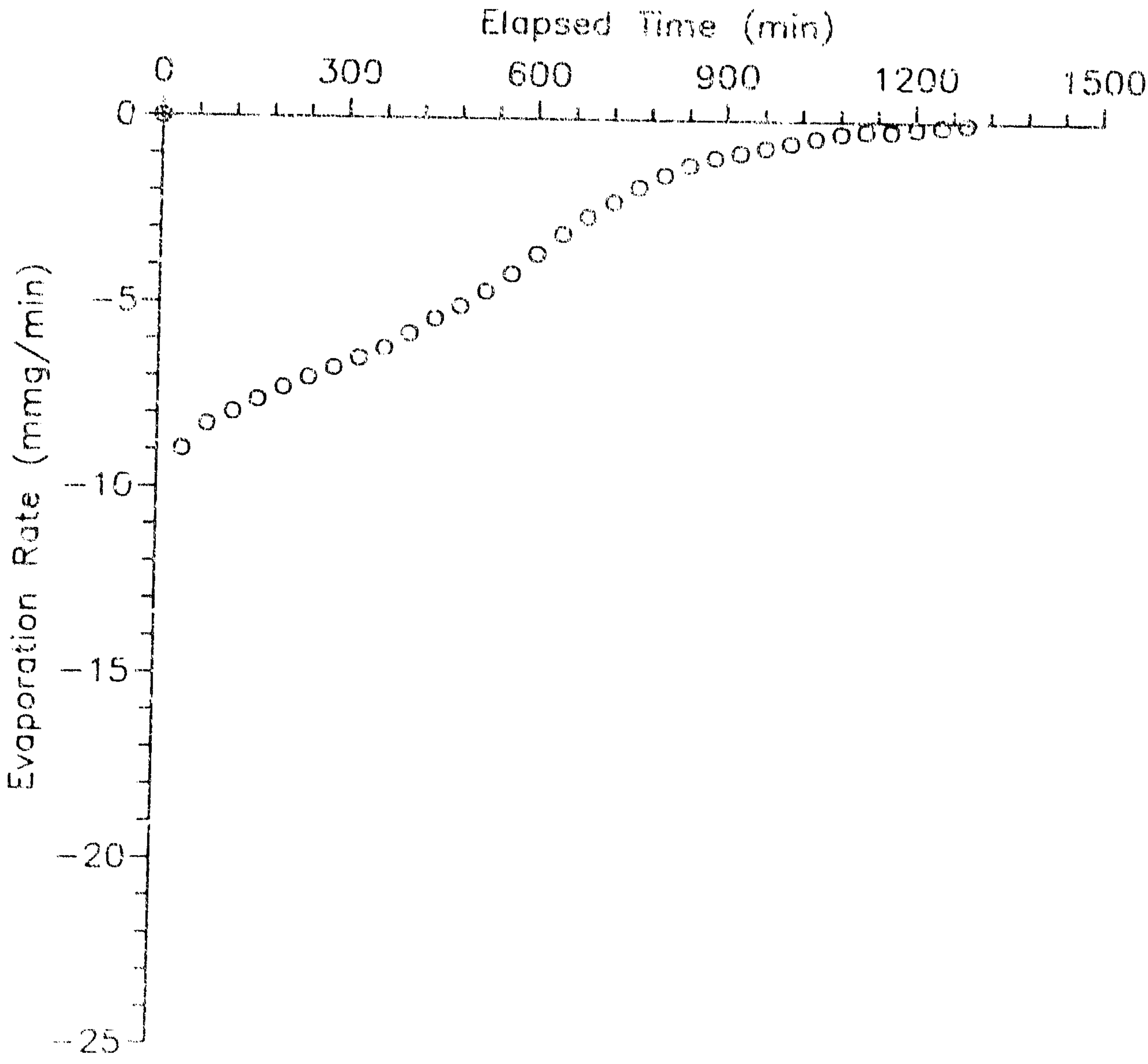


Figure H-13. Droplet Evaporation Rate Versus Time.

EVAPORATION EXPERIMENT NO. GLF14 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 43%

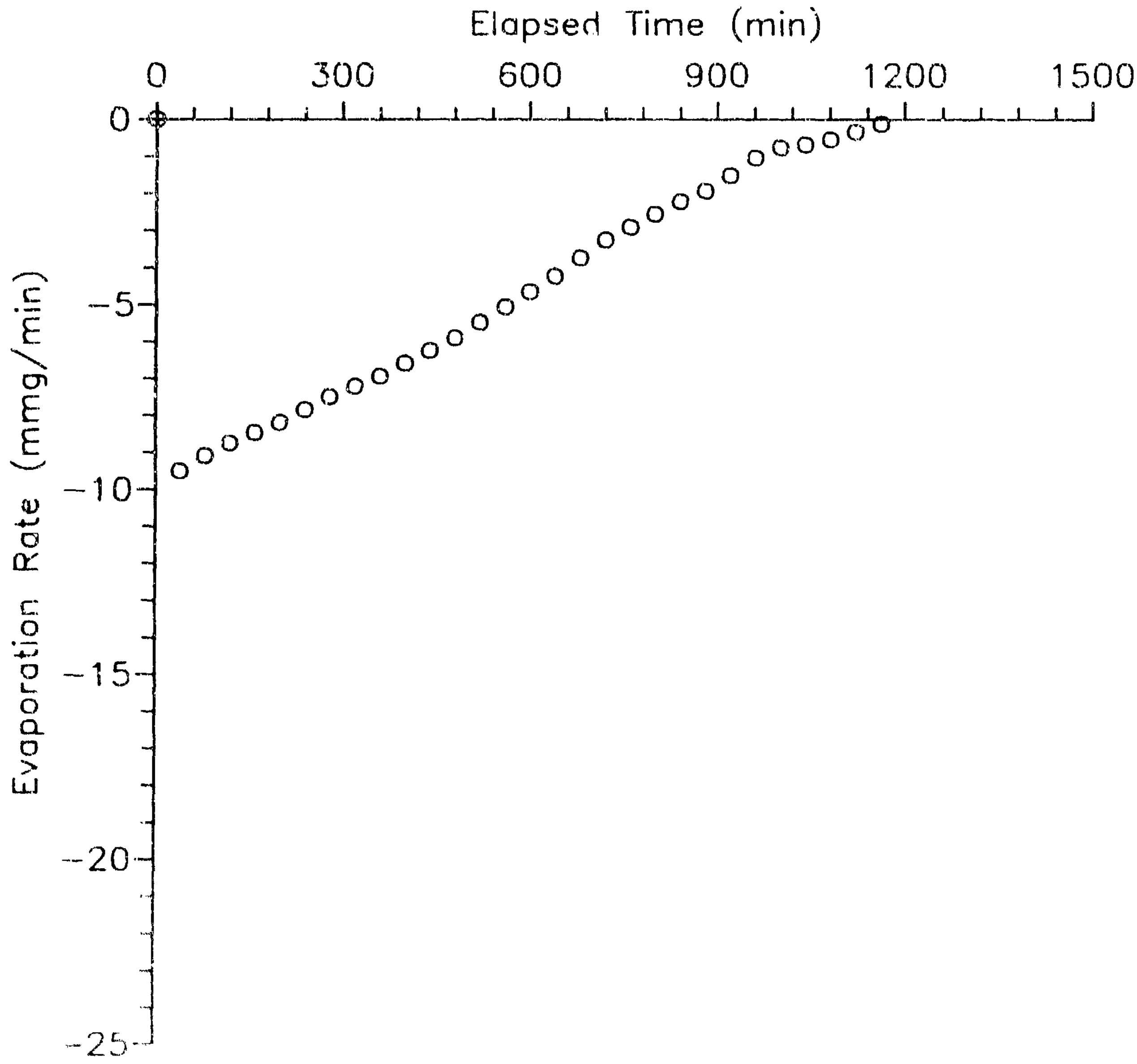


Figure H-14. Droplet Evaporation Rate Versus Time.

EVAPORATION EXPERIMENT NO. GLF15 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

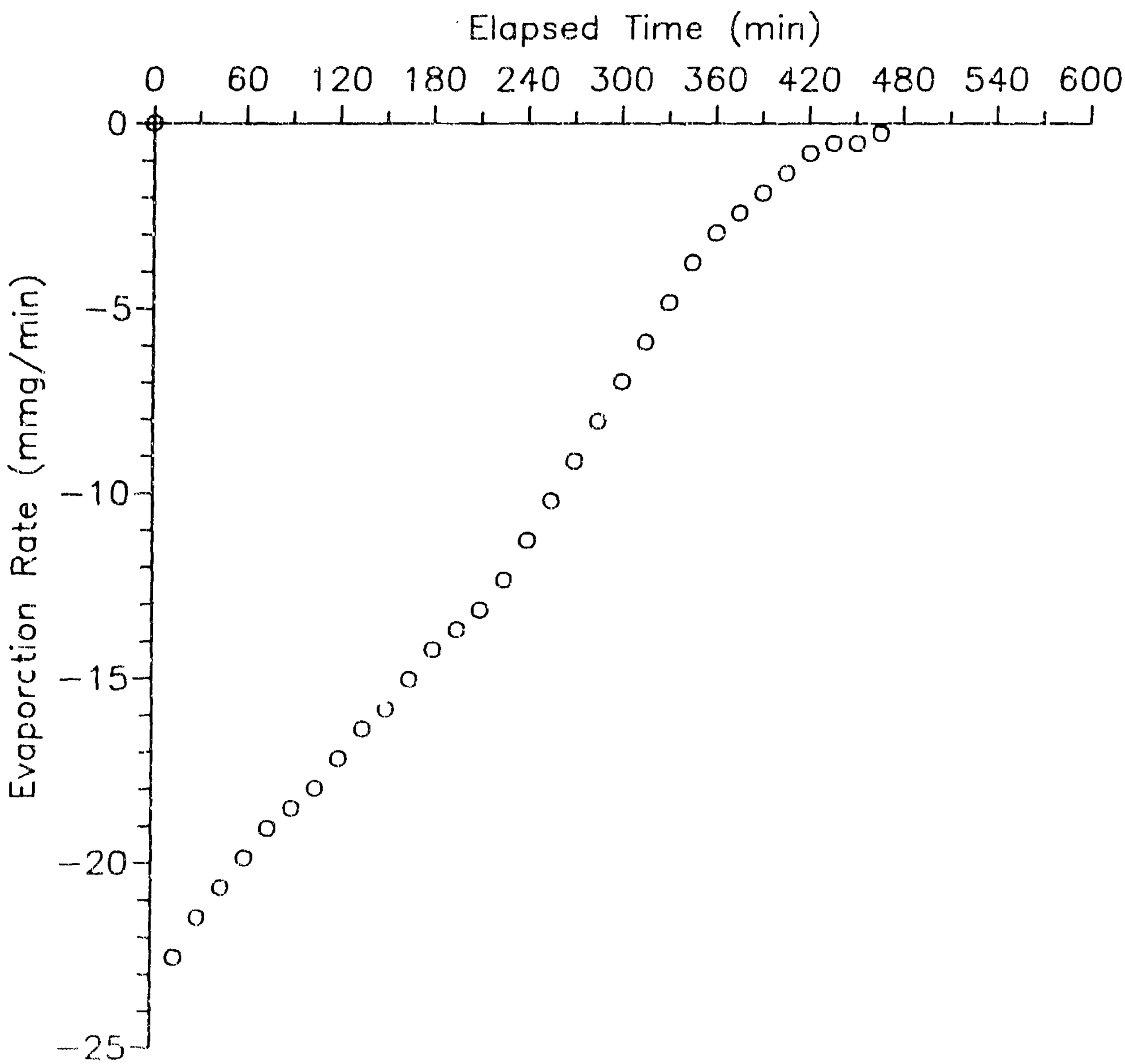


Figure H-15. Droplet Evaporation Rate Versus Time.

EVAPORATION EXPERIMENT NO. GLF16 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

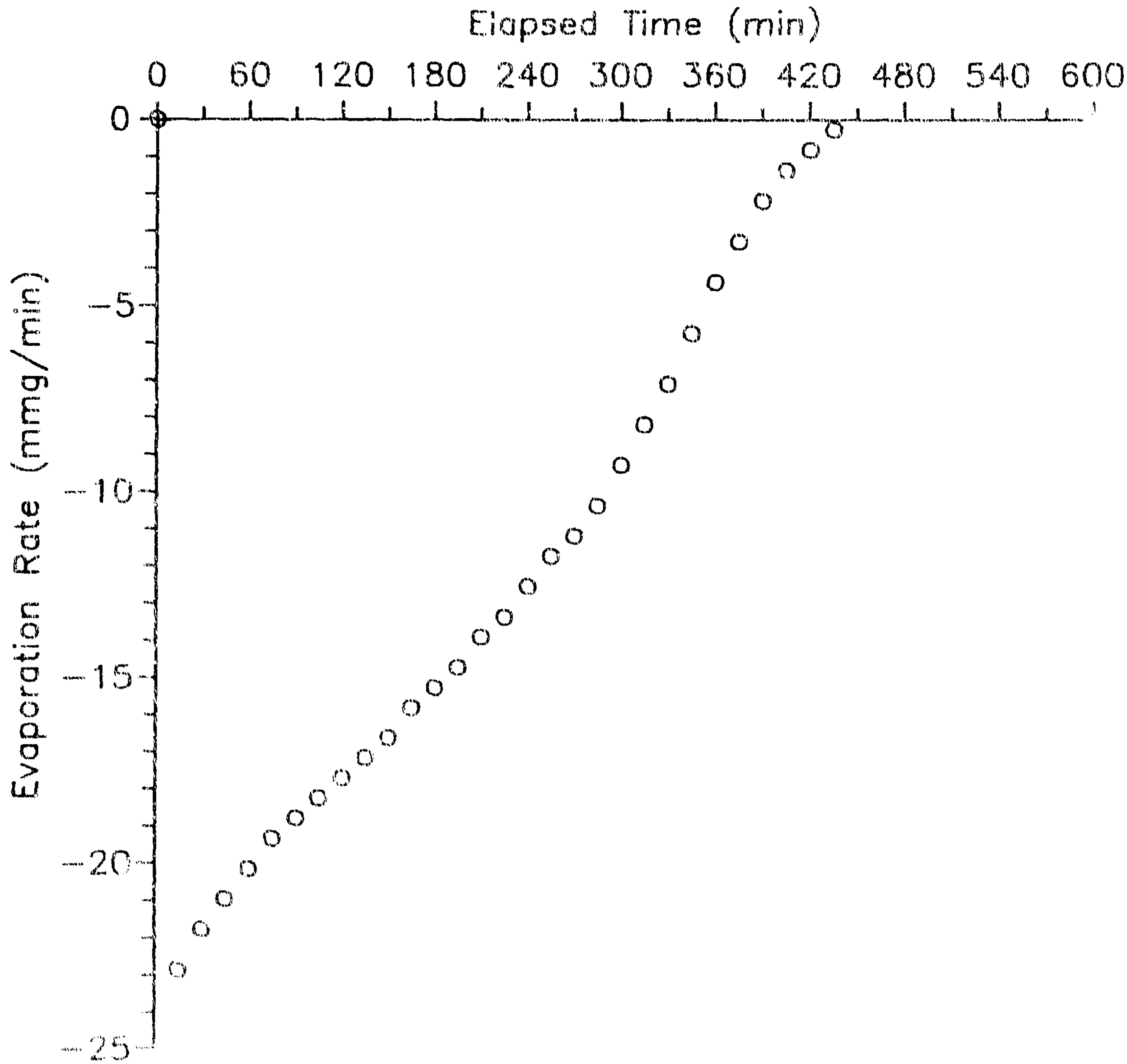


Figure H-16. Droplet Evaporation Rate Versus Time.

EVAPORATION EXPERIMENT NO. BLF1 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

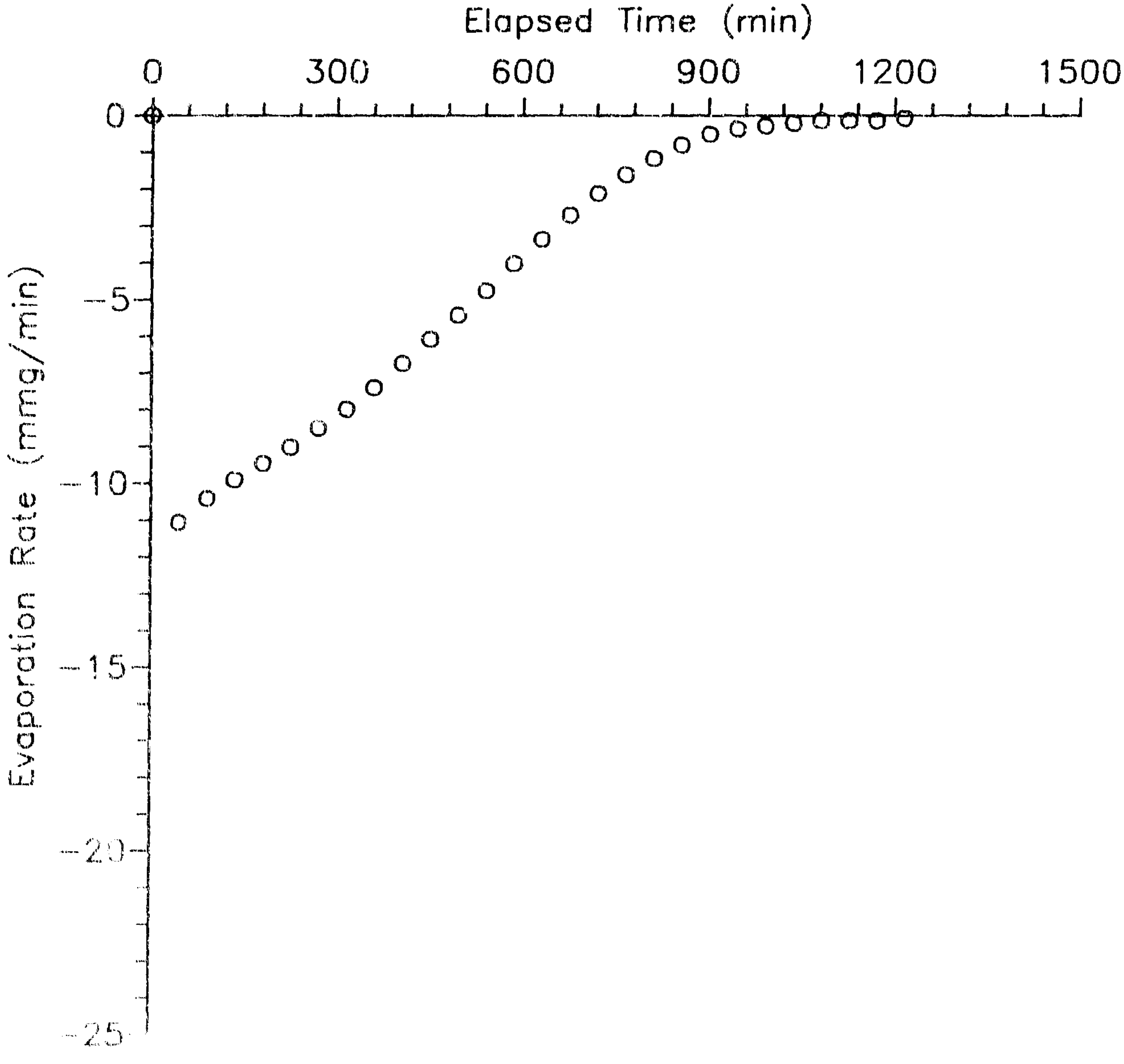


Figure H-17. Droplet Evaporation Rate Versus Time

EVAPORATION EXPERIMENT NO. BLF2 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 2.9 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

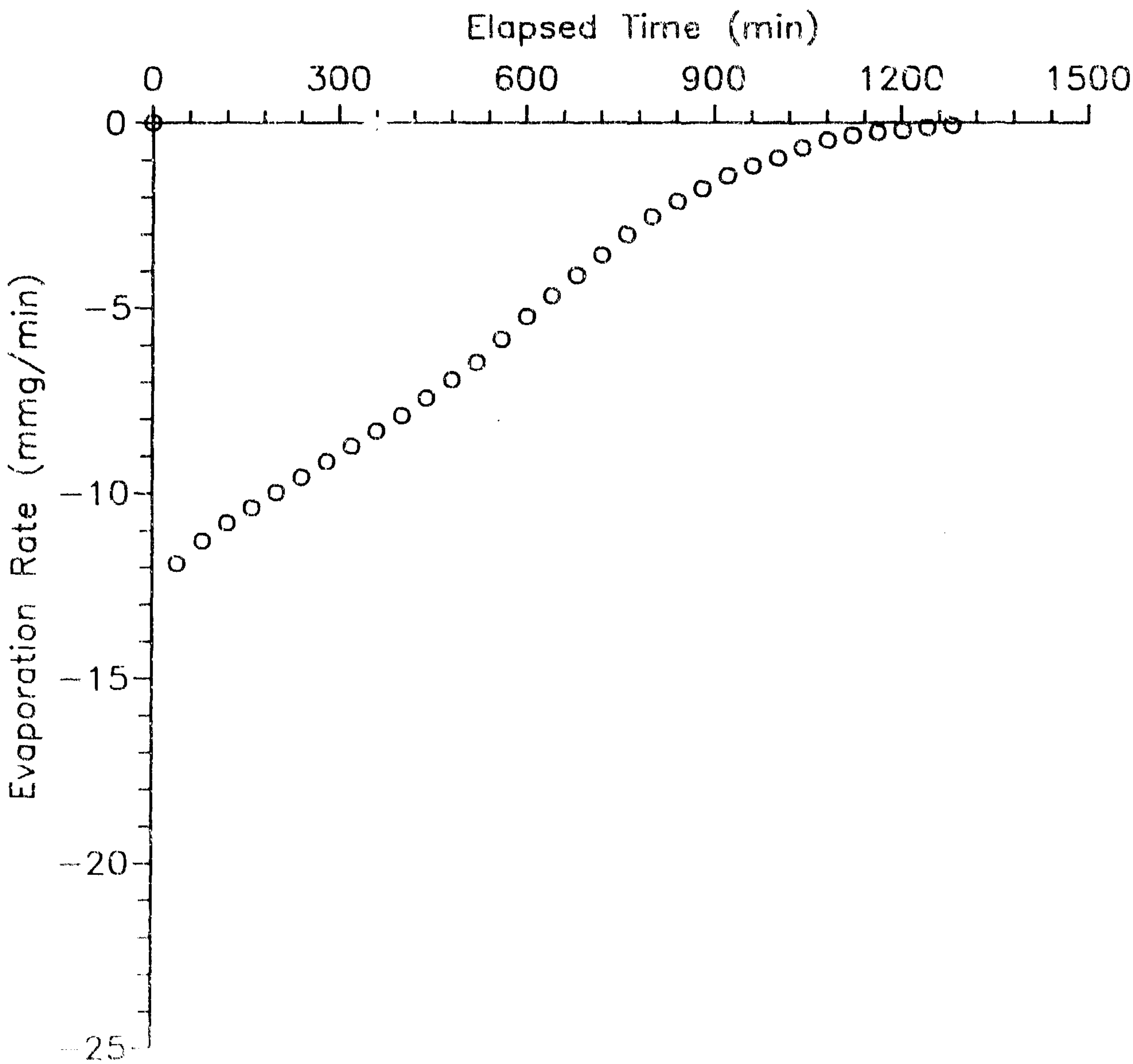


Figure H-18. Droplet Evaporation Rate Versus Time.

EVAPORATION EXPERIMENT NO. BLF3 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

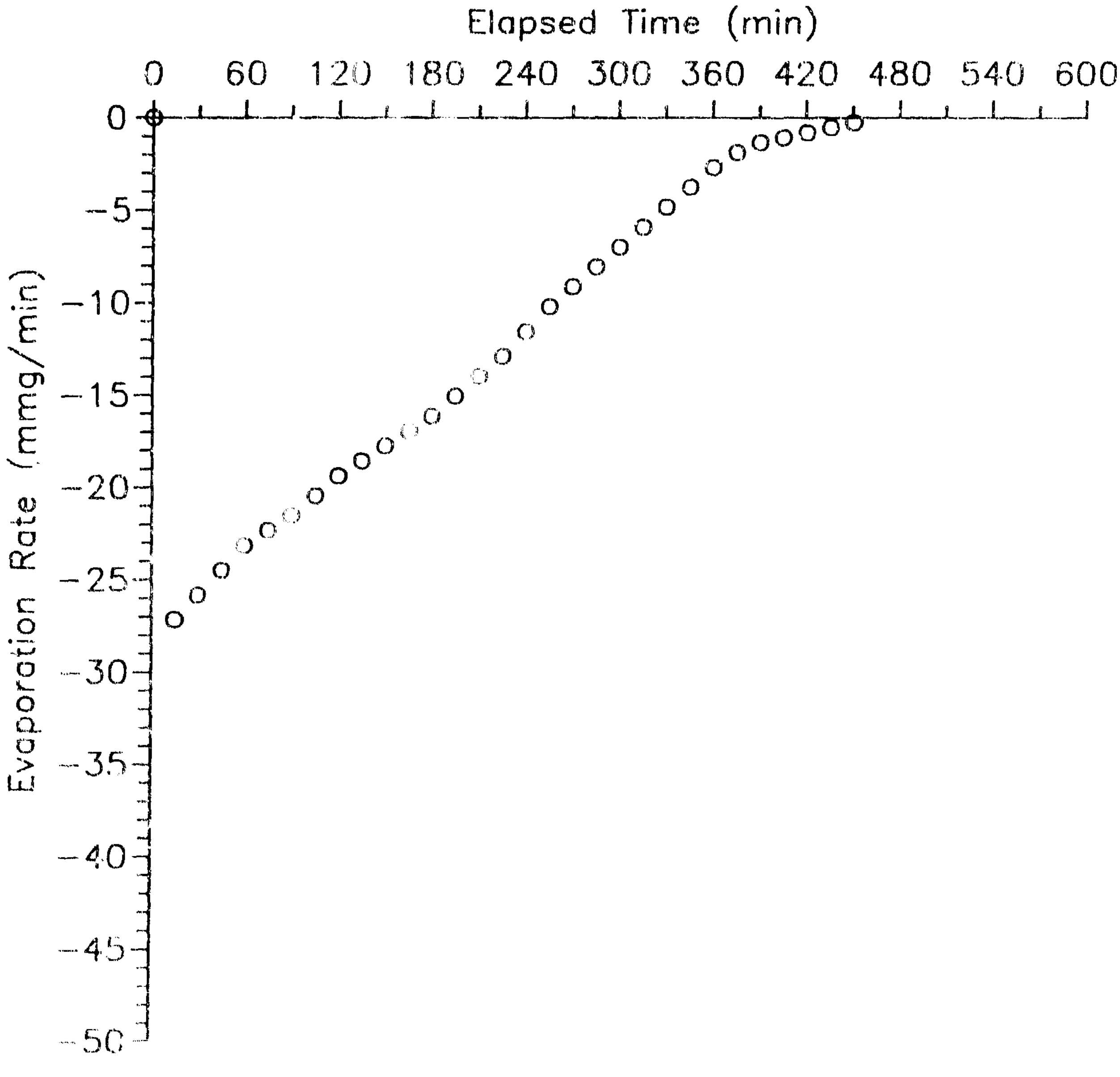


Figure 19. [illegible] Evaporation Rate [illegible]

EVAPORATION EXPERIMENT NO. BLF4 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 20%

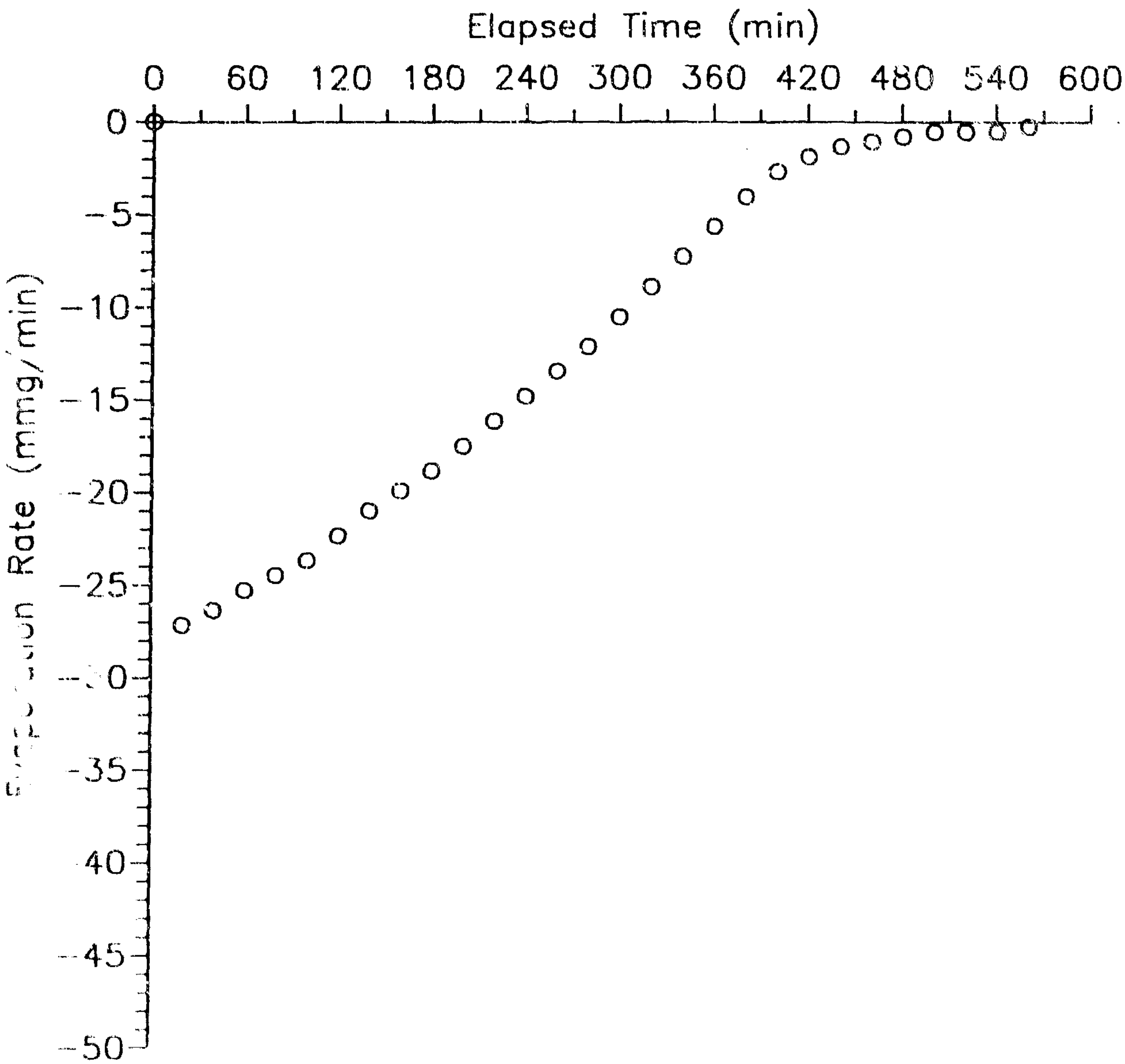


Figure H-20. Droplet Evaporation Rate Versus Time.

EVAPORATION EXPERIMENT NO. BLF5 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

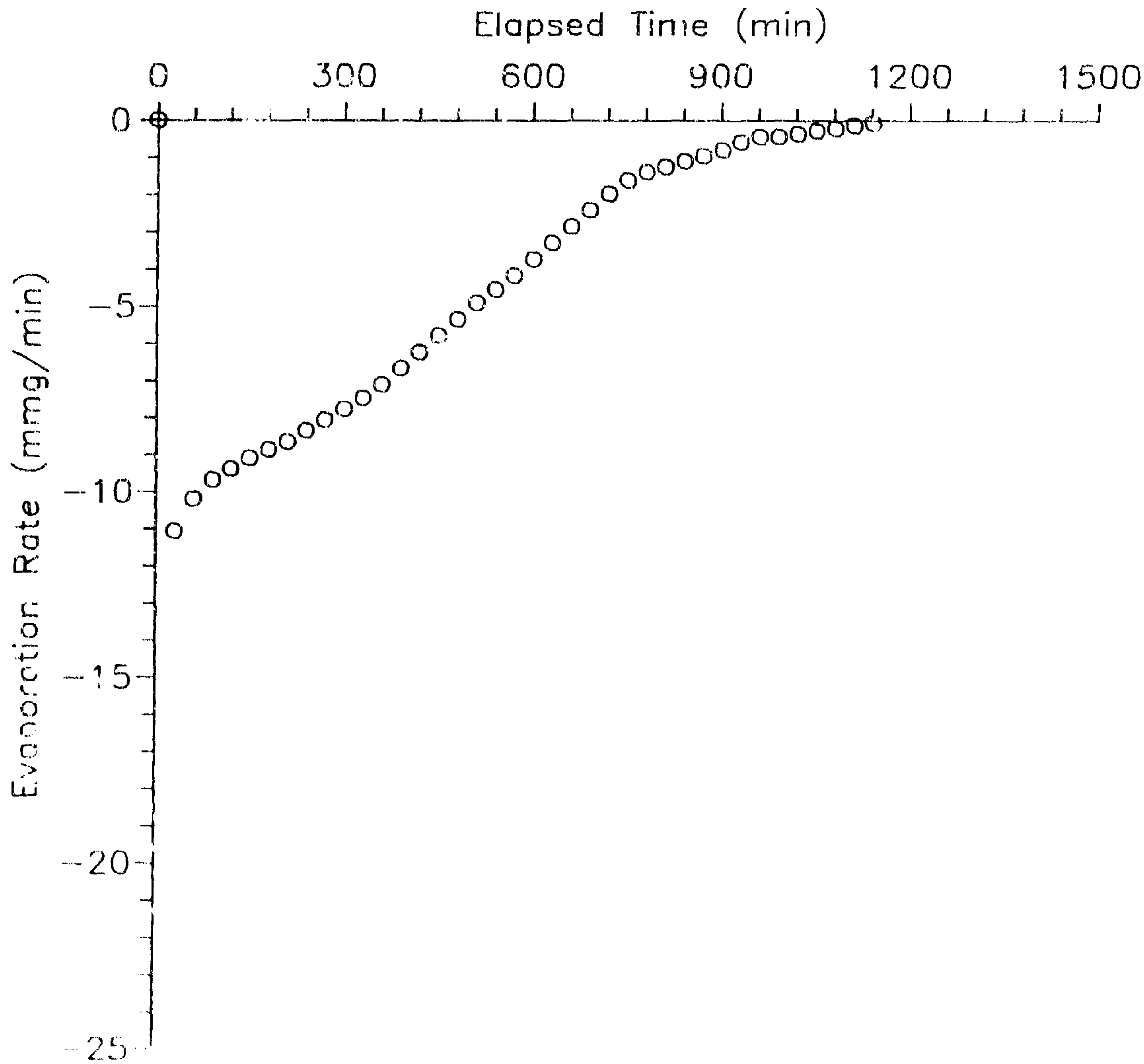


Figure H-21 Droplet Evaporation Rate Versus Time

EVAPORATION EXPERIMENT NO. BLF6 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 2.9 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

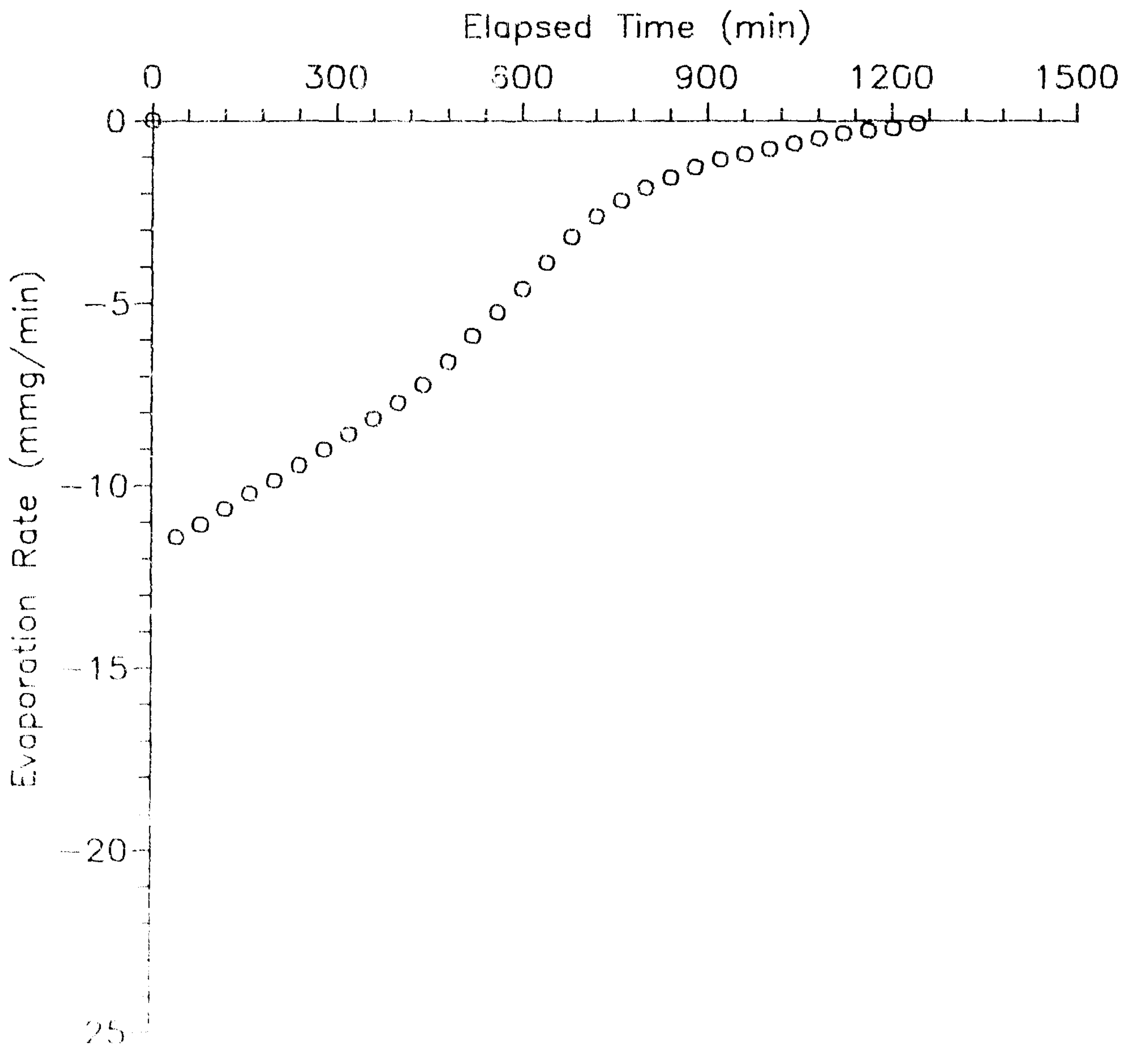


Figure H-22 Droplet Evaporation Rate Versus Time.

EVAPORATION EXPERIMENT NO. BLF7 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

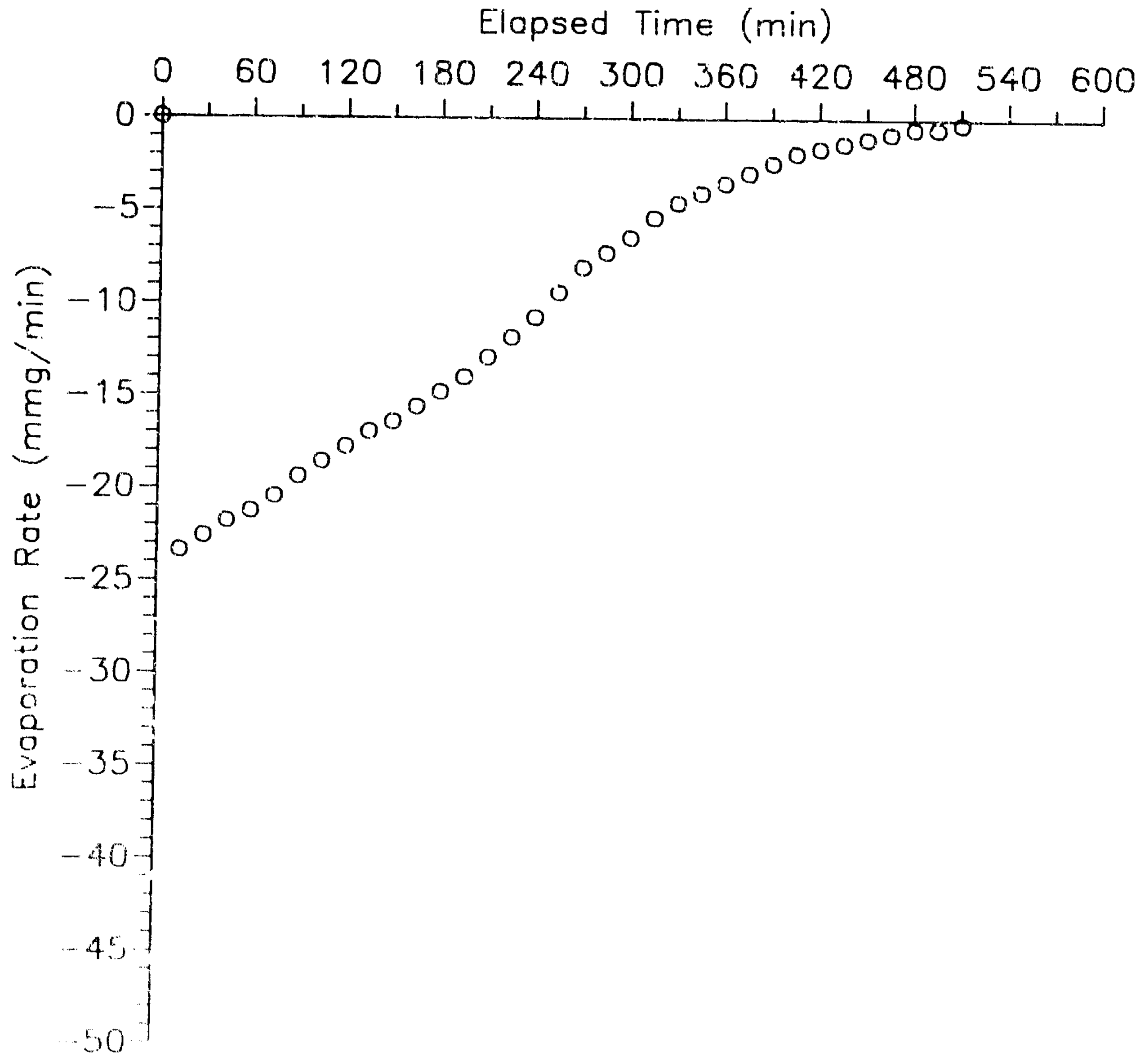


Figure H-23 Droplet Evaporation Rate Versus Time

EVAPORATION EXPERIMENT NO. BLF8 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 50%

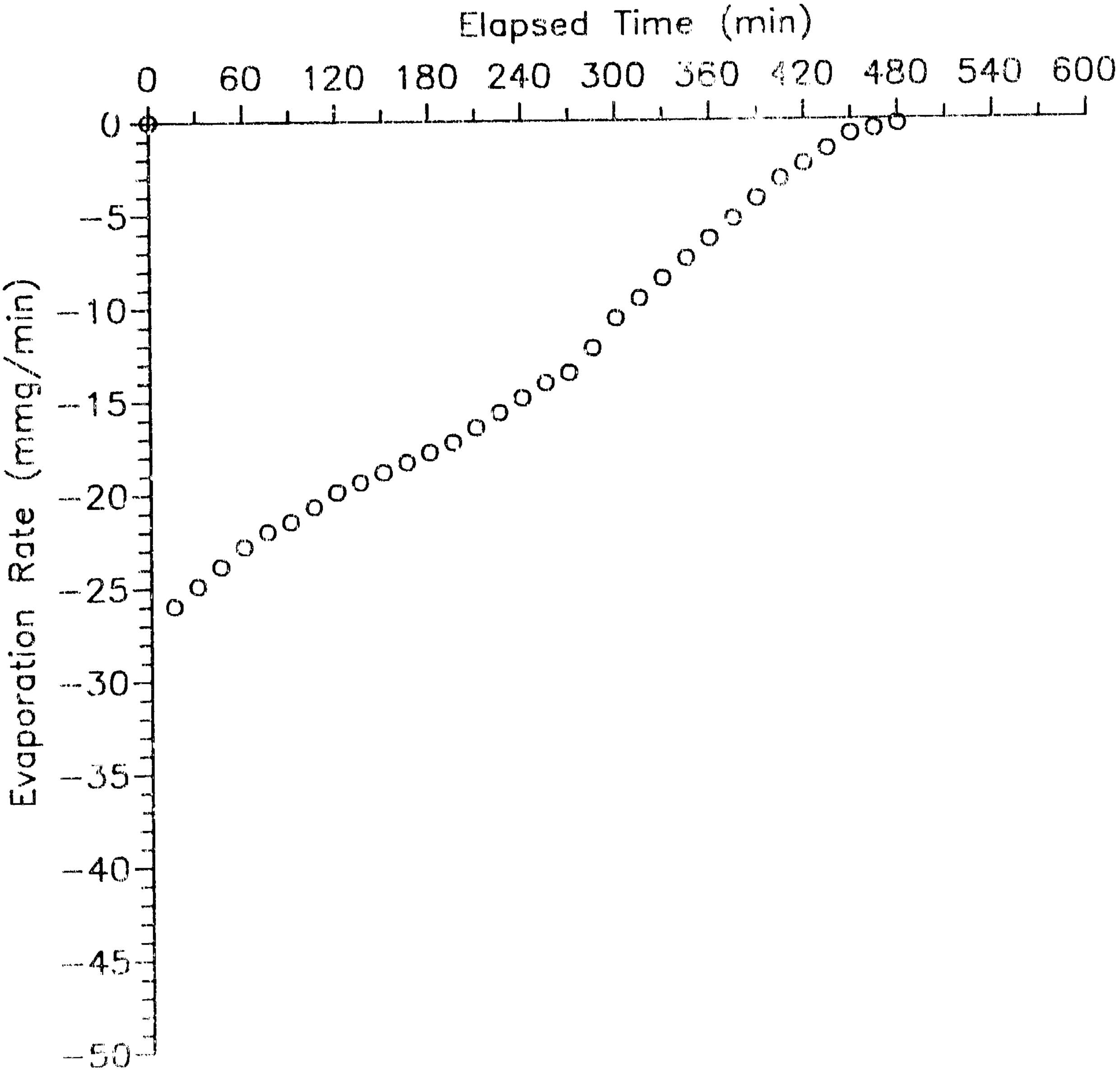


Figure H-24. Droplet Evaporation Rate Versus Time.

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# APPENDIX I

## PLOTS OF FRACTIONAL DROPLET MASS VERSUS DROPLET HALF-LIFE

EVAPORATION EXPERIMENT NO. GLF1 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 45%

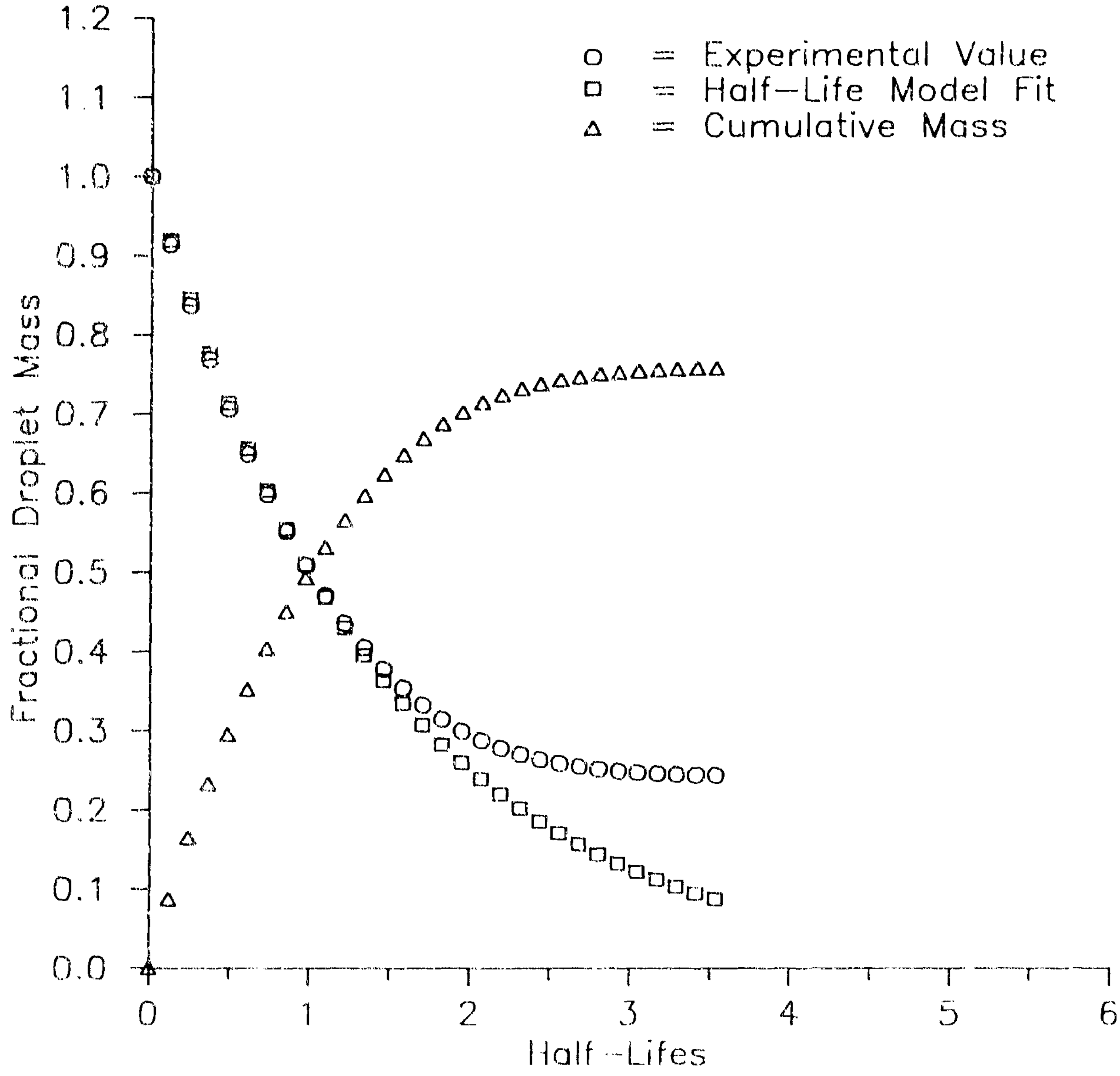


Figure I-1. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. GLF2 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

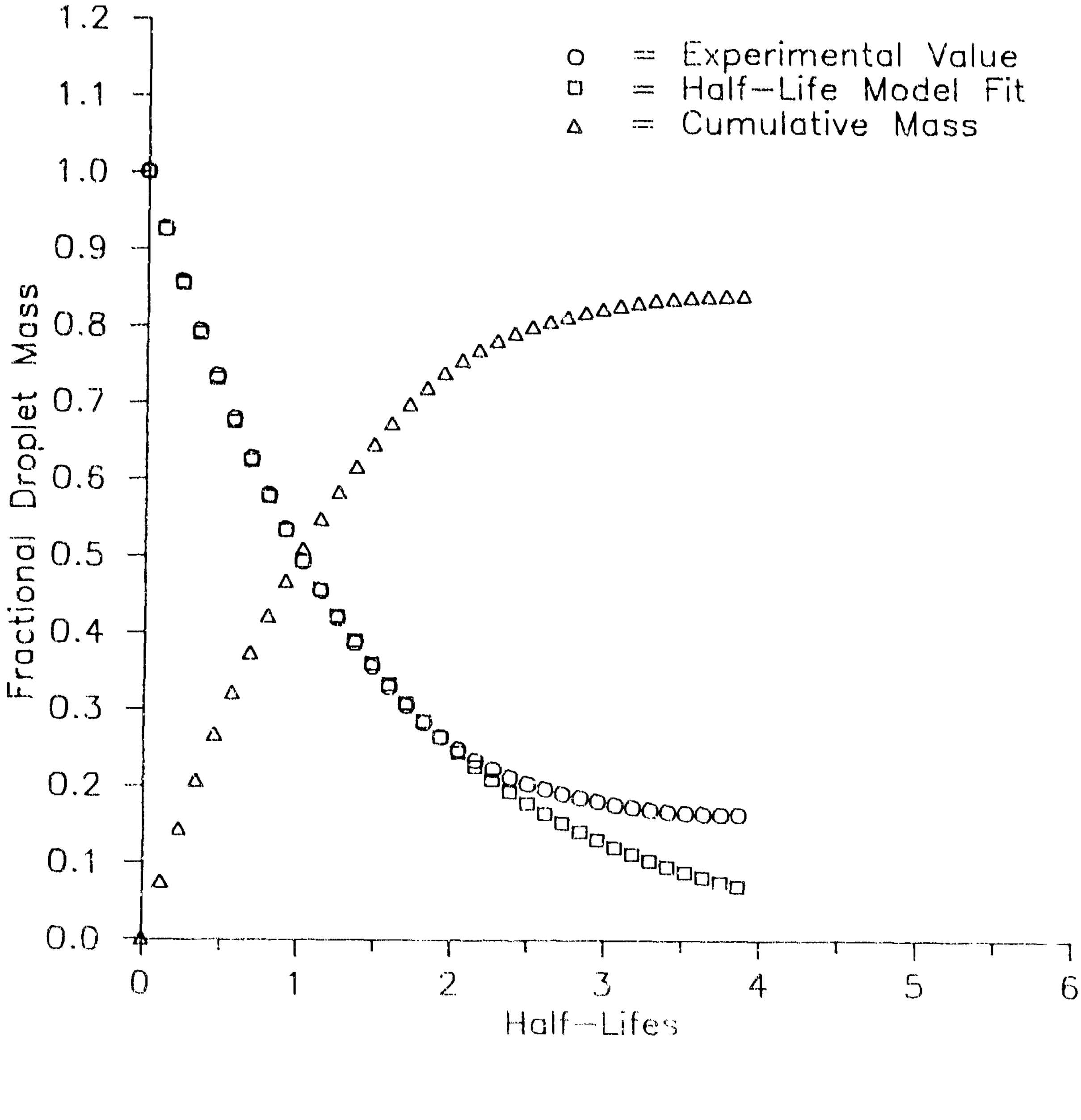


Figure I-2. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. GLF3 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/TOP SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

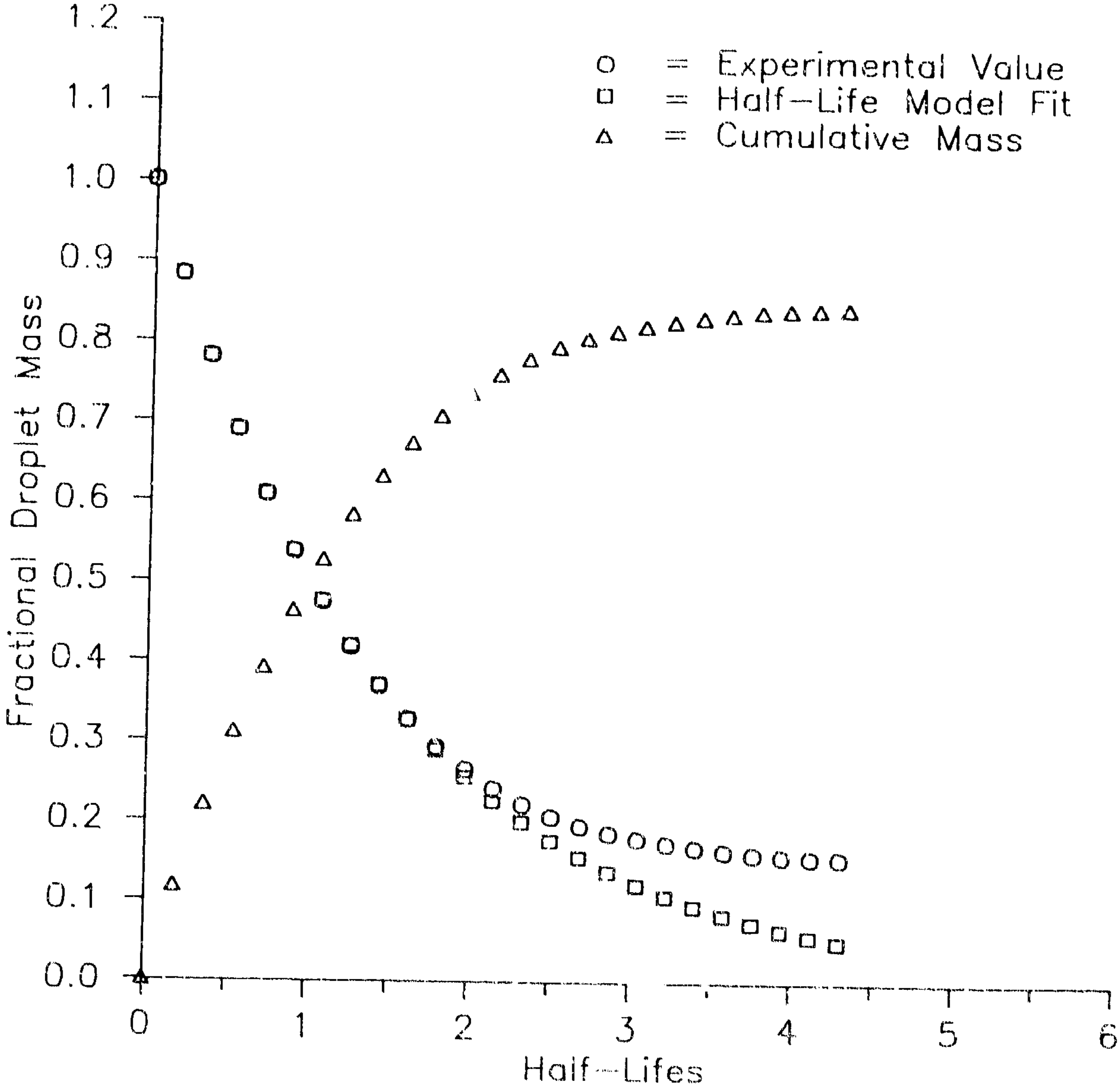


Figure I-3. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. GLF4 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/TOP SURFACE
WINDSPEED 11 MPH AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

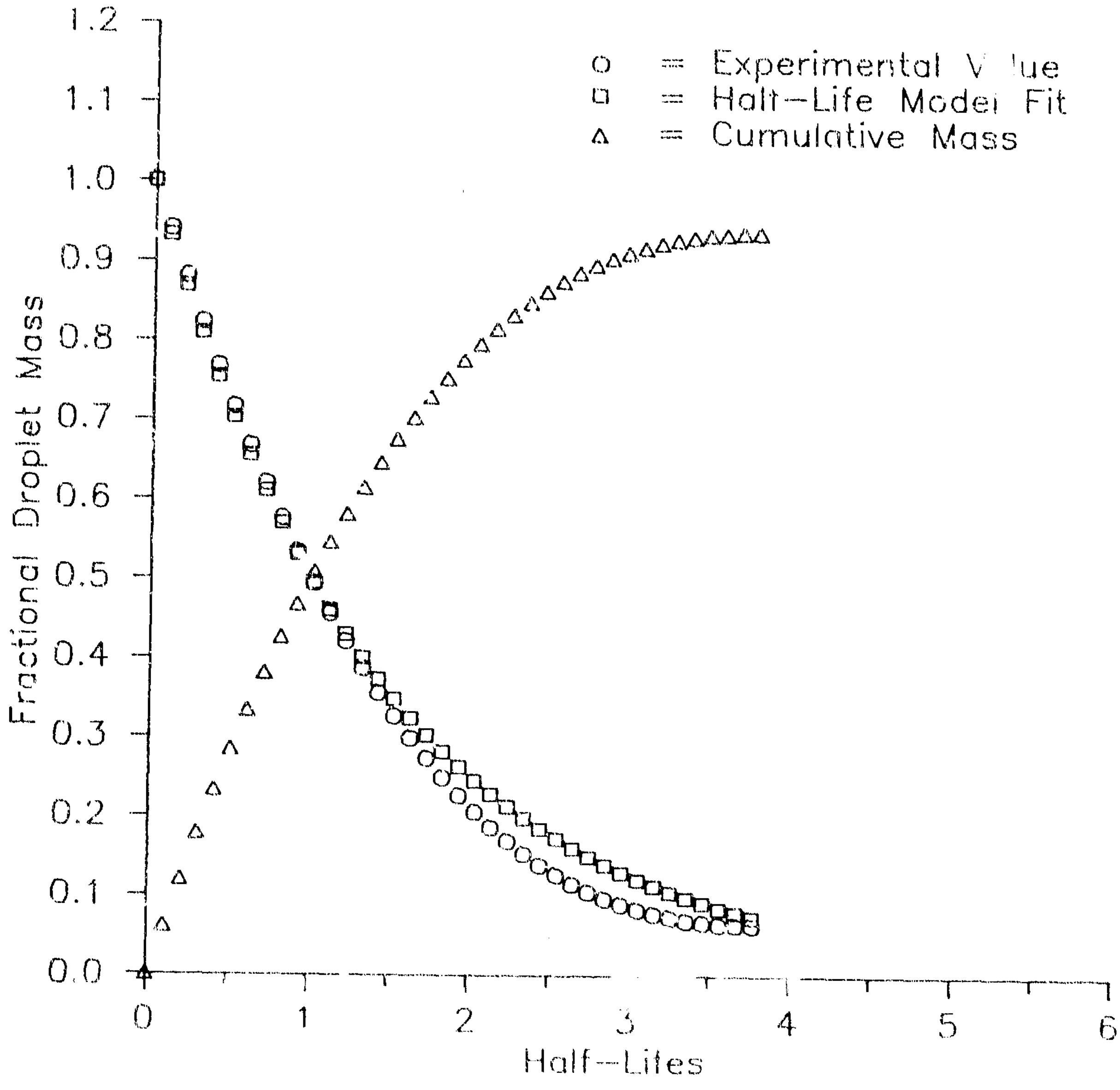


Figure I-4. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. GLF5 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/BOTTOM
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 58%

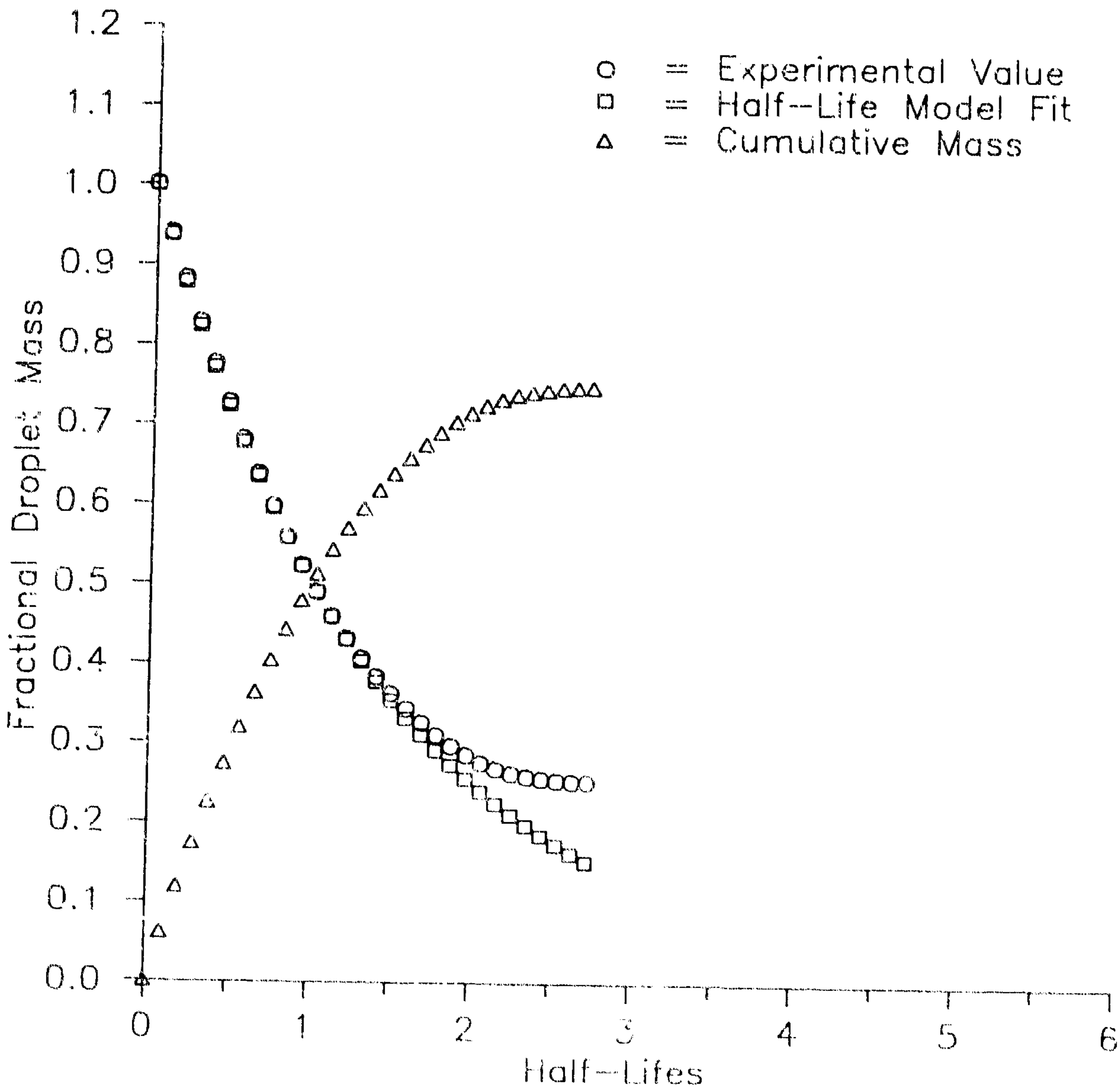


Figure I-5. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. GLF6 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/BOTTOM
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 55%

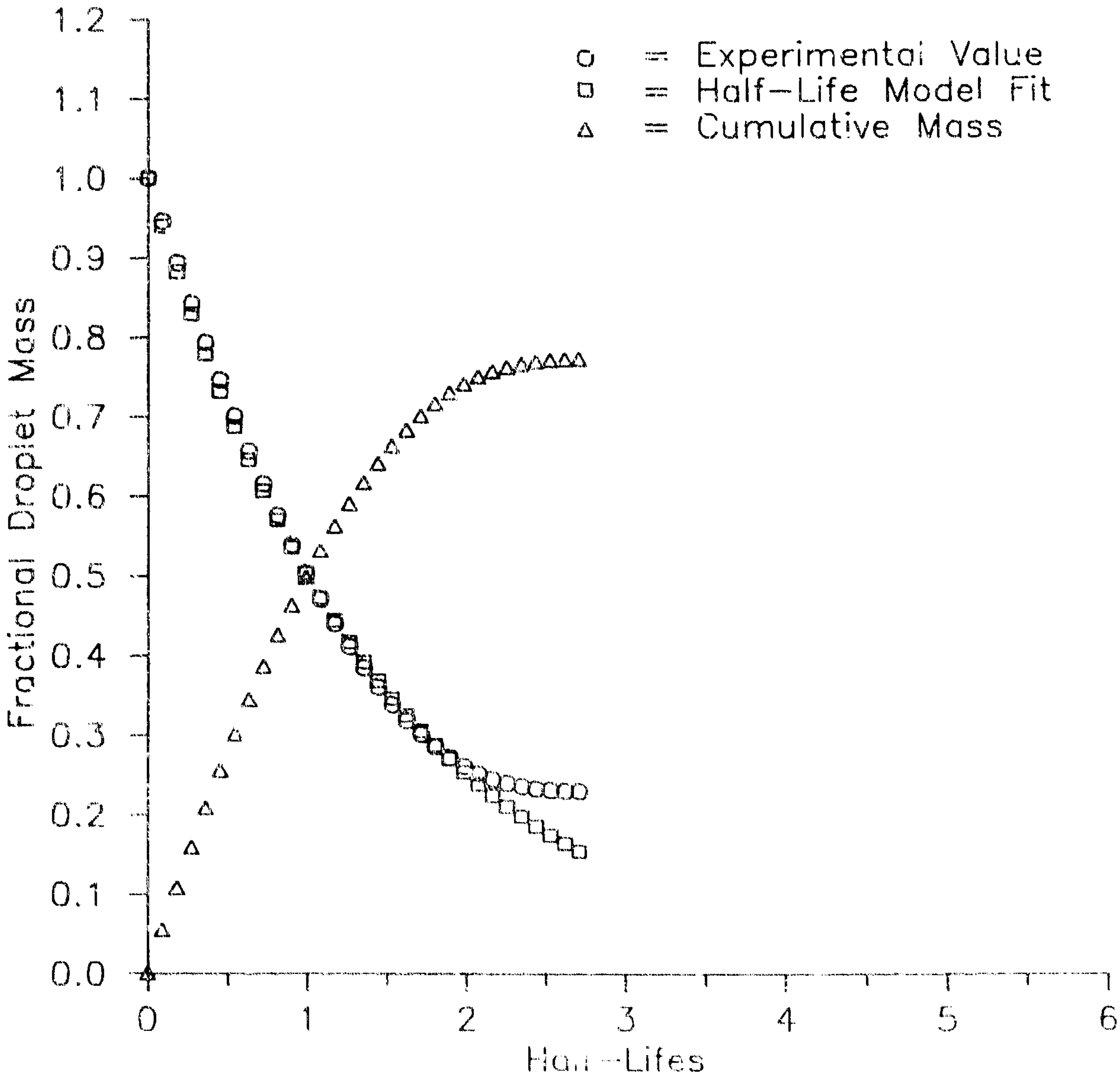


Figure I-6. Fractional Droplet Mass Versus Droplet Half-Life

EVAPORATION EXPERIMENT NO. GLF7 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/BOTTOM
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

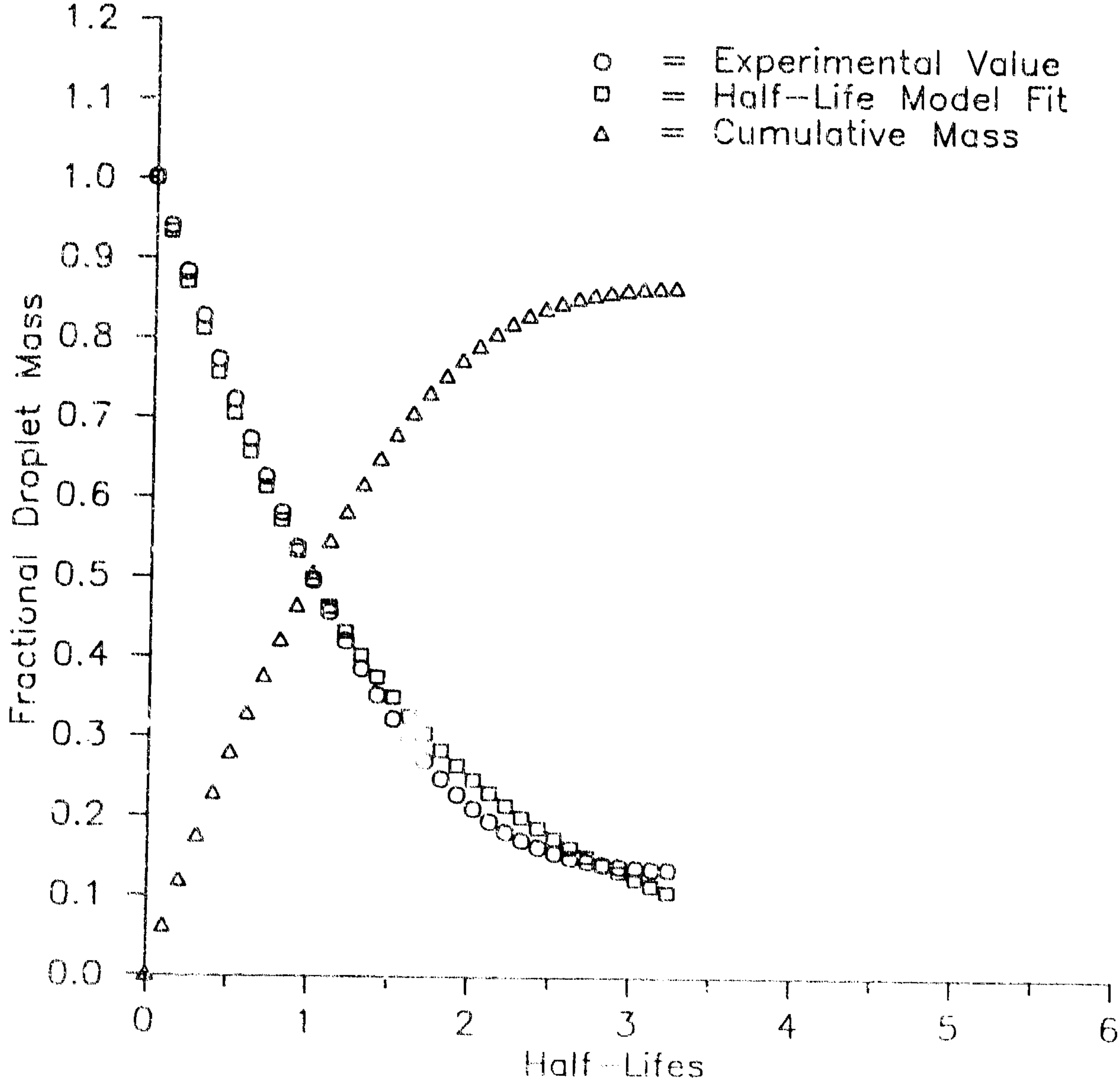


Figure I-7. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. GLF8 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON HICKORY LEAF/BOTTOM
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 50%

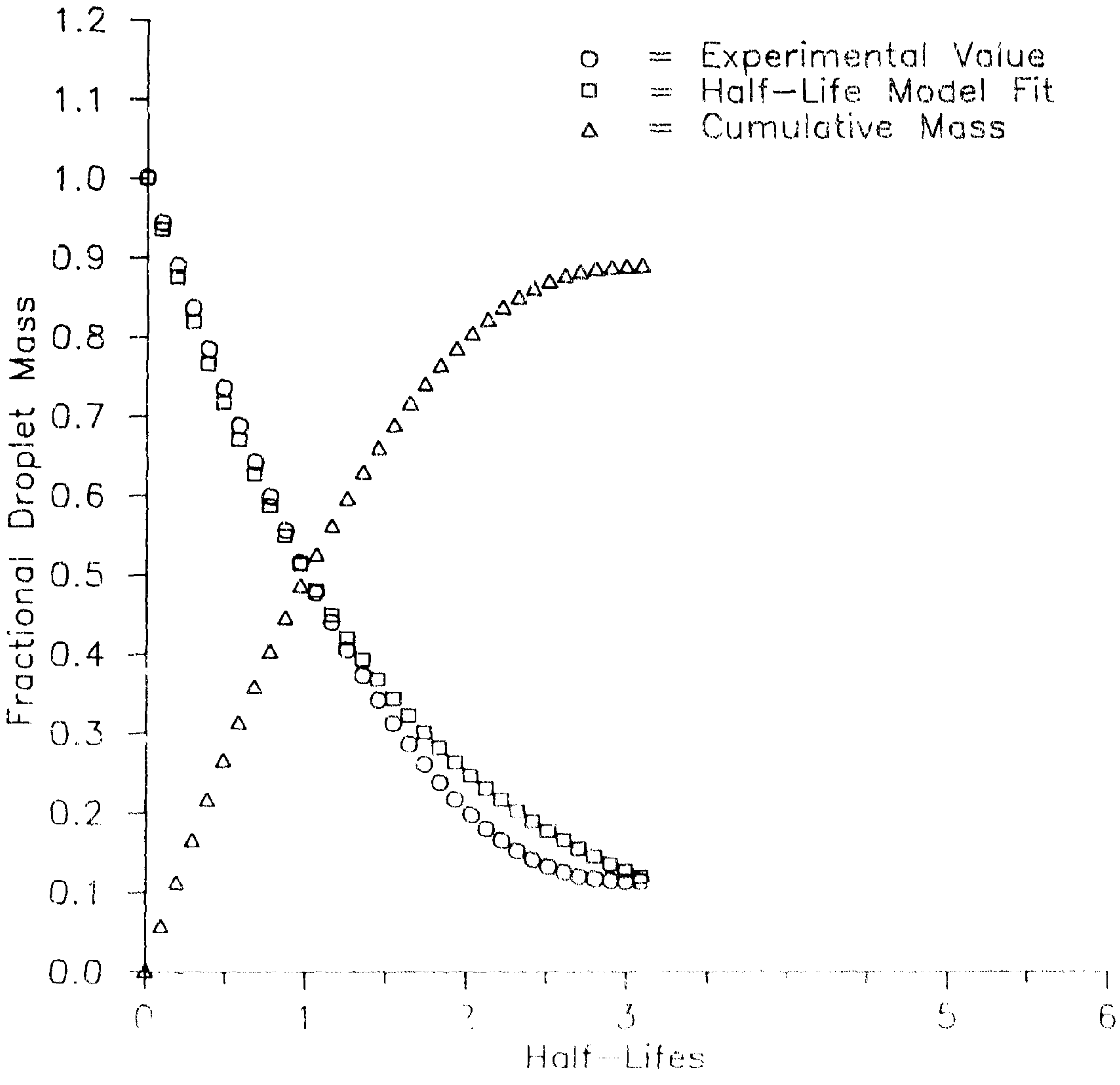


Figure I-8. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. GLF9 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 44%

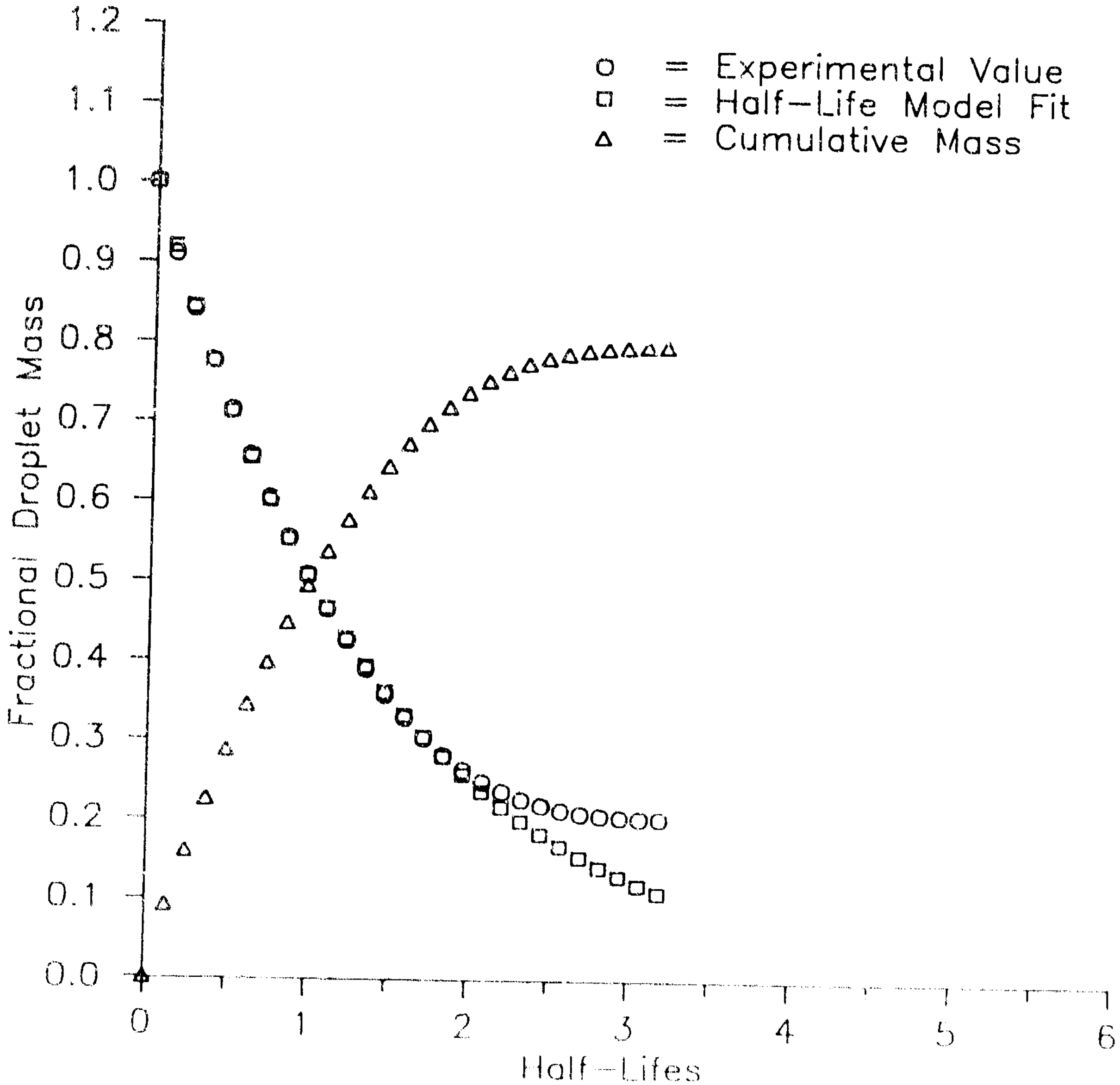


Figure I-9. Fractional Droplet Mass Versus Droplet Half Life.

EVAPORATION EXPERIMENT NO. GLF10 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 52%

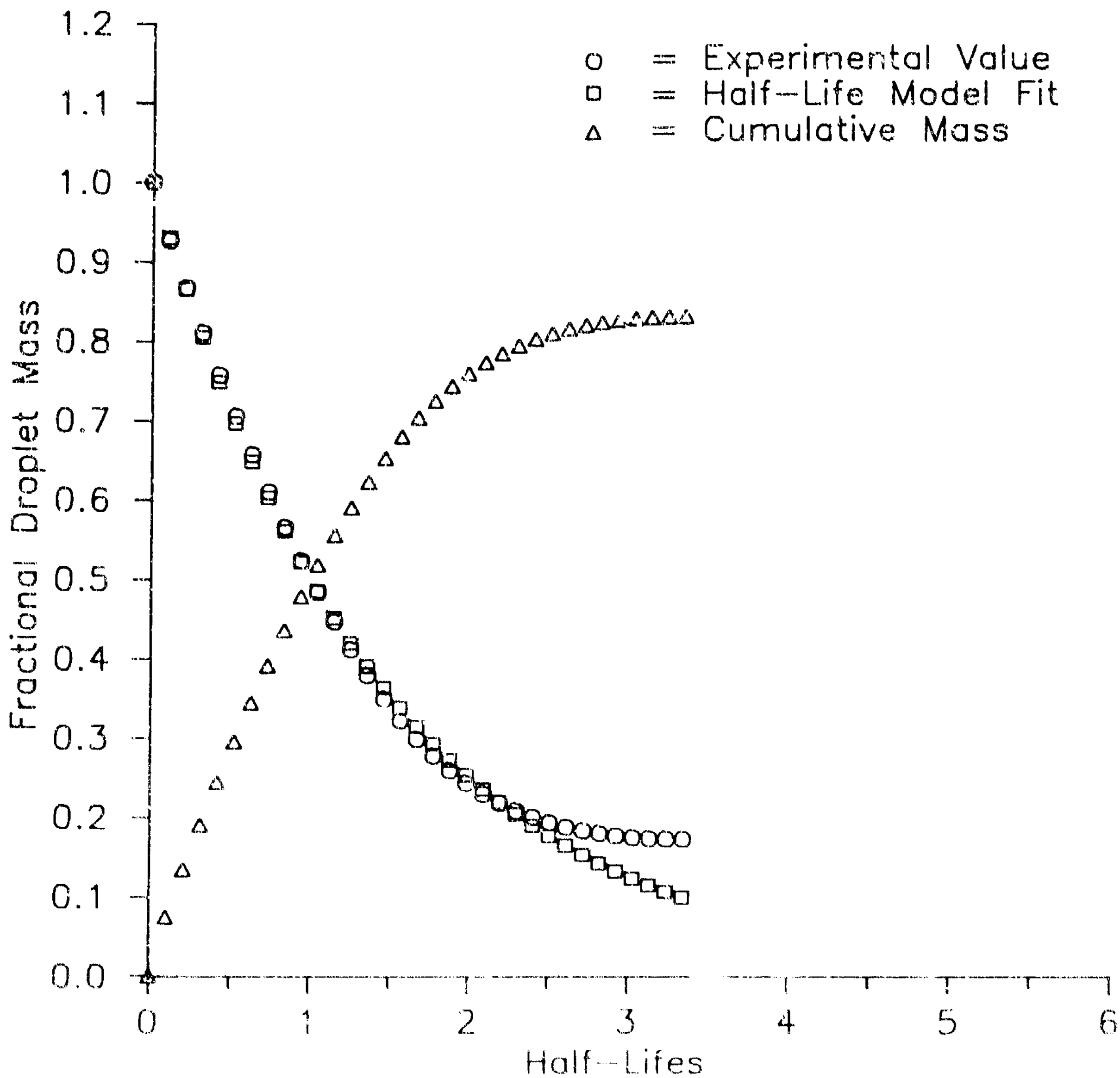


Figure I-10. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. GLF11 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 55%

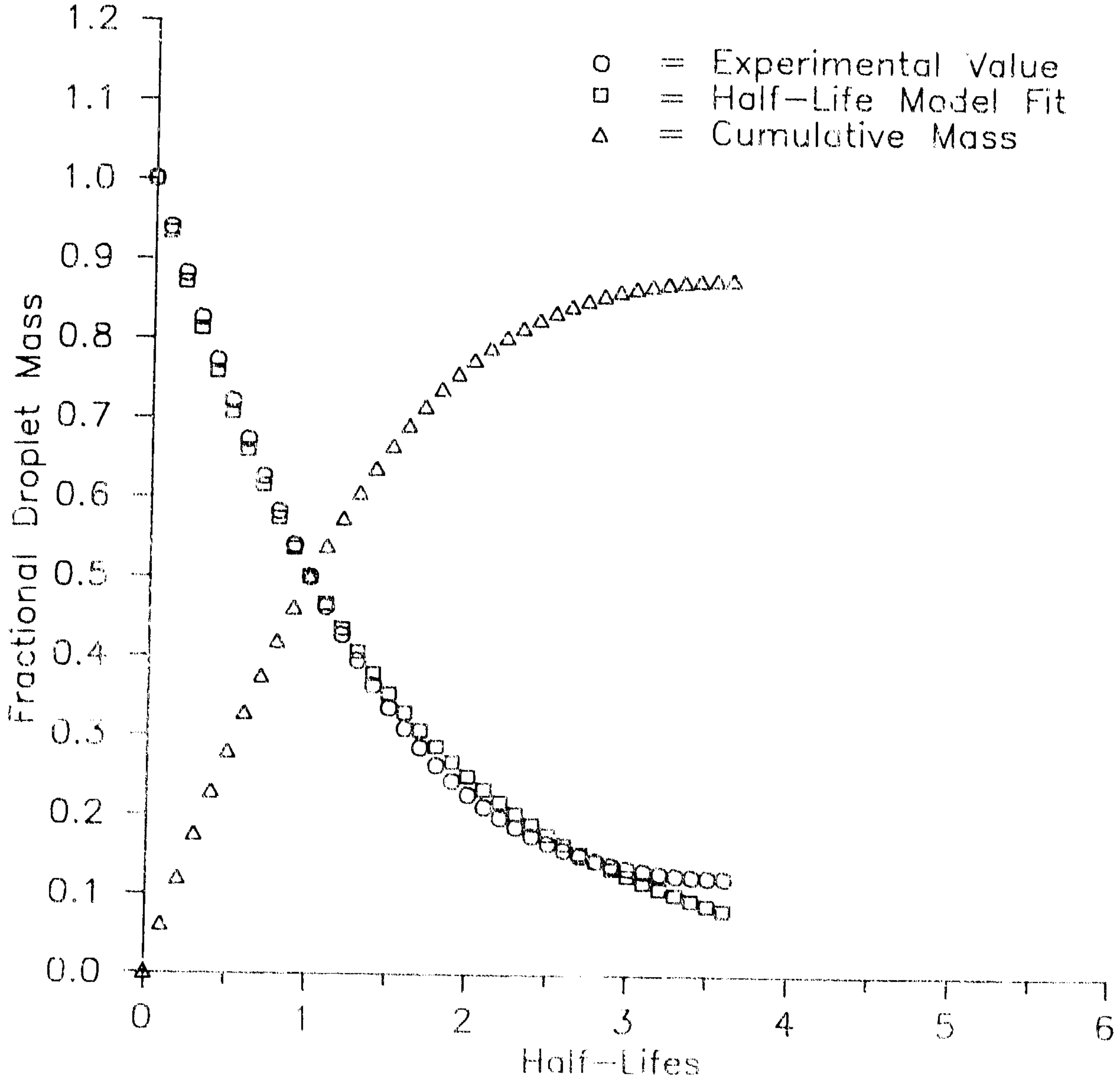


Figure I-11 Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. GLF12 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 1? MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 40%

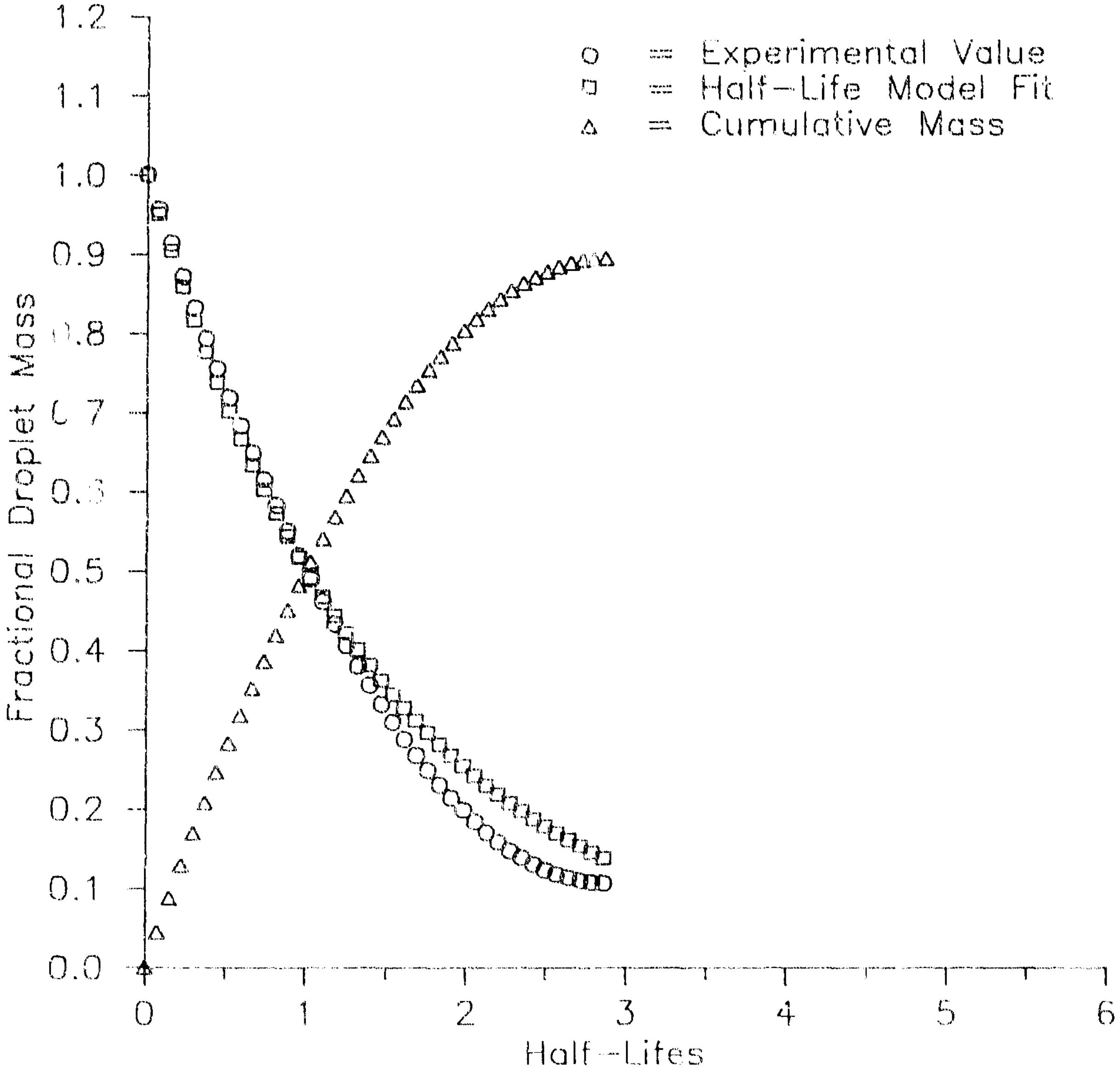


Figure I-12. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. GLF13 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 44%

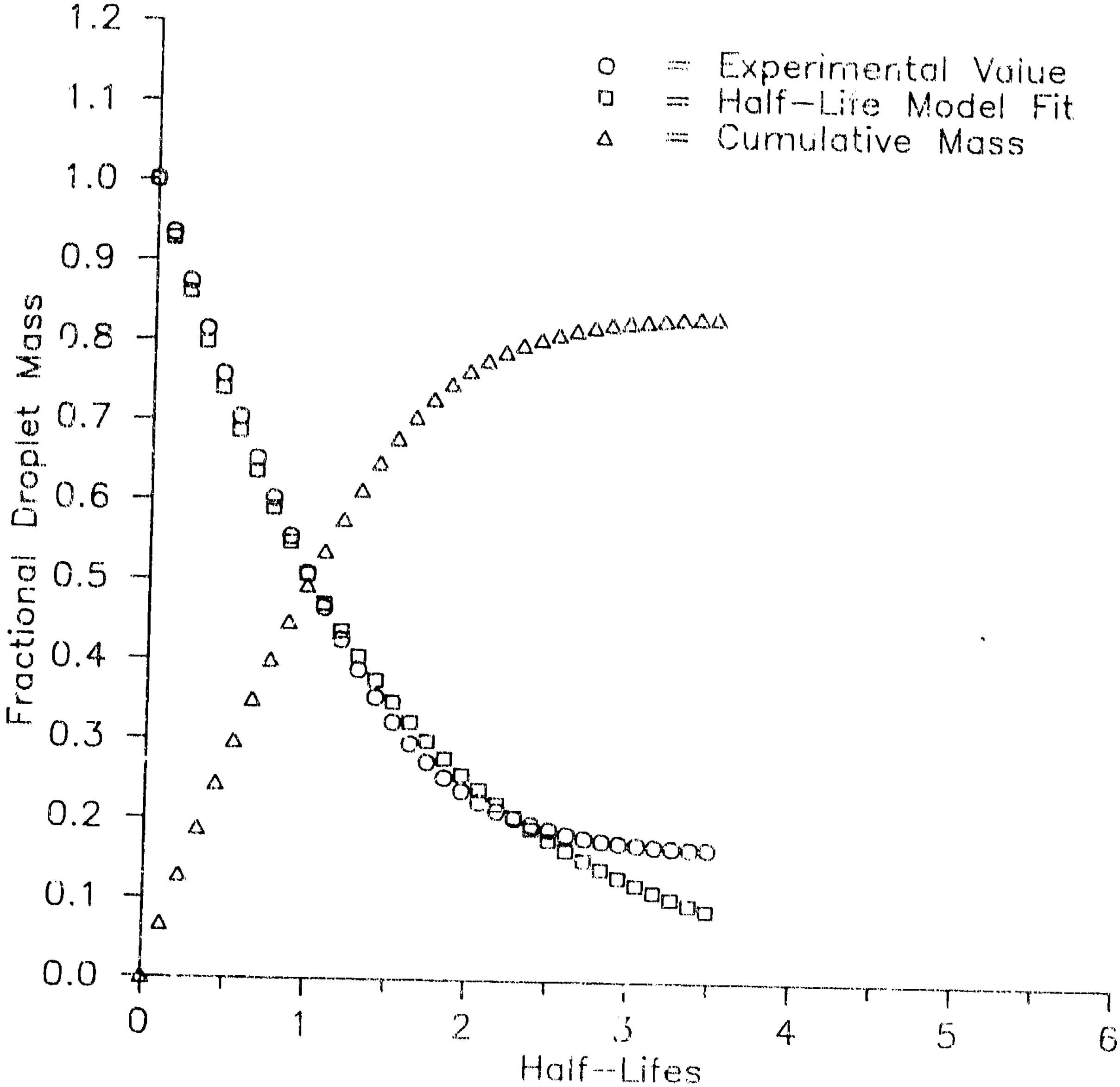


Figure I-13. Fractional Droplet Mass Versus Droplet Half-Life

EVAPORATION EXPERIMENT NO. GLF14 SERIES IC 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 2.8 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 43%

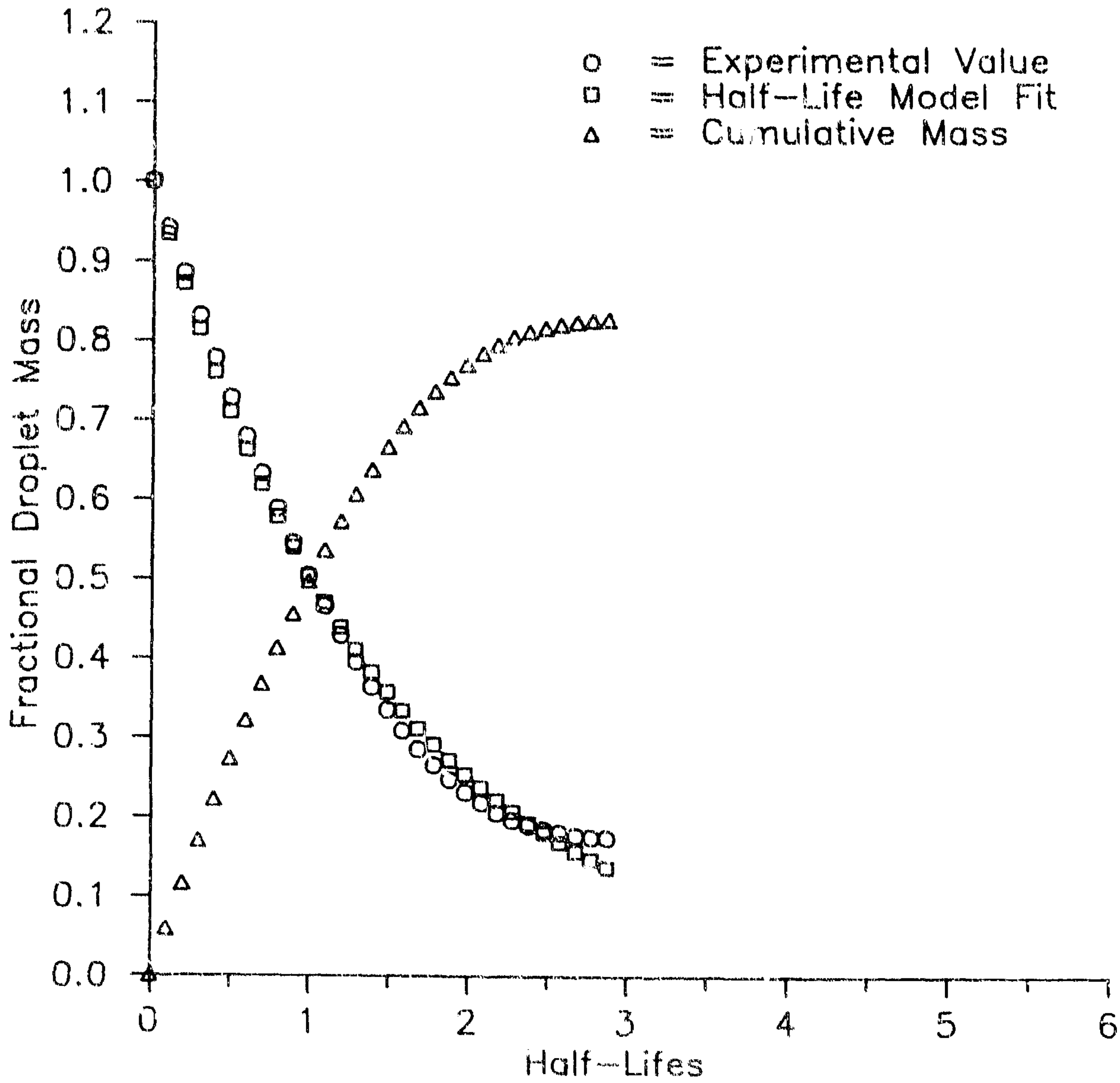


Figure I-14. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. GLF15 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

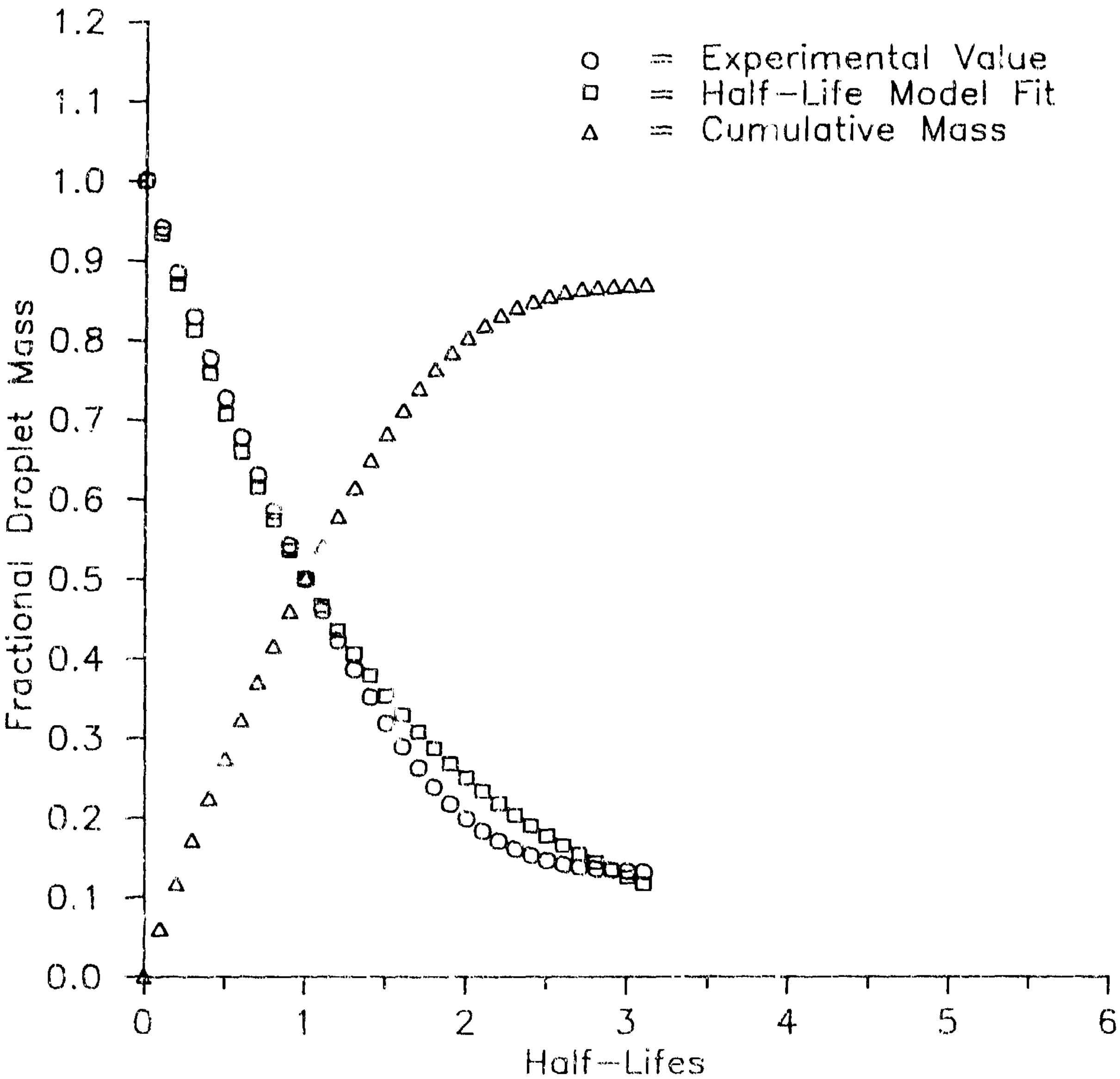


Figure I-15. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. GLF16 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

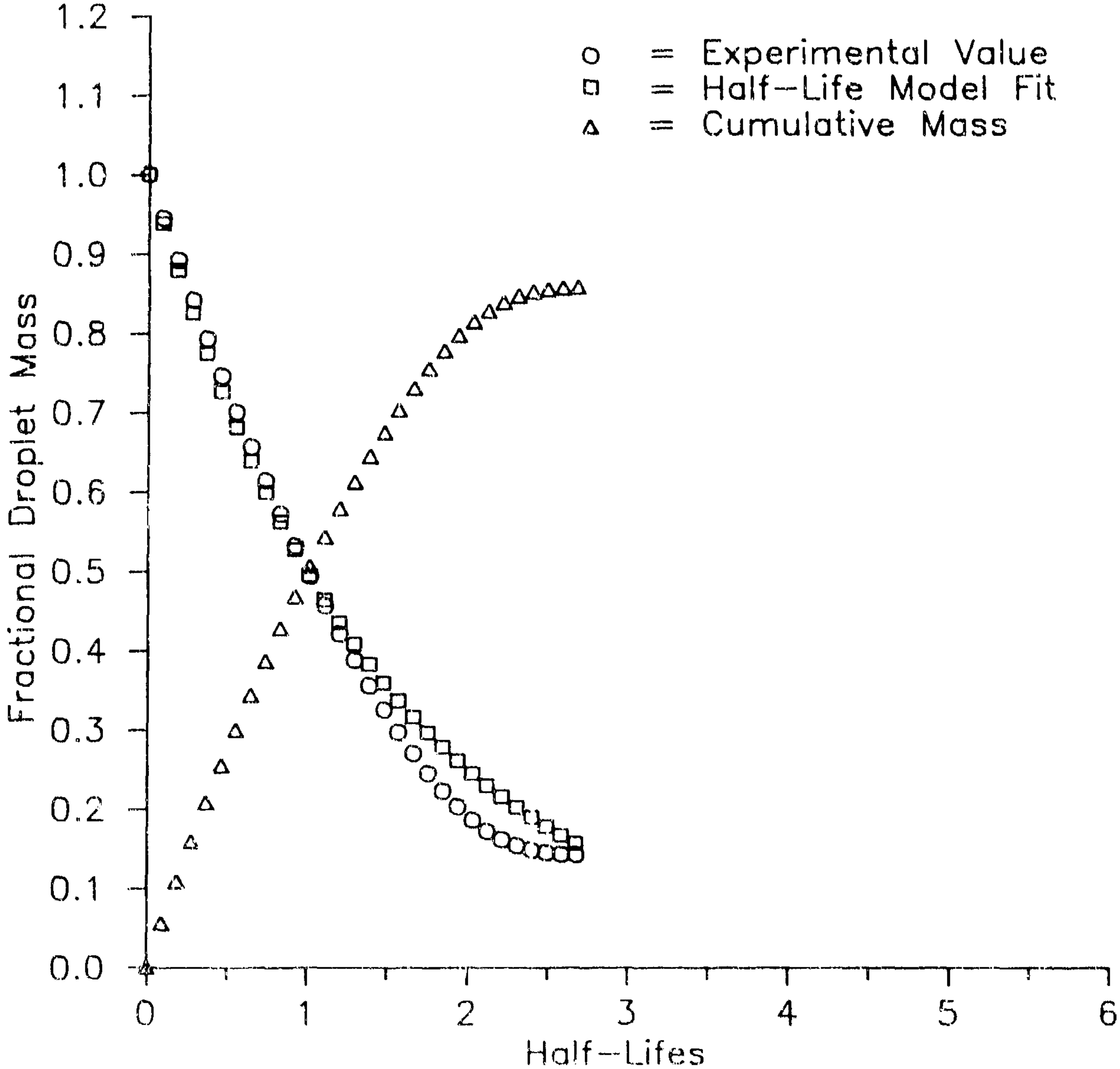


Figure I-16. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. BLF1 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

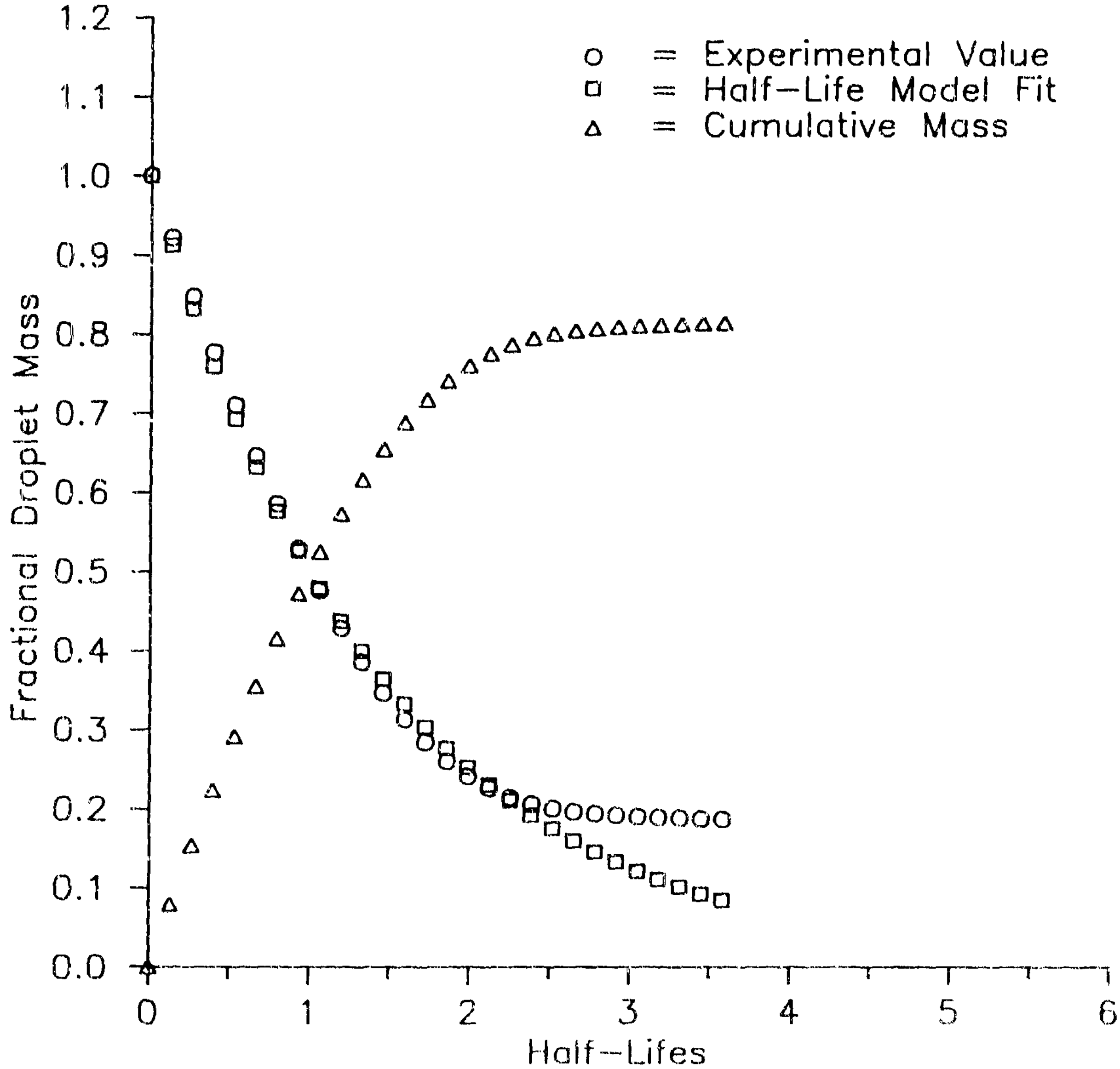


Figure I-17. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. BLF2 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 2.9 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 39%

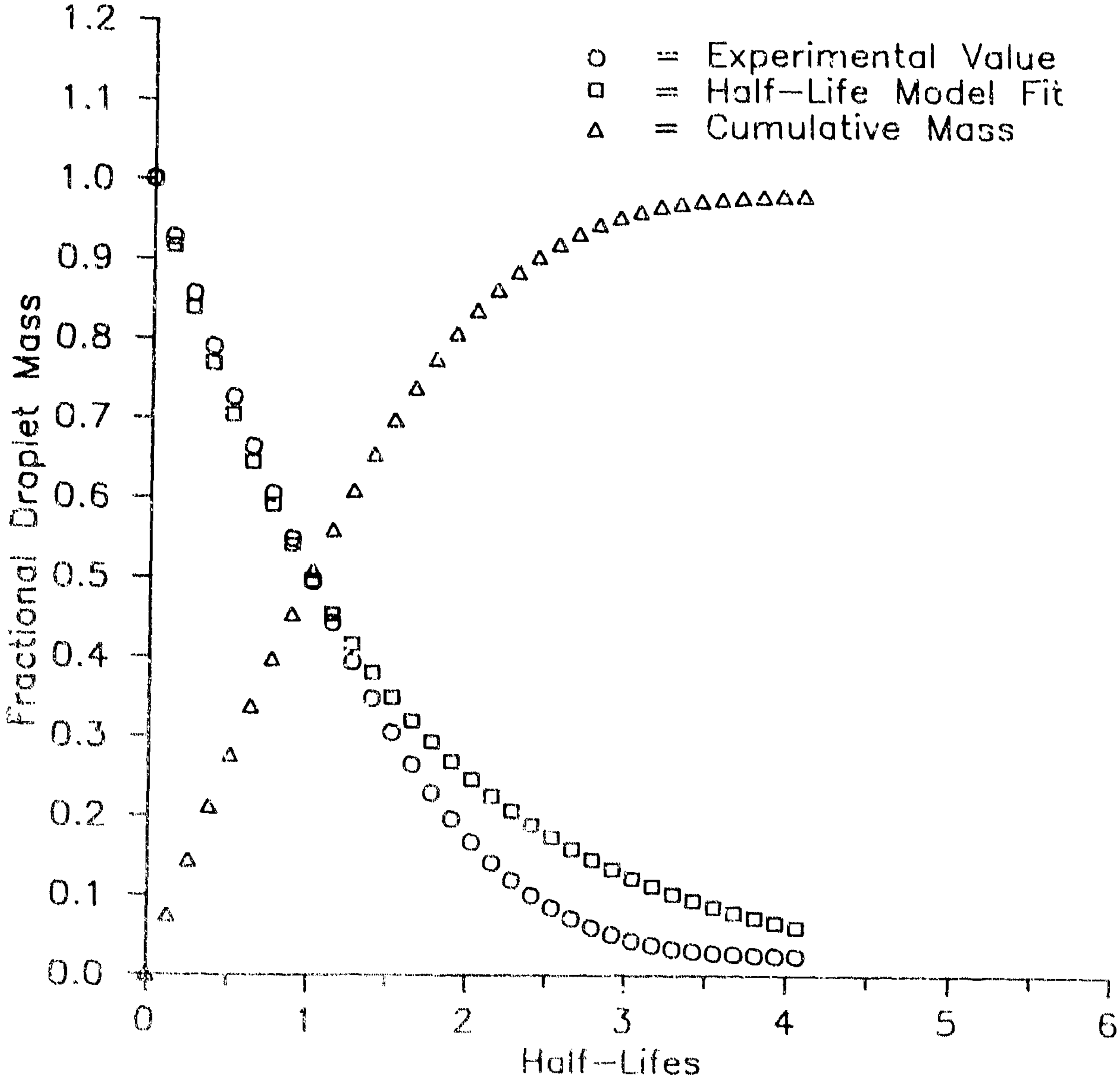


Figure I-18. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. BLF3    SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA.,    100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 11 MPH,   AIR TEMPERATURE 60 DEG F.,   RELATIVE HUMIDITY 37%

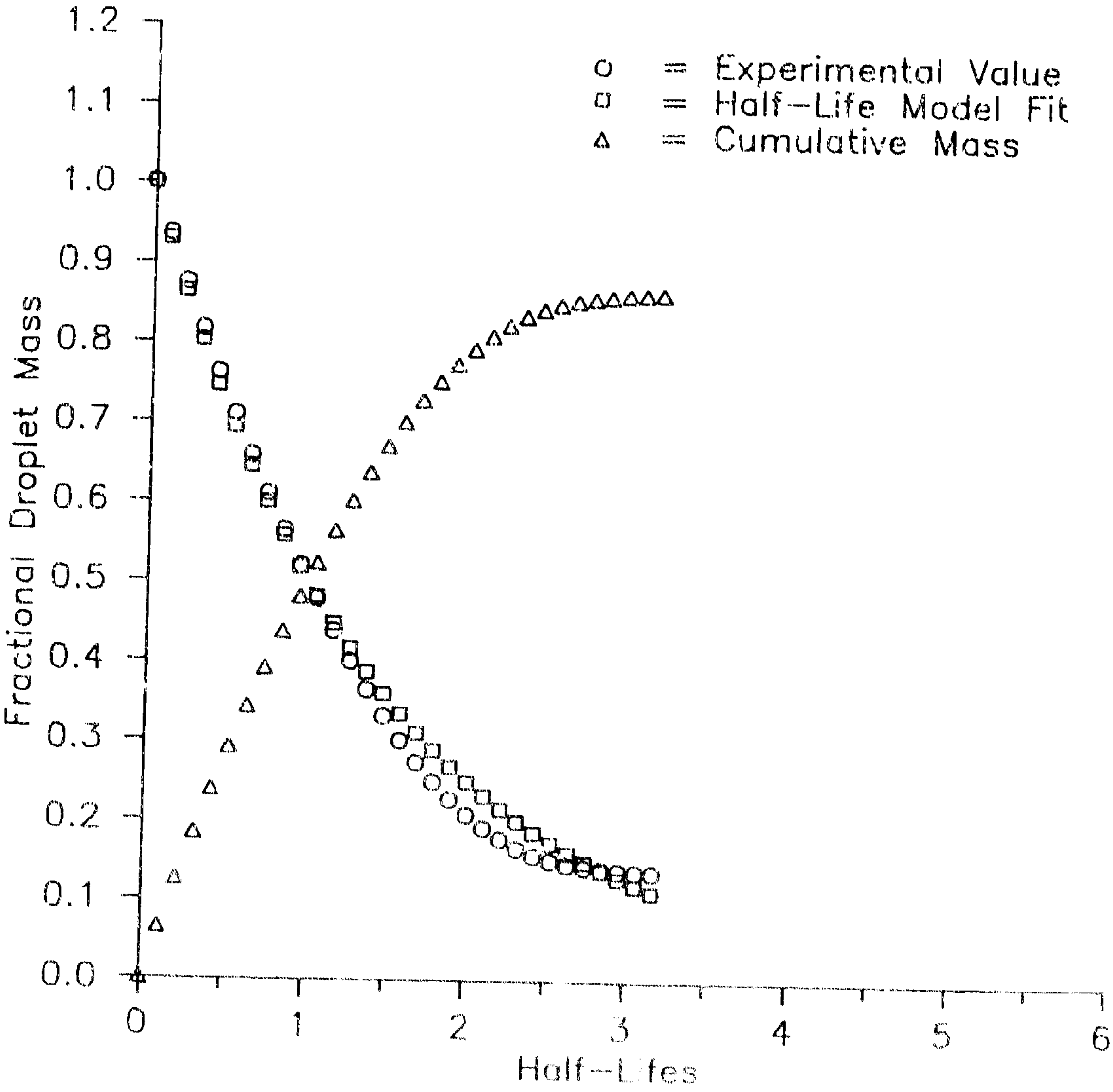


Figure I-19. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. BLF4 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/TOP SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 29%

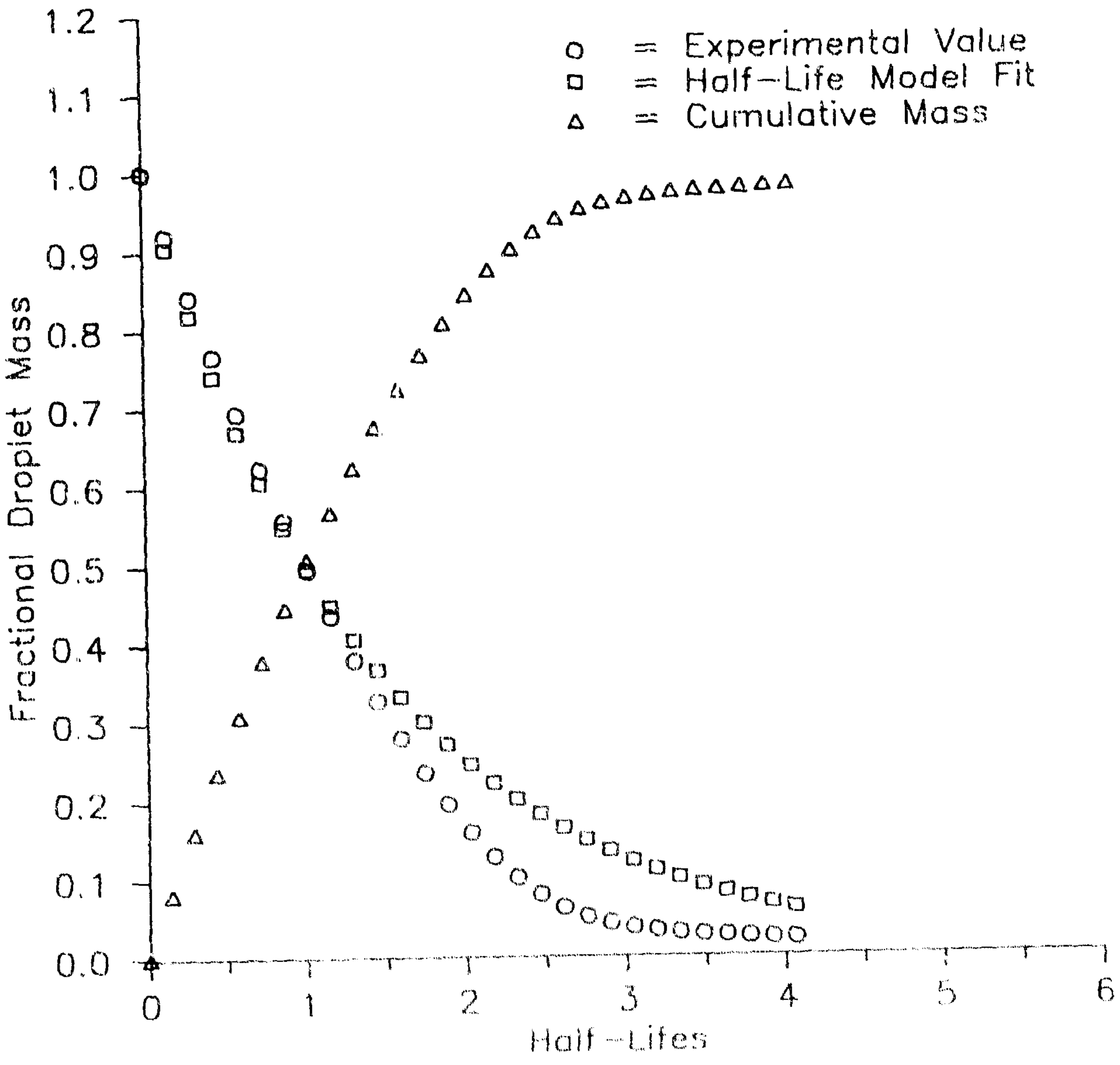


Figure I-20. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. BLF5 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 10 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 3.0 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

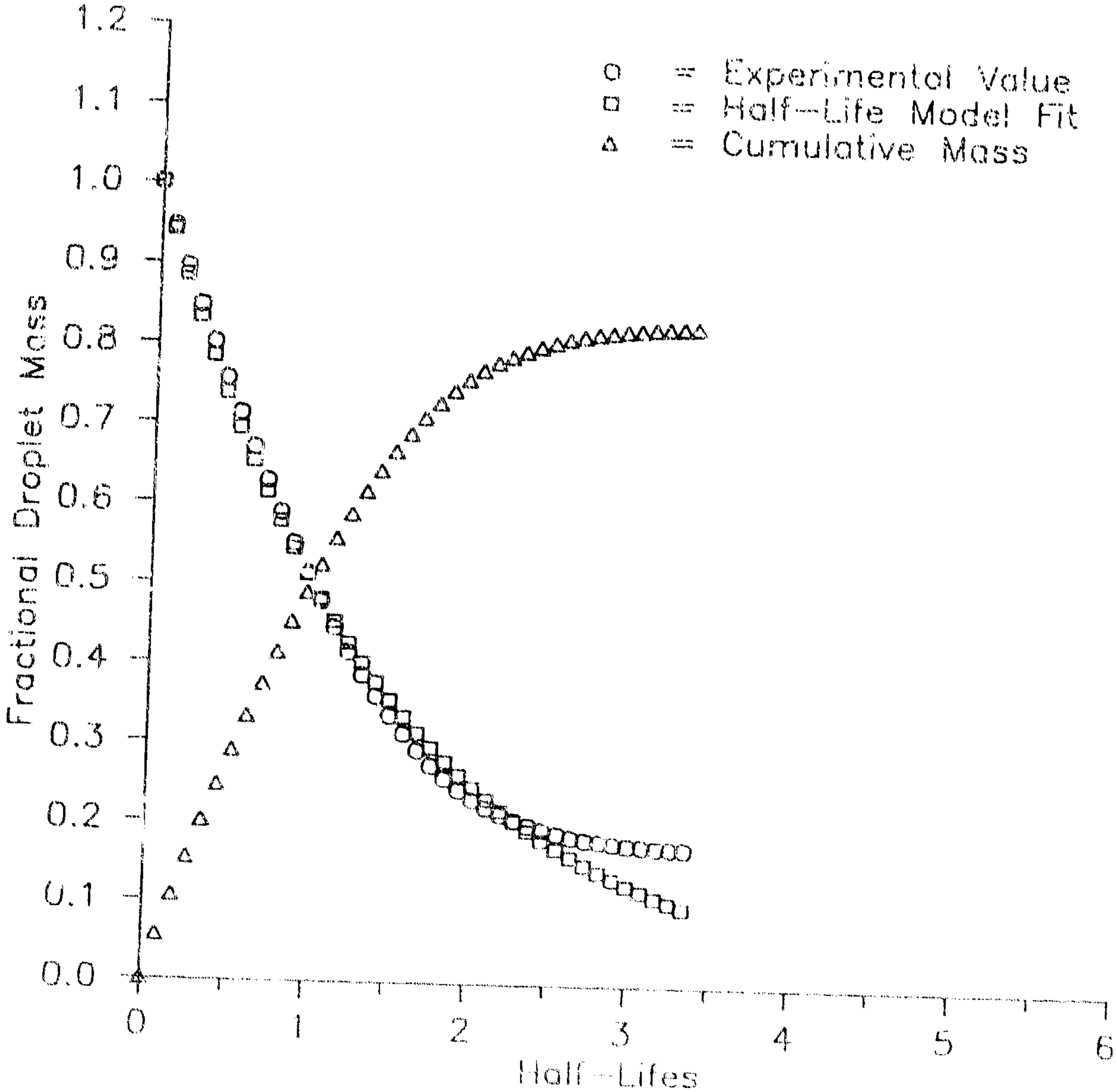


Figure I-21. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. BLF6 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 2.9 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 37%

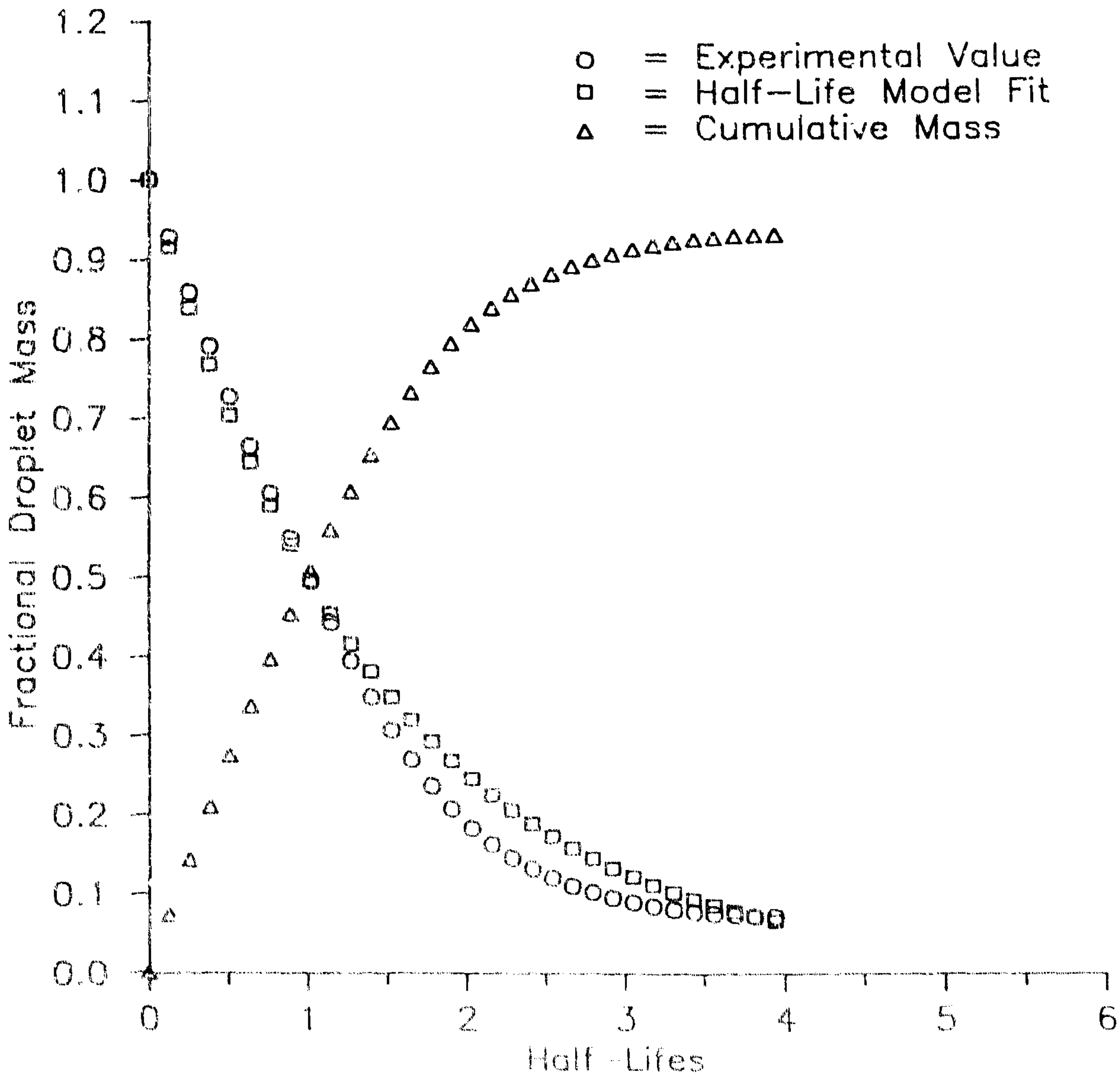


Figure I-22. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. BLF7 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 38%

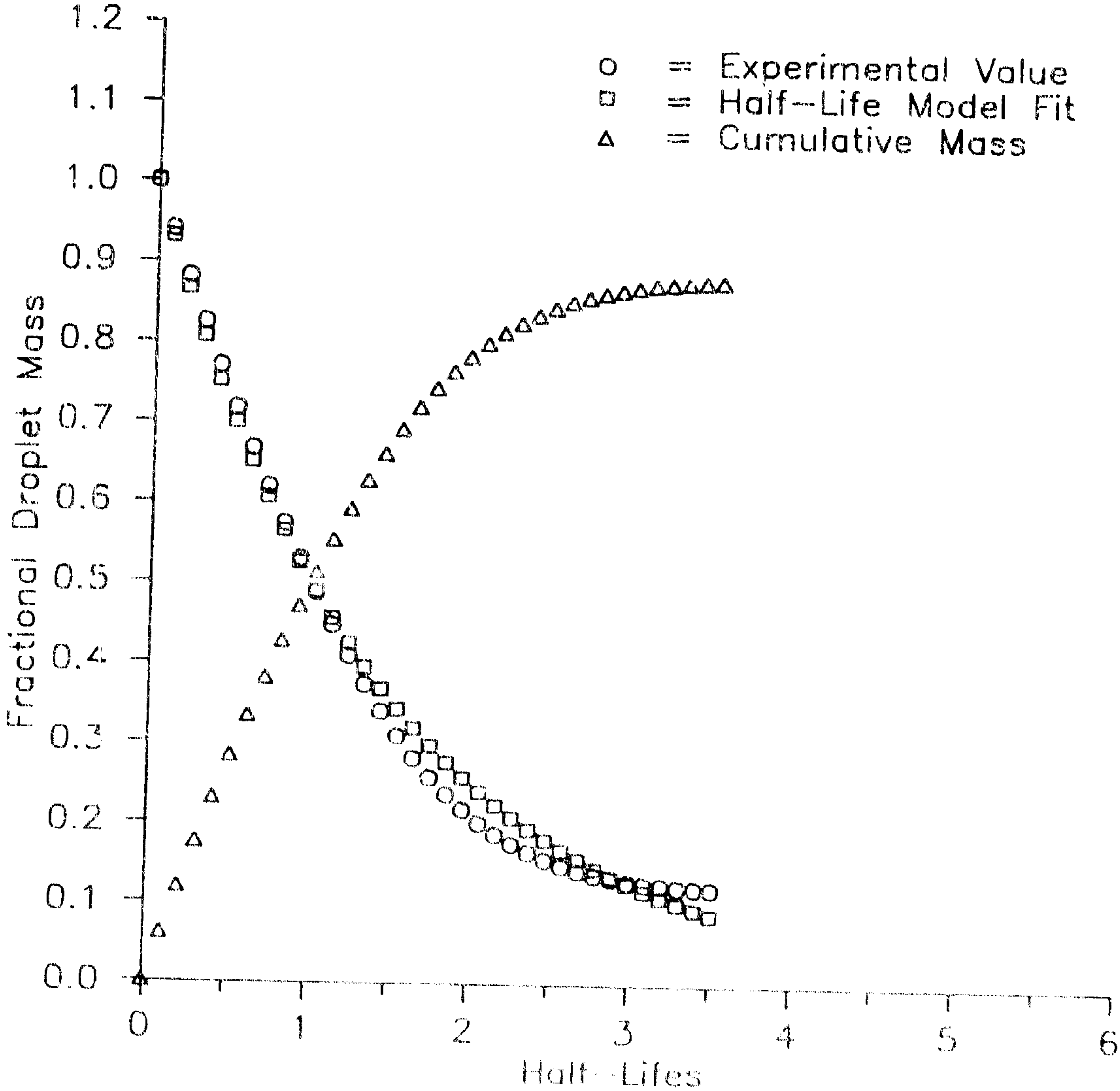


Figure I-23. Fractional Droplet Mass Versus Droplet Half-Life.

EVAPORATION EXPERIMENT NO. BLF8 SERIES ID 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK LEAF/BOTTOM SURFACE
WINDSPEED 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 50%

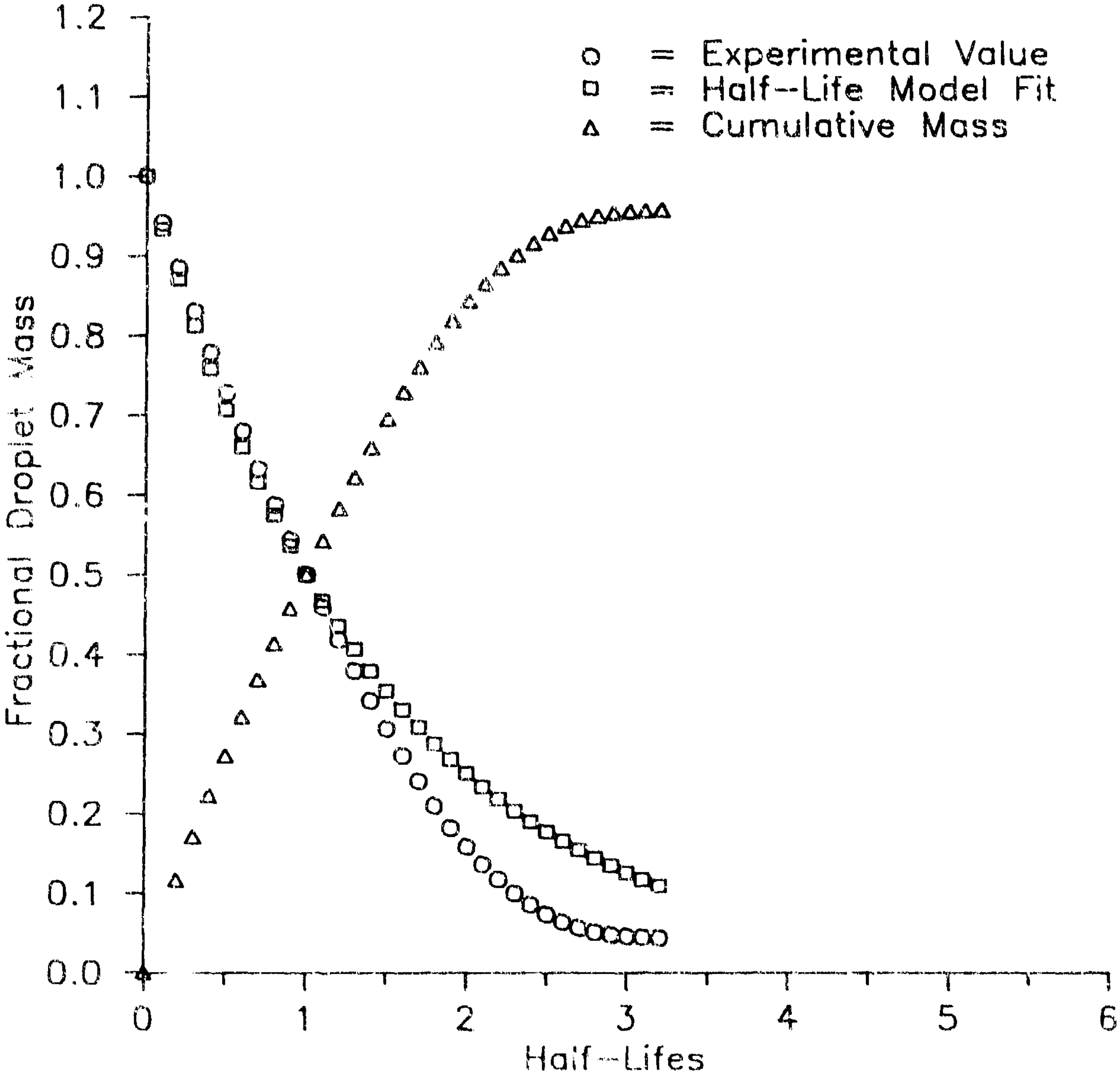


Figure I-24. Fractional Droplet Mass Versus Droplet Half-Life.

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# APPENDIX J

## DATA ON SPREADING OF DEM DROPLETS DEPOSITED ON LEAF SURFACES

TABLE J-1. Maximum, Minimum and Average Spread Diameters of 2 mm (Dia.) DEM Droplets Deposited On Green Hickory Leaves.

| TEST #1 D1xD2 | | TEST #2 D1xD2 | | TEST #3 D1xD2 | | TEST #4 D1xD2 | | TEST #5 D1xD2 | | TEST #6 D1xD2 | | TEST #7 D1xD2 | | TEST #8 D1xD2 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm |
| 6 | 6 | 5 | 5 | 35 | 2 | 8 | 4 | 4 | 4 | 5 | 4 | 9 | 4 | 4 | 4 |
| 8 | 5 | 5 | 4 | 14 | 4 | 7 | 5 | 4 | 4 | 4 | 4 | 5 | 4 | 5 | 4 |
| 8 | 4 | 5 | 4 | 6 | 4 | 7 | 5 | 4 | 4 | 6 | 4 | 4 | 4 | 4 | 4 |
| 6 | 4 | 6 | 6 | 5 | 4 | 6 | 5 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | 4 |
| 5 | 5 | 5 | 5 | 6 | 4 | 8 | 6 | 4 | 4 | 5 | 4 | 4 | 4 | 4 | 4 |
| 6 | 6 | 6 | 6 | 5 | 4 | 6 | 5 | 4 | 4 | 5 | 4 | 6 | 4 | 4 | 4 |
| 4 | 4 | 6 | 5 | 6 | 3 | 6 | 5 | 5 | 4 | 5 | 4 | 5 | 4 | 6 | 4 |
| 4 | 4 | 6 | 5 | 6 | 4 | 5 | 5 | 4 | 4 | 5 | 4 | 4 | 4 | 5 | 4 |
| 5 | 4 | 7 | 6 | 7 | 4 | 6 | 6 | 4 | 4 | 5 | 4 | 4 | 4 | 5 | 4 |
| 4 | 4 | 8 | 5 | 4 | 4 | 7 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 5 | 5 |
| 8 | 5 | 7 | 6 | 12 | 4 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 4 |
| 6 | 5 | 7 | 7 | 6 | 4 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 6 | 4 |
| 8 | 6 | 7 | 6 | 12 | 9 | 10 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 8 | 6 | 7 | 6 | 7 | 6 | 7 | 7 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 6 | 4 | 9 | 6 | 7 | 4 | 6 | 5 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 4 |
| 5 | 5 | 7 | 5 | 6 | 5 | 7 | 6 | 4 | 4 | 6 | 5 | 4 | 4 | 4 | 4 |
| 5 | 5 | 7 | 6 | 7 | 5 | 7 | 5 | 4 | 4 | 5 | 4 | 4 | 4 | 4 | 4 |
| 7 | 6 | 7 | 5 | 6 | 4 | 5 | 4 | 4 | 4 | 5 | 4 | 5 | 4 | 5 | 4 |
| 6 | 5 | 8 | 6 | 6 | 3 | 8 | 7 | 5 | 4 | 4 | 4 | 4 | 4 | 5 | 4 |
| 7 | 5 | 7 | 5 | 7 | 5 | 6 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 |
| 6 | 6 | 5 | 5 | 6 | 5 | 9 | 6 | 5 | 3 | 5 | 4 | 5 | 4 | 5 | 4 |
| 8 | 4 | 11 | 5 | 6 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 8 | 4 | 4 | 4 |
| 5 | 5 | 11 | 5 | 5 | 4 | 12 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 8 | 5 | 6 | 6 | 6 | 4 | 7 | 6 | 4 | 4 | 7 | 4 | 4 | 4 | 4 | 4 |
| 5 | 5 | 7 | 5 | 6 | 6 | 8 | 8 | 4 | 4 | 4 | 4 | 5 | 3 | 4 | 4 |
| 7 | 5 | 7 | 6 | 6 | 6 | 7 | 6 | 5 | 4 | 7 | 4 | 4 | 4 | 4 | 4 |
| 8 | 4 | 8 | 5 | 6 | 5 | 9 | 8 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 7 | 4 | 7 | 5 | 5 | 4 | 6 | 6 | 4 | 4 | 4 | 4 | 5 | 4 | 5 | 4 |
| 6 | 6 | 6 | 6 | 8 | 6 | 6 | 6 | 4 | 4 | 4 | 4 | 5 | 5 | 4 | 4 |
| 6 | 6 | 8 | 5 | 6 | 4 | 10 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 7 | 6 | 7 | 5 | 6 | 6 | 10 | 6 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 3 |
| 6 | 5 | 6 | 5 | 8 | 4 | 8 | 7 | 4 | 4 | 5 | 4 | 5 | 4 | 5 | 4 |
| 5 | 5 | 6 | 5 | 5 | 4 | 8 | 6 | 5 | 3 | 4 | 4 | 5 | 4 | 4 | 4 |
| 6 | 6 | 6 | 6 | 5 | 4 | 6 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 6 | 5 | 6 | 6 | 7 | 5 | 7 | 5 | 4 | 4 | 4 | 4 | 6 | 4 | 4 | 4 |
| 5 | 5 | 9 | 6 | 5 | 4 | 10 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 |
| 6 | 5 | 10 | 5 | 6 | 4 | 8 | 7 | 5 | 4 | 5 | 4 | 4 | 4 | 4 | 4 |
| 6 | 6 | 8 | 7 | 7 | 5 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 4 |
| 5 | 5 | 5 | 5 | 9 | 4 | 7 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 6 | 4 |
| 5 | 4 | 7 | 5 | 6 | 6 | 7 | 6 | 4 | 4 | 5 | 4 | 5 | 3 | 6 | 5 |
| AVG 5.59mm +/- 0.81 s.d. | | AVG 6.16mm +/- 0.87 s.d. | | AVG 5.94mm +/- 40 s.d. | | AVG 6.49mm +/- 1.03 s.d. | | AVG 4.12mm +/- 0.22 s.d. | | AVG 4.31mm +/- 0.43 s.d. | | AVG 4.30mm +/- 0.55 s.d. | | AVG 4.28mm +/- 0.47 s.d. | |

TABLE J-2. Maximum, Minimum and Average Spread Diameters of 2 mm (Dia.) DEM Droplets Deposited on Green Oak Leaves.

| TEST #9 D1xD2 | | TEST #10 D1xD2 | | TEST #11 D1xD2 | | TEST #12 D1xD2 | | TEST #13 D1xD2 | | TEST #14 D1xD2 | | TEST #15 D1xD2 | | TEST #16 D1xD2 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm |
| 6 | 5 | 6 | 4 | 8 | 5 | 6 | 5 | 4 | 4 | 4 | 4 | - | - | 5 | 4 |
| 6 | 4 | 7 | 4 | 5 | 5 | 5 | 3 | 4 | 5 | 5 | 4 | - | - | 4 | 4 |
| 6 | 4 | 5 | 5 | 8 | 5 | 6 | [illegible] | 4 | 5 | 4 | 4 | - | - | 5 | 4 |
| 6 | 5 | 6 | 4 | 8 | 5 | 9 | 5 | 4 | 4 | 4 | 4 | - | - | 4 | 4 |
| 7 | 4 | 6 | 5 | 6 | 5 | 6 | 6 | 4 | 4 | 4 | 4 | - | - | 4 | 4 |
| 5 | 5 | 4 | 4 | 5 | 5 | 7 | 5 | 4 | 4 | 4 | 4 | - | - | 4 | 4 |
| 6 | 5 | 5 | 5 | 6 | 4 | 5 | 3 | 4 | 4 | 5 | 4 | - | - | 4 | 4 |
| 6 | 5 | 5 | 4 | 5 | 5 | 6 | 4 | 4 | 5 | 5 | 4 | - | - | 4 | 4 |
| 6 | 5 | 8 | 5 | 6 | 6 | 6 | 4 | 4 | 4 | 4 | 4 | - | - | 4 | 4 |
| 8 | 5 | 5 | 4 | 6 | 5 | 6 | 4 | 4 | 4 | 5 | 4 | - | - | 4 | 4 |
| 9 | 5 | 6 | 6 | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | - | - | 5 | 4 |
| 6 | 6 | 6 | 5 | 6 | 6 | 5 | 4 | 4 | 4 | 4 | 3 | - | - | 5 | 4 |
| 7 | 6 | 8 | 5 | 5 | 5 | 6 | 4 | 4 | 5 | 5 | 5 | - | - | 4 | 4 |
| 9 | 5 | 6 | 6 | 6 | 5 | 7 | 5 | 4 | 4 | 5 | 4 | - | - | 5 | 4 |
| 5 | 4 | 7 | 5 | 5 | 4 | 7 | 4 | 4 | 4 | 4 | 4 | - | - | 4 | 4 |
| 10 | 5 | 6 | 5 | 6 | 5 | 6 | 6 | 4 | 4 | 5 | 4 | - | - | 4 | 4 |
| 10 | 6 | 5 | 5 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | - | - | 4 | 4 |
| 6 | 5 | 5 | 5 | 8 | 5 | 4 | 4 | 5 | 4 | 5 | 4 | - | - | 4 | 4 |
| 12 | 5 | 5 | 4 | 7 | 6 | 5 | 4 | 4 | 4 | 5 | 4 | - | - | 4 | 4 |
| 6 | 5 | 6 | 6 | 7 | 5 | 9 | 3 | 4 | 4 | 4 | 4 | - | - | 4 | 4 |
| 12 | 5 | 6 | 5 | 6 | 6 | 6 | 5 | 4 | 4 | 4 | 4 | - | - | 4 | 4 |
| 9 | 7 | 5 | 5 | 8 | 6 | 6 | 4 | 5 | 4 | 5 | 3 | - | - | 4 | 4 |
| 9 | 8 | 6 | 5 | 6 | 5 | 8 | 4 | 4 | 4 | 4 | 4 | - | - | 4 | 4 |
| 7 | 6 | 6 | 5 | 9 | 5 | 4 | 4 | 4 | 4 | 5 | 3 | - | - | 5 | 4 |
| 6 | 6 | 5 | 5 | 12 | 4 | 4 | 4 | 5 | 4 | 6 | 3 | - | - | 4 | 4 |
| 6 | 6 | 8 | 6 | 7 | 6 | 6 | 5 | 4 | 4 | 5 | 4 | - | - | 4 | 4 |
| 5 | 4 | 7 | 4 | 8 | 3 | 5 | 5 | 4 | 4 | 4 | 4 | - | - | 6 | 3 |
| 7 | 4 | 9 | 4 | 7 | 4 | 8 | 6 | 5 | 4 | 5 | 4 | - | - | 4 | 4 |
| 5 | 4 | 6 | 6 | 5 | 4 | 6 | 5 | 4 | 4 | 5 | 4 | - | - | 4 | 4 |
| 5 | 5 | 7 | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | - | - | 5 | 4 |
| 6 | 4 | 6 | 5 | 4 | 4 | 7 | 4 | 4 | 4 | 5 | 4 | - | - | 5 | 4 |
| 6 | 6 | 7 | 4 | 7 | 5 | 5 | 4 | 5 | 4 | 6 | 3 | - | - | 4 | 4 |
| 10 | 5 | 5 | 5 | 5 | 4 | 6 | 5 | 6 | 4 | 4 | 4 | - | - | 4 | 4 |
| 6 | 5 | 6 | 5 | 5 | 4 | 7 | 5 | 5 | 4 | 5 | 3 | - | - | 4 | 4 |
| 11 | 5 | 7 | 5 | 5 | 4 | 5 | 5 | 4 | 4 | 4 | 4 | - | - | 4 | 4 |
| 6 | 6 | 7 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | - | - | 4 | 4 |
| 8 | 6 | 8 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | - | - | 4 | 4 |
| 9 | 6 | 6 | 4 | 6 | 5 | 7 | 5 | 4 | 4 | 5 | 4 | - | - | 4 | 4 |
| 8 | 5 | 7 | 5 | 6 | 6 | 6 | 6 | 5 | 4 | 4 | 4 | - | - | 5 | 3 |
| 6 | 5 | 7 | 5 | 5 | 4 | 6 | 5 | 4 | 4 | 5 | 4 | - | - | 4 | 4 |
| AVG 6.19mm +/- 1.12 s.d. | | AVG 5.53mm +/- 0.65 s.d. | | AVG 5.13mm +/- 2.11 s.d. | | AVG 5.18mm +/- 0.85 s.d. | | AVG 4.18mm +/- 0.27 s.d. | | AVG 4.22mm +/- 0.30 s.d. | | AVG - +/- - | | AVG 4.11mm +/- 0.21 s.d. | |

TABLE J-3. Maximum, Minimum and Average Spread Diameters of 2 mm (Dia.) DEM Droplets Deposited on Red Oak Leaves.

| TEST #1 D1xD2 | | TEST #2 D1xD2 | | TEST #3 D1xD2 | | TEST #4 D1xD2 | | TEST #5 D1xD2 | | TEST #6 D1xD2 | | TEST #7 D1xD2 | | TEST #8 D1xD2 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm |
| 4 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | 6 | 4 | 4 | 4 | 5 | 4 | 5 | 4 |
| 6 | 3 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 4 |
| 4 | 4 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 5 | 5 |
| 5 | 4 | 5 | 4 | 6 | 4 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 4 |
| 4 | 4 | 5 | 5 | 6 | 4 | 4 | 4 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 |
| 4 | 4 | 4 | 4 | 5 | 4 | 5 | 5 | 3 | 3 | 4 | 4 | 5 | 4 | 5 | 4 |
| 4 | 4 | 5 | 5 | 5 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 5 | 4 |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 4 | 5 | 4 | 4 | 4 | 5 | 5 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 3 |
| 5 | 4 | 5 | 5 | 4 | 4 | 5 | 5 | 4 | 4 | 5 | 4 | 4 | 4 | 7 | 4 |
| 5 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 4 |
| 5 | 4 | 5 | 4 | 4 | 4 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 5 | 5 | 5 | 5 | 4 | 5 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 4 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 4 |
| 4 | 4 | 5 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 4 | 5 | 5 | 4 | [illegible] | 5 | 4 | 5 | 4 | 4 | 4 | 5 | 4 | 5 | 5 |
| 5 | 5 | 5 | 5 | 4 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 |
| 4 | 4 | 5 | 5 | 5 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 4 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 6 | 4 | 4 | 4 |
| 5 | 4 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | [illegible] |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | [illegible] |
| 4 | 4 | 5 | 5 | 4 | 4 | 7 | 3 | 4 | 4 | 4 | 4 | 5 | 3 | 4 | 4 |
| 5 | 4 | 5 | 4 | 5 | 5 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 4 | 4 | 5 | 5 | 5 | 4 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 5 | 4 | 4 | 4 | 4 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 4 | 4 | 4 | 4 | 4 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 6 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 5 | 4 | 4 | 4 |
| 5 | 4 | 4 | 4 | 6 | 3 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 6 | 5 | 4 | 4 | 6 | 3 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 6 | 5 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 4 | 5 | 4 | 4 | 4 | 4 | 4 |
| 5 | 4 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 6 | 4 | 4 | 4 |
| 5 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 3 | 4 | 4 | 4 | 4 |
| 5 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 4 | 5 | 4 | 5 | 4 |
| 5 | 4 | 6 | 5 | 4 | 4 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 4 | 6 | 5 | 5 | 4 | 5 | 5 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 4 |
| 5 | 4 | 4 | 4 | 4 | 4 | 7 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 4 | 5 | 4 | 4 | 4 | 7 | 5 | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 4 |
| 6 | 5 | 4 | 4 | 4 | 4 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| AVG 4.50mm +/- 0.42 s.d. | | AVG 4.59mm +/- 0.46 s.d. | | AVG 4.25mm +/- 0.36 s.d. | | AVG 4.65mm +/- 0.59 s.d. | | AVG 3.98mm +/- 0.32 s.d. | | AVG 4.04mm +/- 0.14 s.d. | | AVG 4.15mm +/- 0.28 s.d. | | AVG 4.13mm +/ 0.38 s.d. | |

# APPENDIX K

## FACTORIAL ANALYSIS AND HALF NORMAL PROBABILITY PLOTS OF STANDARDIZED ABSOLUTE CONTRASTS FOR TESTS ON OAK AND HICKORY LEAVES

TABLE K-1. THE DESIGN MATRIX FOR THE $2^4$ FACTORIAL EXPERIMENT NO. 1.

| TEST | VARIABLES 1 | 2 | 3 | 4 | CONTRAST CONFOUNDING |
|---|---|---|---|---|---|
| 1 | - | - | - | - | MEAN |
| 2 | + | - | - | - | 1 |
| 3 | - | + | - | - | 2 |
| 4 | + | + | - | - | 12 |
| 5 | - | - | + | - | 3 |
| 6 | + | - | + | - | 13 |
| 7 | - | + | + | - | 23 |
| 8 | + | + | + | - | 123 |
| 9 | - | - | - | + | 4 |
| 10 | + | - | - | + | 14 |
| 11 | - | + | - | + | 24 |
| 12 | + | + | - | + | 124 |
| 13 | - | - | + | + | 34 |
| 14 | + | - | + | + | 134 |
| 15 | - | + | + | + | 234 |
| 16 | + | + | + | + | 1234 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

TABLE K-2. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES HALF-LIFE OF DROPLET (2 MM DIA) CONTAMINATION DEPOSITED ON LEAFY SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 246 | 218.7 | - |
| 2 | 1 | 264 | 22.4 | 2002.5625 |
| 3 | 2 | 84 | -178.9 | 127985.063 |
| 4 | 12 | 98 | -4.9 | 95.0625 |
| 5 | 3 | 320 | 72.4 | 20952.5625 |
| 6 | 13 | 332 | -5.1 | 105.0625 |
| 7 | 23 | 148 | -22.9 | 2093.0625 |
| 8 | 123 | 156 | -2.4 | 22.5625 |
| 9 | 4 | 245 | 25.4 | 2575.5625 |
| 10 | 14 | 287 | 9.4 | 351.5625 |
| 11 | 24 | 100 | -9.9 | 390.0625 |
| 12 | 124 | 136 | -2.9 | 33.0625 |
| 13 | 34 | 367 | 6.4 | 162.5625 |
| 14 | 134 | 404 | -2.1 | 18.0625 |
| 15 | 234 | 150 | -17.9 | 1278.0625 |
| 16 | 1234 | 162 | -2.4 | 22.5625 |
| | | | TOTAL = | 158087.438 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

TABLE K-3. RANKED STANDARDIZED MAGNITUDE OF EFFECTS HALF-LIFE OF DROPLET (2 MM DIA) CONTAMINATION DEPOSITED ON LEAFY SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 178.9 | 96.67 | 7.99 | 98.33 |
| 14 | 3 | 72.4 | 90 | 3.23 | 95 |
| 13 | 4 | 25.4 | 83.33 | 1.13 | 91.67 |
| 12 | 23 | 22.9 | 76.67 | 1.02 | 88.33 |
| 11 | 1 | 22.4 | 70 | 1 | 85 |
| 10 | 234 | 17.9 | 63.33 | .8 | 81.67 |
| 9 | 24 | 9.9 | 56.67 | .44 | 78.33 |
| 8 | 14 | 9.4 | 50 | .42 | 75 |
| 7 | 34 | 6.4 | 43.33 | .29 | 71.67 |
| 6 | 13 | 5.1 | 36.67 | .23 | 68.33 |
| 5 | 12 | 4.9 | 30 | .22 | 65 |
| 4 | 124 | 2.9 | 23.33 | .13 | 61.67 |
| 3 | 1234 | 2.4 | 16.67 | .11 | 58.33 |
| 2 | 123 | 2.4 | 10 | .11 | 55 |
| 1 | 134 | 2.1 | 3.33 | .09 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (−)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (−)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (−)TOP |
| 4: | LEAF TYPE | (+)OAK | (−)HICKORY |

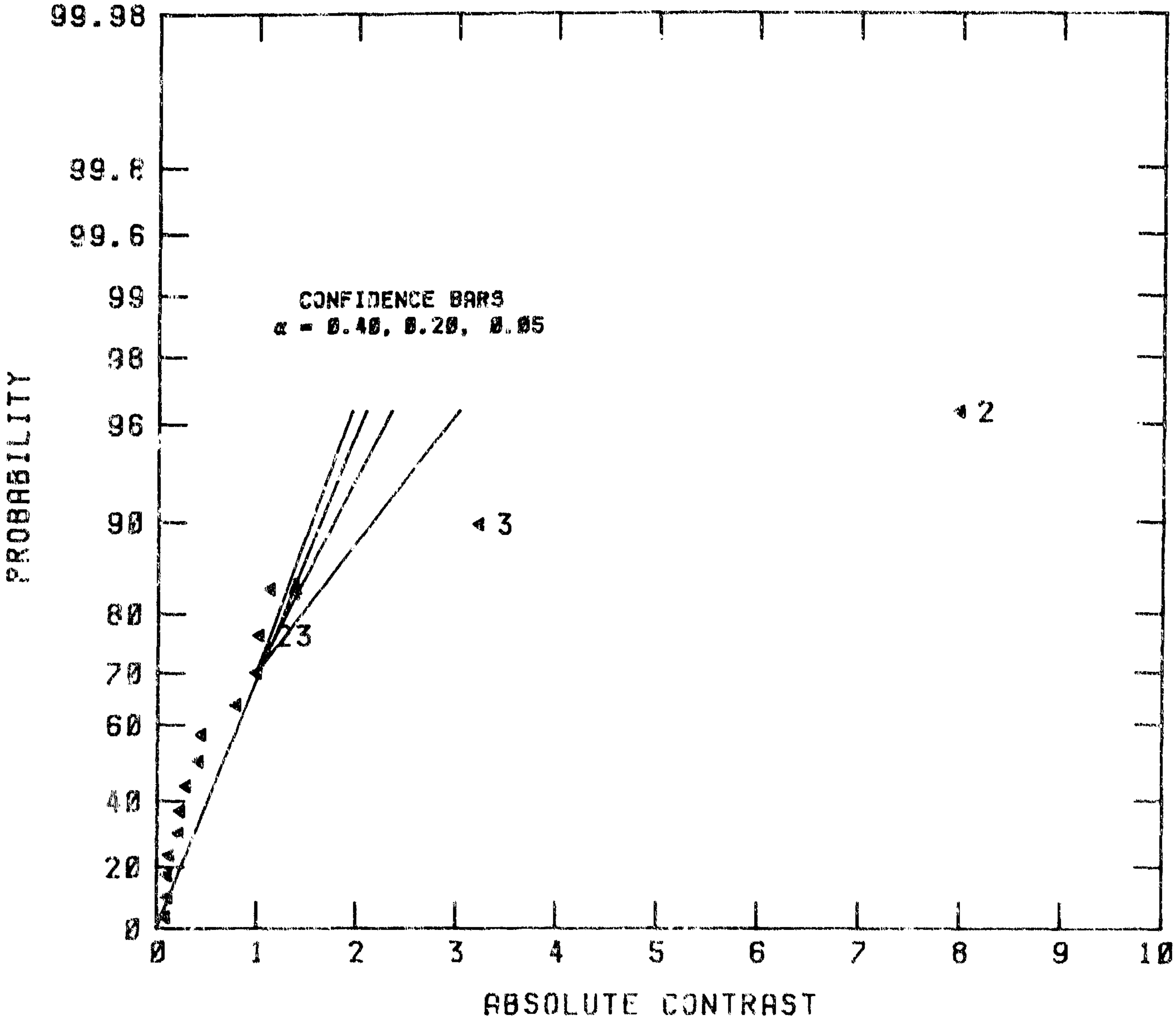


FIGURE K-1. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT HALF-LIFE OF 2 MM DIAMETER DROPS DEPOSITED ON LEAF SURFACE AT 80 DEG F AND 42% RH

TABLE K-4. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES AVERAGE EVAPORATION RATE (MMG/MIN) OVER HALF-LIFE OF DROPLET (2 MM DIA) DEPOSITED ON LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 13 | 17.3 | - |
| 2 | 1 | 12 | -.2 | .25 |
| 3 | 2 | 33 | 14.8 | 870.25 |
| 4 | 12 | 33 | -.5 | 1 |
| 5 | 3 | 9 | -6.5 | 169 |
| 6 | 13 | 9 | .8 | 2.25 |
| 7 | 23 | 20 | -3.2 | 42.25 |
| 8 | 123 | 21 | .5 | 1 |
| 9 | 4 | 10 | -3 | 36 |
| 10 | 14 | 11 | -.2 | .25 |
| 11 | 24 | 28 | -1.2 | 6.25 |
| 12 | 124 | 24 | -1 | 4 |
| 13 | 34 | 7 | 1.5 | 9 |
| 14 | 134 | 8 | .3 | .25 |
| 15 | 234 | 19 | 1.3 | 6.25 |
| 16 | 1234 | 19 | .5 | 1 |
| | | | TOTAL = | 1149 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

TABLE K-5. RANKED STANDARDIZED MAGNITUDE OF EFFECTS
AVERAGE EVAPORATION RATE (MMG/MIN) OVER HALF-LIFE OF DROPLET (2 MM DIA) DEPOSITED ON LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 14.8 | 96.67 | 9.87 | 98.33 |
| 14 | 3 | 6.5 | 90 | 4.33 | 95 |
| 13 | 23 | 3.2 | 83.33 | 2.13 | 91.67 |
| 12 | 4 | 3 | 76.67 | 2 | 88.33 |
| 11 | 34 | 1.5 | 70 | 1 | 85 |
| 10 | 234 | 1.3 | 63.33 | .87 | 81.67 |
| 9 | 24 | 1.2 | 56.67 | .8 | 78.33 |
| 8 | 124 | 1 | 50 | .67 | 75 |
| 7 | 13 | .8 | 43.33 | .53 | 71.67 |
| 6 | 1234 | .5 | 36.67 | .33 | 68.33 |
| 5 | 123 | .5 | 30 | .33 | 65 |
| 4 | 12 | .5 | 23.33 | .33 | 61.67 |
| 3 | 134 | .3 | 16.67 | .2 | 58.33 |
| 2 | 14 | .2 | 10 | .13 | 55 |
| 1 | 1 | .2 | 3.33 | .13 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

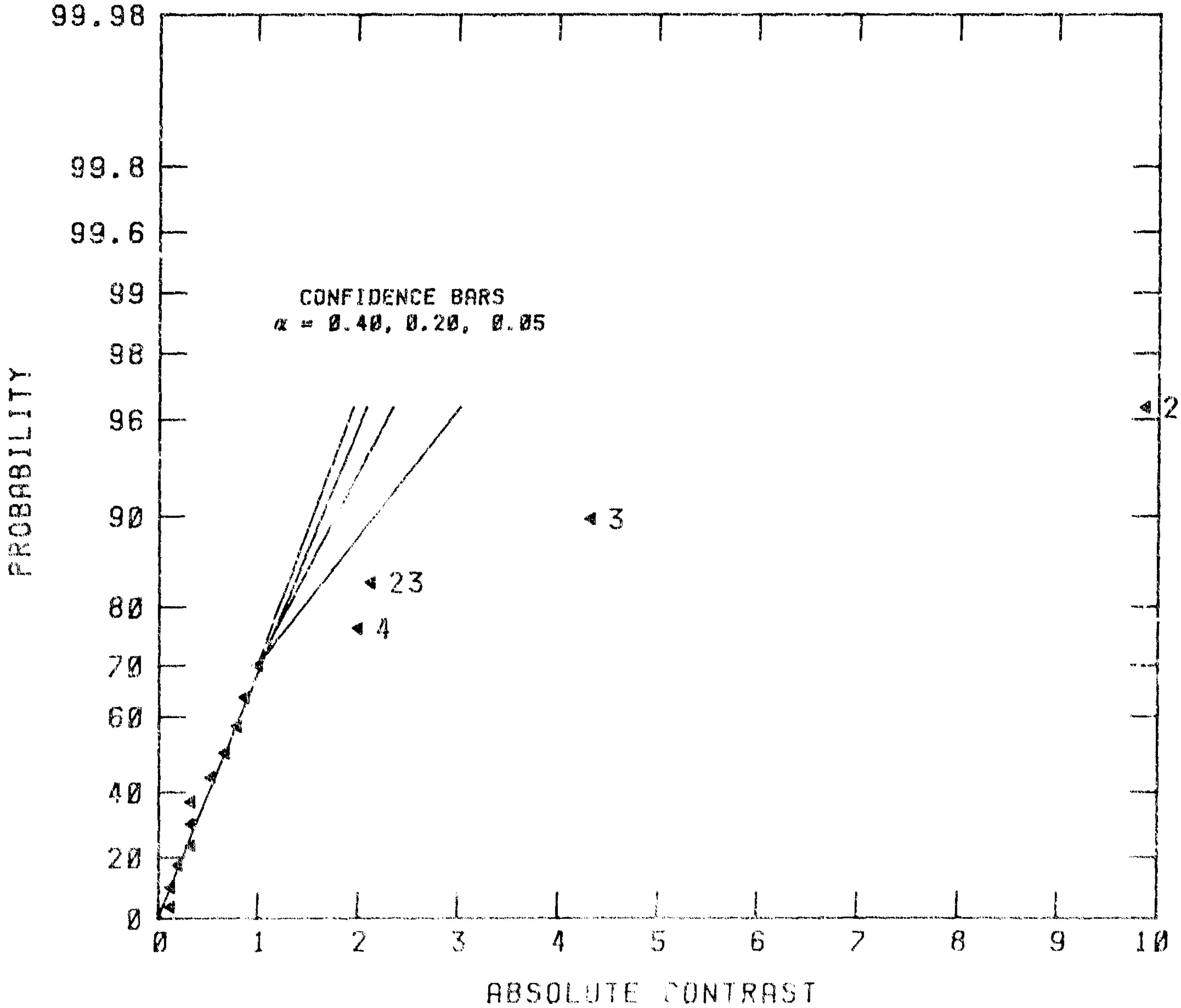


FIGURE K-2. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT AVERAGE EVAPORATION RATE OVER HALF-LIFE OF 2 MM DIA DROPS DEPOSITED ON LEAF SURFACE AT 60 DEG F AND 42% RH

TABLE K-6. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES TOTAL PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR FROM LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 76 | 84.1 | - |
| 2 | 1 | 84 | 3.1 | 39.0625 |
| 3 | 2 | 84 | 7.9 | 248.0625 |
| 4 | 12 | 94 | -.1 | .0625 |
| 5 | 3 | 75 | -1.4 | 7.5625 |
| 6 | 13 | 77 | -2.4 | 22.5625 |
| 7 | 23 | 87 | -.1 | .0625 |
| 8 | 123 | 89 | -.1 | .0625 |
| 9 | 4 | 80 | 1.6 | 10.5625 |
| 10 | 14 | 83 | -2.4 | 22.5625 |
| 11 | 24 | 88 | -2.6 | 27.5625 |
| 12 | 124 | 89 | -.6 | 1.5625 |
| 13 | 34 | 83 | 1.1 | 5.0625 |
| 14 | 134 | 83 | 1.1 | 5.0625 |
| 15 | 234 | 87 | -1.6 | 10.5625 |
| 16 | 1234 | 86 | .4 | .5625 |
| | | | TOTAL = | 400.9375 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

TABLE K-7. RANKED STANDARDIZED MAGNITUDE OF EFFECTS
TOTAL PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED
AS VAPOR FROM LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 7.9 | 96.67 | 3.29 | 98.33 |
| 14 | 1 | 3.1 | 90 | 1.29 | 95 |
| 13 | 24 | 2.6 | 83.33 | 1.08 | 91.67 |
| 12 | 14 | 2.4 | 76.67 | 1 | 88.33 |
| 11 | 13 | 2.4 | 70 | 1 | 85 |
| 10 | 234 | 1.6 | 63.33 | .67 | 81.67 |
| 9 | 4 | 1.6 | 56.67 | .67 | 78.33 |
| 8 | 3 | 1.4 | 50 | .58 | 75 |
| 7 | 134 | 1.1 | 43.33 | .46 | 71.67 |
| 6 | 34 | 1.1 | 36.67 | .46 | 68.33 |
| 5 | 124 | .6 | 30 | .25 | 65 |
| 4 | 1234 | .4 | 23.33 | .17 | 61.67 |
| 3 | 123 | .1 | 16.67 | .04 | 58.33 |
| 2 | 23 | .1 | 10 | .04 | 55 |
| 1 | 12 | .1 | 3.33 | .04 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS
THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

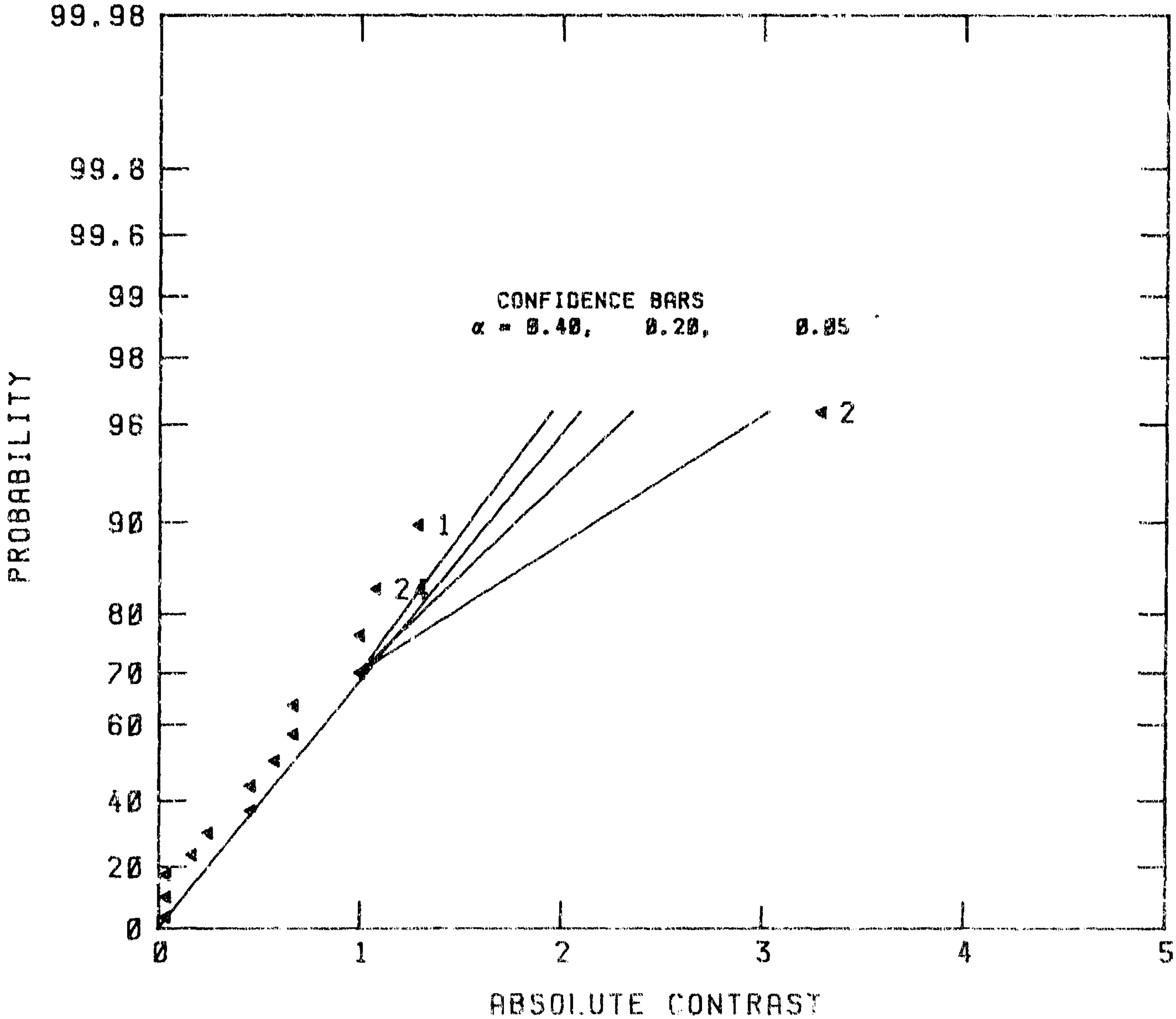


FIGURE K-3. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT TOTAL PERCENT OF CONTAMINATION RECOVERED AS VAPOR FROM 2 MM DIA DROPS ON LEAF SURFACE AT 80 DEG F AND 42% RH

TABLE K-8. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES LIFE TIME OF DROPLET (2 MM DIA) CONTAMINATION ON LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 870 | 698.8 | – |
| 2 | 1 | 1020 | 31.3 | 3906.25 |
| 3 | 2 | 360 | -562.5 | 1265625 |
| 4 | 12 | 370 | -28.7 | 3306.25 |
| 5 | 3 | 870 | 120 | 57600.0001 |
| 6 | 13 | 900 | -61.2 | 15006.25 |
| 7 | 23 | 480 | -25 | 2500 |
| 8 | 123 | 480 | 43.8 | 7656.25002 |
| 9 | 4 | 780 | 60 | 14400 |
| 10 | 14 | 960 | -16.2 | 1056.25 |
| 11 | 24 | 360 | -70 | 19600 |
| 12 | 124 | 390 | 13.8 | 756.25 |
| 13 | 34 | 1280 | 92.5 | 34225 |
| 14 | 134 | 1160 | -28.7 | 3306.25 |
| 15 | 234 | 465 | -112.5 | 50625.0001 |
| 16 | 1234 | 435 | 16.3 | 1056.25 |

TOTAL = 1480625

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

TABLE K-9. RANKED STANDARDIZED MAGNITUDE OF EFFECTS
LIFE TIME OF DROPLET (2 MM DIA) CONTAMINATION ON LEAF
SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 562.5 | 96.67 | 8.04 | 98.33 |
| 14 | 3 | 120 | 90 | 1.71 | 95 |
| 13 | 234 | 112.5 | 83.33 | 1.61 | 91.67 |
| 12 | 34 | 92.5 | 76.67 | 1.32 | 88.33 |
| 11 | 24 | 70 | 70 | 1 | 85 |
| 10 | 13 | 61.2 | 63.33 | .87 | 81.67 |
| 9 | 4 | 60 | 56.67 | .86 | 78.33 |
| 8 | 123 | 43.8 | 50 | .63 | 75 |
| 7 | 1 | 31.3 | 43.33 | .45 | 71.67 |
| 6 | 134 | 28.7 | 36.67 | .41 | 68.33 |
| 5 | 12 | 28.7 | 30 | .41 | 65 |
| 4 | 23 | 25 | 23.33 | .36 | 61.67 |
| 3 | 1234 | 16.3 | 16.67 | .23 | 58.33 |
| 2 | 14 | 16.2 | 10 | .23 | 55 |
| 1 | 124 | 13.8 | 3.33 | .2 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIF

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)OAK | (-)HICKORY |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

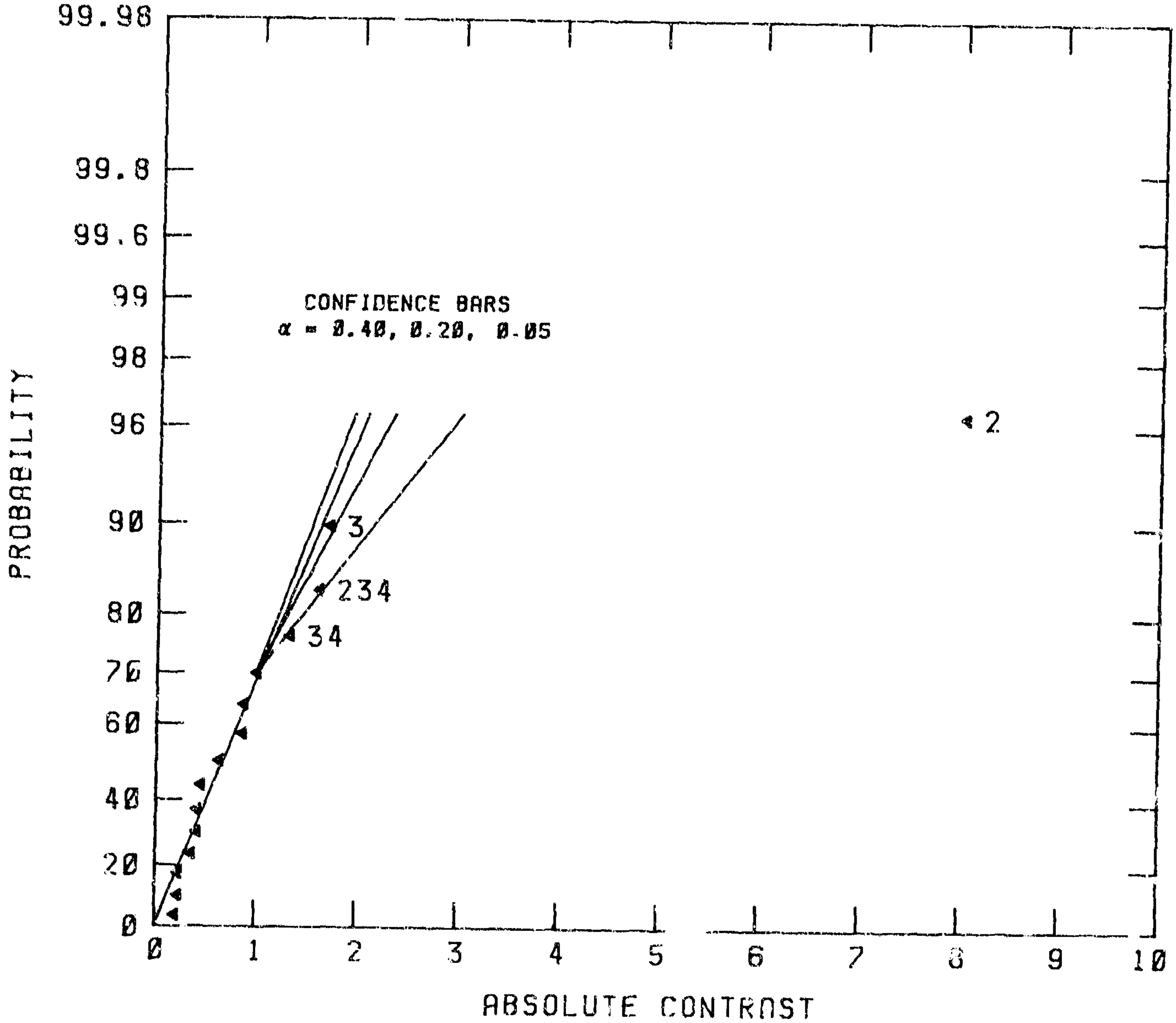


FIGURE K-4. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT LIFE TIME OF 2 MM DIA DROPLETS DEPOSITED ON LEAF SURFACE AT 80 DEG F AND 42% RH

TABLE K-10. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES AVERAGE EVAPORATION RATE (MMG/MIN) OVER LIFE TIME OF DROPLET (2 MM DIA) CONTAMINATION ON LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 5 | 9 | - |
| 2 | 1 | 5 | 1 | 4 |
| 3 | 2 | 13 | 8 | 256 |
| 4 | 12 | 16 | .5 | 1 |
| 5 | 3 | 5 | -1.7 | 12.25 |
| 6 | 13 | 5 | -.2 | .25 |
| 7 | 23 | 11 | -1.2 | 6.25 |
| 8 | 123 | 12 | -.2 | .25 |
| 9 | 4 | 5 | 0 | 0 |
| 10 | 14 | 6 | 0 | 0 |
| 11 | 24 | 14 | 0 | 0 |
| 12 | 124 | 15 | -.5 | 1 |
| 13 | 34 | 4 | -.2 | .25 |
| 14 | 134 | 5 | .3 | .25 |
| 15 | 234 | 11 | .3 | .25 |
| 16 | 1234 | 12 | .3 | .25 |
| | | | TOTAL = | 282 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

TABLE K-11. RANKED STANDARDIZED MAGNITUDE OF EFFECTS AVERAGE EVAPORATION RATE (MMG/MIN) OVER LIFE TIME OF DROPLET (2 MM DIA) CONTAMINATION ON LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 8 | 96.67 | 16 | 98.33 |
| 14 | 3 | 1.7 | 90 | 3.4 | 95 |
| 13 | 23 | 1.2 | 83.33 | 2.4 | 91.67 |
| 12 | 1 | 1 | 76.67 | 2 | 88.33 |
| 11 | 124 | .5 | 70 | 1 | 85 |
| 10 | 12 | .5 | 63.33 | 1 | 81.67 |
| 9 | 1234 | .3 | 56.67 | .6 | 78.33 |
| 8 | 234 | .3 | 50 | .6 | 75 |
| 7 | 134 | .3 | 43.33 | .6 | 71.67 |
| 6 | 34 | .2 | 36.67 | .4 | 68.33 |
| 5 | 123 | .2 | 30 | .4 | 65 |
| 4 | 13 | .2 | 23.33 | .4 | 61.67 |
| 3 | 24 | 0 | 16.67 | 0 | 58.33 |
| 2 | 14 | 0 | 10 | 0 | 55 |
| 1 | 4 | 0 | 3.33 | 0 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

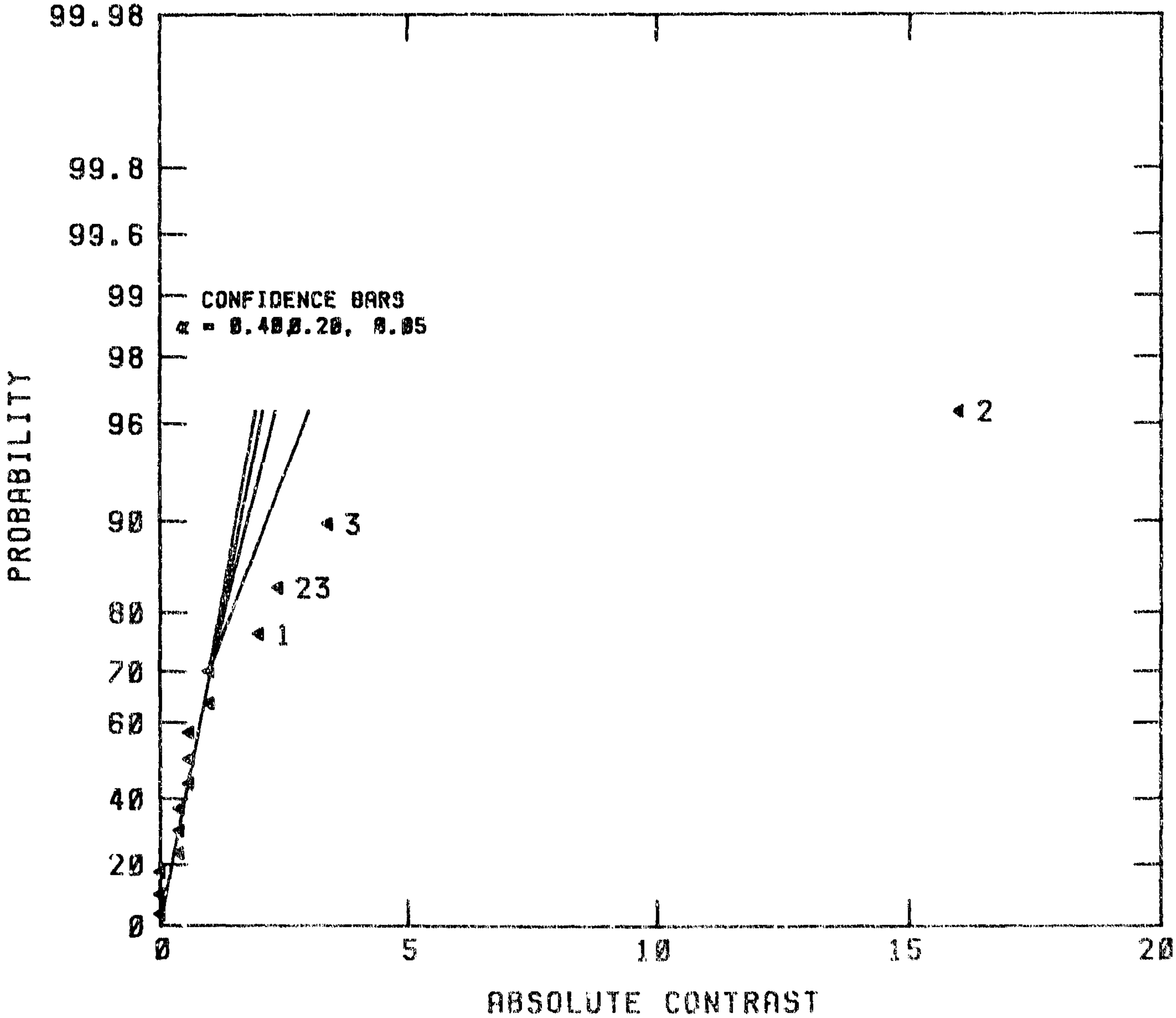


FIGURE K-5. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT AVERAGE EVAPORATON RATE FOR 2 MM DIA DROPLETS DEPOSITED ON LEAF SURFACE AT 60 DEG F AND 42% RH

TABLE K-12. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 1 HR FROM LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 16 | 19.9 | - |
| 2 | 1 | 14 | -3 | 36 |
| 3 | 2 | 39 | 14.5 | 841 |
| 4 | 12 | 33 | -1.2 | 6.25 |
| 5 | 3 | 12 | -7.2 | 210.25 |
| 6 | 13 | 11 | 2 | 16 |
| 7 | 23 | 23 | -3 | 36 |
| 8 | 123 | 22 | 1.3 | 6.25 |
| 9 | 4 | 16 | -2.7 | 30.25 |
| 10 | 14 | 13 | -.5 | 1 |
| 11 | 24 | 33 | -1.5 | 9 |
| 12 | 124 | 24 | -.2 | .25 |
| 13 | 34 | 10 | 1.3 | 6.25 |
| 14 | 134 | 9 | .5 | 1 |
| 15 | 234 | 22 | 2 | 16 |
| 16 | 1234 | 21 | .3 | .25 |

TOTAL = 1215.75

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

TABLE K-13. RANKED STANDARDIZED MAGNITUDE OF EFFECTS PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 1 HR FROM LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 14.5 | 96.67 | 5.37 | 98.33 |
| 14 | 3 | 7.2 | 90 | 2.67 | 95 |
| 13 | 23 | 3 | 83.33 | 1.11 | 91.67 |
| 12 | 1 | 3 | 76.67 | 1.11 | 88.33 |
| 11 | 4 | 2.7 | 70 | 1 | 85 |
| 10 | 234 | 2 | 63.33 | .74 | 81.67 |
| 9 | 13 | 2 | 56.67 | .74 | 78.33 |
| 8 | 24 | 1.5 | 50 | .56 | 75 |
| 7 | 34 | 1.3 | 43.33 | .48 | 71.67 |
| 6 | 123 | 1.3 | 36.67 | .48 | 68.33 |
| 5 | 12 | 1.2 | 30 | .44 | 65 |
| 4 | 134 | .5 | 23.33 | .19 | 61.67 |
| 3 | 14 | .5 | 16.67 | .19 | 58.33 |
| 2 | 1234 | .3 | 10 | .11 | 55 |
| 1 | 124 | .2 | 3.33 | .07 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

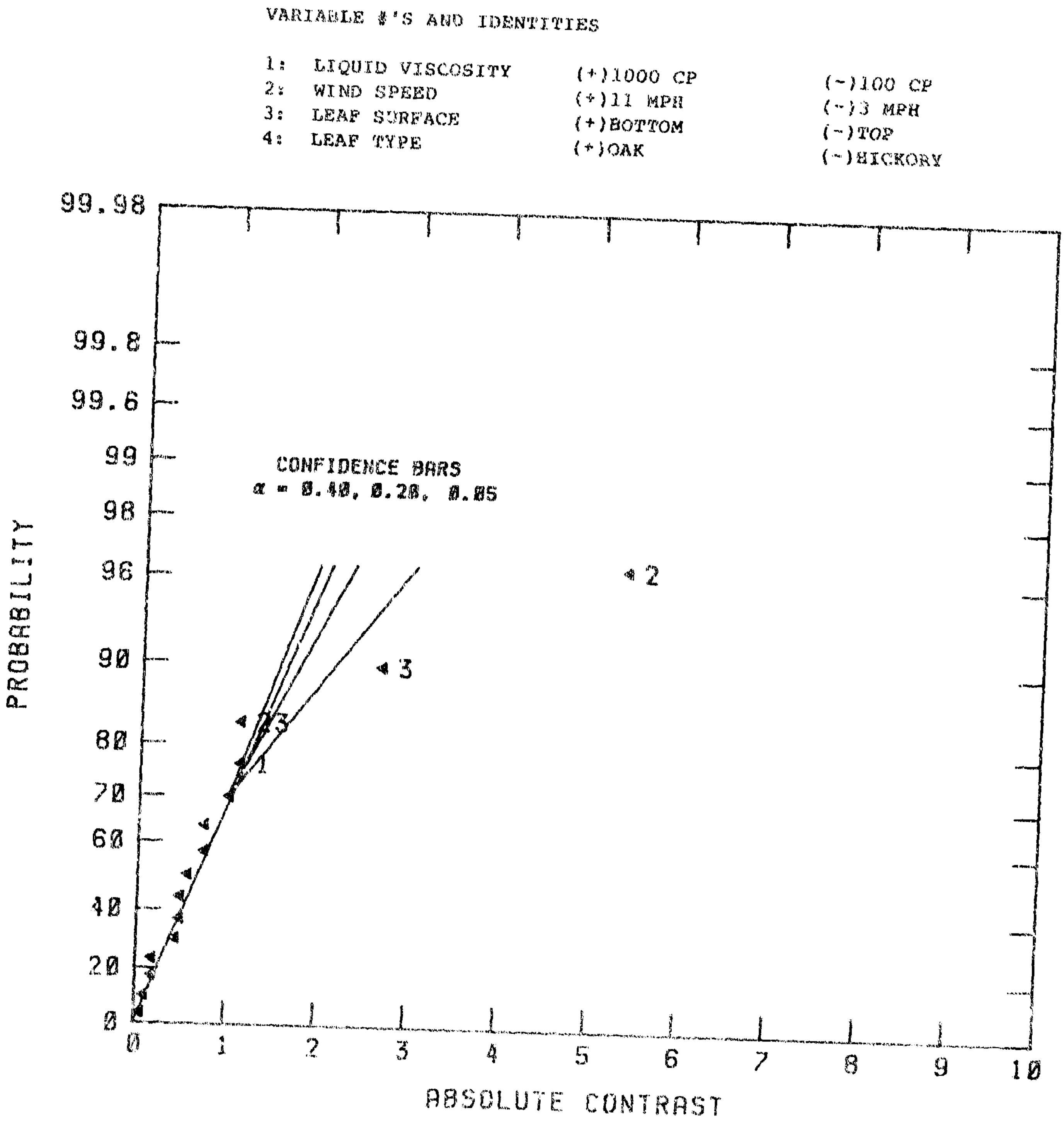


FIGURE K-6. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT PERCENT OF CONTAMINATION RECOVERED AS VAPOR AFTER 1 HR FROM 2 MM DIA DROPS ON LEAF SURFACE AT 80 DEG F AND 42% RH

TABLE K-14. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 2 HR FROM LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 29 | 35.9 | - |
| 2 | 1 | 27 | -4 | 64 |
| 3 | 2 | 63 | 24.8 | 2450.25 |
| 4 | 12 | 58 | -1.5 | 9 |
| 5 | 3 | 22 | -11.2 | 506.25 |
| 6 | 13 | 21 | 2 | 16 |
| 7 | 23 | 42 | -3.7 | 56.25 |
| 8 | 123 | 40 | 1 | 4 |
| 9 | 4 | 29 | -3.7 | 56.25 |
| 10 | 14 | 24 | -1.5 | 9 |
| 11 | 24 | 57 | -1.2 | 6.25 |
| 12 | 124 | 45 | -.5 | 1 |
| 13 | 34 | 19 | 1.8 | 12.25 |
| 14 | 134 | 17 | 1 | 4 |
| 15 | 234 | 42 | 2.8 | 30.25 |
| 16 | 1234 | 39 | .5 | 1 |
| | | | TOTAL = | 3225.75 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

TABLE K-15. RANKED STANDARDIZED MAGNITUDE OF EFFECTS PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 2 HR FROM LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 24.8 | 96.67 | 6.7 | 98.33 |
| 14 | 3 | 11.2 | 90 | 3.03 | 95 |
| 13 | 1 | 4 | 83.33 | 1.08 | 91.67 |
| 12 | 4 | 3.7 | 76.67 | 1 | 88.33 |
| 11 | 23 | 3.7 | 70 | 1 | 85 |
| 10 | 234 | 2.8 | 63.33 | .76 | 81.67 |
| 9 | 13 | 2 | 56.67 | .54 | 78.33 |
| 8 | 34 | 1.8 | 50 | .49 | 75 |
| 7 | 14 | 1.5 | 43.33 | .41 | 71.67 |
| 6 | 12 | 1.5 | 36.67 | .41 | 68.33 |
| 5 | 24 | 1.2 | 30 | .32 | 65 |
| 4 | 134 | 1 | 23.33 | .27 | 61.67 |
| 3 | 123 | 1 | 16.67 | .27 | 58.33 |
| 2 | 1234 | .5 | 10 | .14 | 55 |
| 1 | 124 | .5 | 3.33 | .14 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100.)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

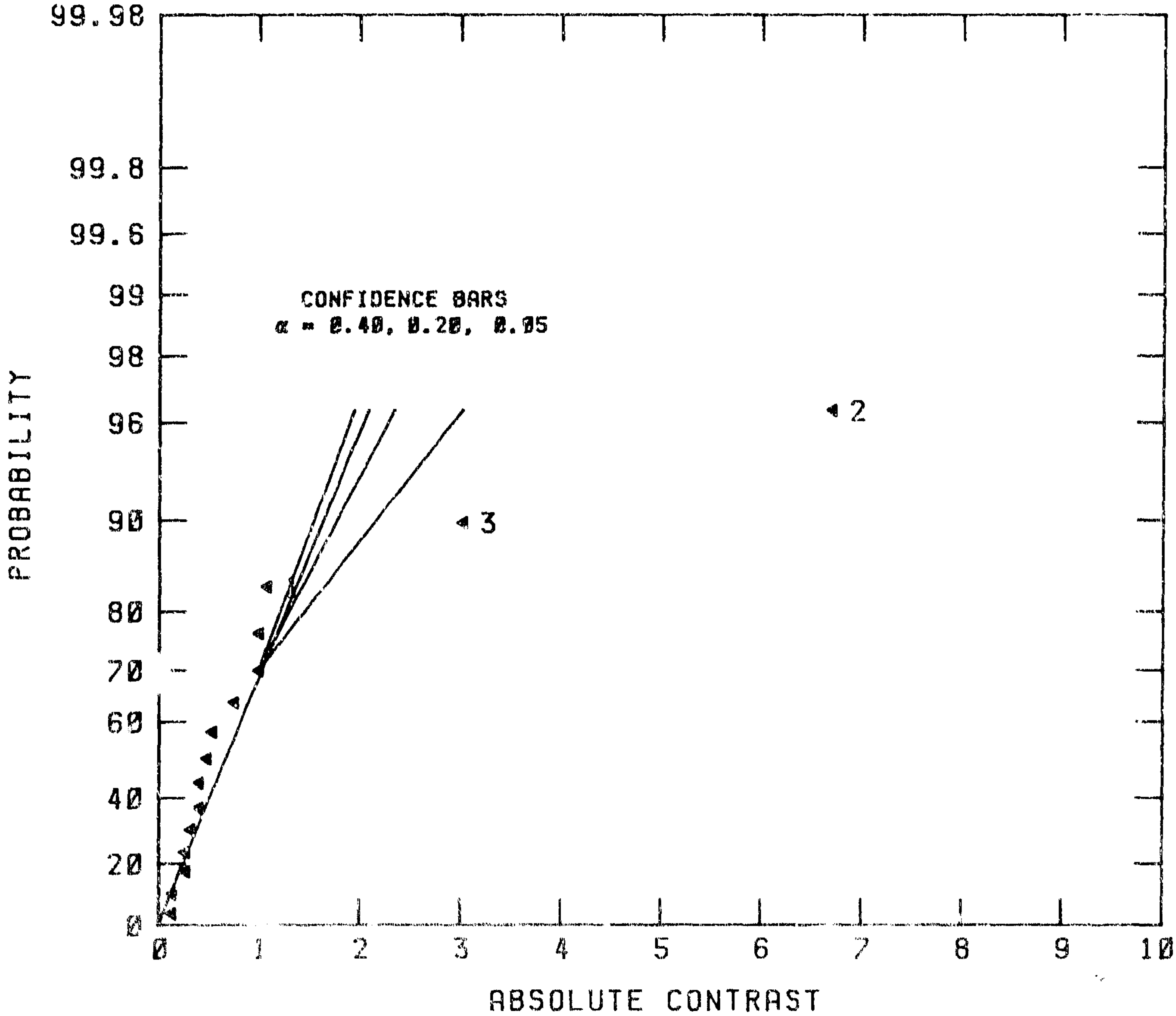


FIGURE K-7. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT PERCENT OF CONTAMINATION RECOVERED AS VAPOR AFTER 2 HR FROM 2 MM DIA DROPS ON LEAF SURFACE AT 80 DEG F AND 42% RH

TABLE K-16. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 3 HR FROM LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 40 | 48.5 | - |
| 2 | 1 | 37 | -4.2 | 72.25 |
| 3 | 2 | 76 | 31.3 | 3906.25 |
| 4 | 12 | 75 | -.5 | 1 |
| 5 | 3 | 32 | -12.5 | 625 |
| 6 | 13 | 30 | 1.3 | 6.25 |
| 7 | 23 | 58 | -2.7 | 30.25 |
| 8 | 123 | 56 | .5 | 1 |
| 9 | 4 | 40 | -4 | 64 |
| 10 | 14 | 34 | -2.2 | 20.25 |
| 11 | 24 | 74 | -.2 | .25 |
| 12 | 124 | 62 | -1 | 4 |
| 13 | 34 | 27 | .5 | 1 |
| 14 | 134 | 23 | 1.3 | 6.25 |
| 15 | 234 | 58 | 2.8 | 30.25 |
| 16 | 1234 | 54 | 1 | 4 |
| | | | TOTAL = | 4772 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

TABLE K-17. RANKED STANDARDIZED MAGNITUDE OF EFFECTS PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 3 HR FROM LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 31.3 | 96.67 | 11.18 | 98.33 |
| 14 | 3 | 12.5 | 90 | 4.46 | 95 |
| 13 | 1 | 4.2 | 83.33 | 1.5 | 91.67 |
| 12 | 4 | 4 | 76.67 | 1.43 | 88.33 |
| 11 | 234 | 2.8 | 70 | 1 | 85 |
| 10 | 23 | 2.7 | 63.33 | .96 | 81.67 |
| 9 | 14 | 2.2 | 56.67 | .79 | 78.33 |
| 8 | 134 | 1.3 | 50 | .46 | 75 |
| 7 | 13 | 1.3 | 43.33 | .46 | 71.67 |
| 6 | 1234 | 1 | 36.67 | .36 | 68.33 |
| 5 | 124 | 1 | 30 | .36 | 65 |
| 4 | 34 | .5 | 23.33 | .18 | 61.67 |
| 3 | 123 | .5 | 16.67 | .18 | 58.33 |
| 2 | 12 | .5 | 10 | .18 | 55 |
| 1 | 24 | .2 | 3.33 | .07 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

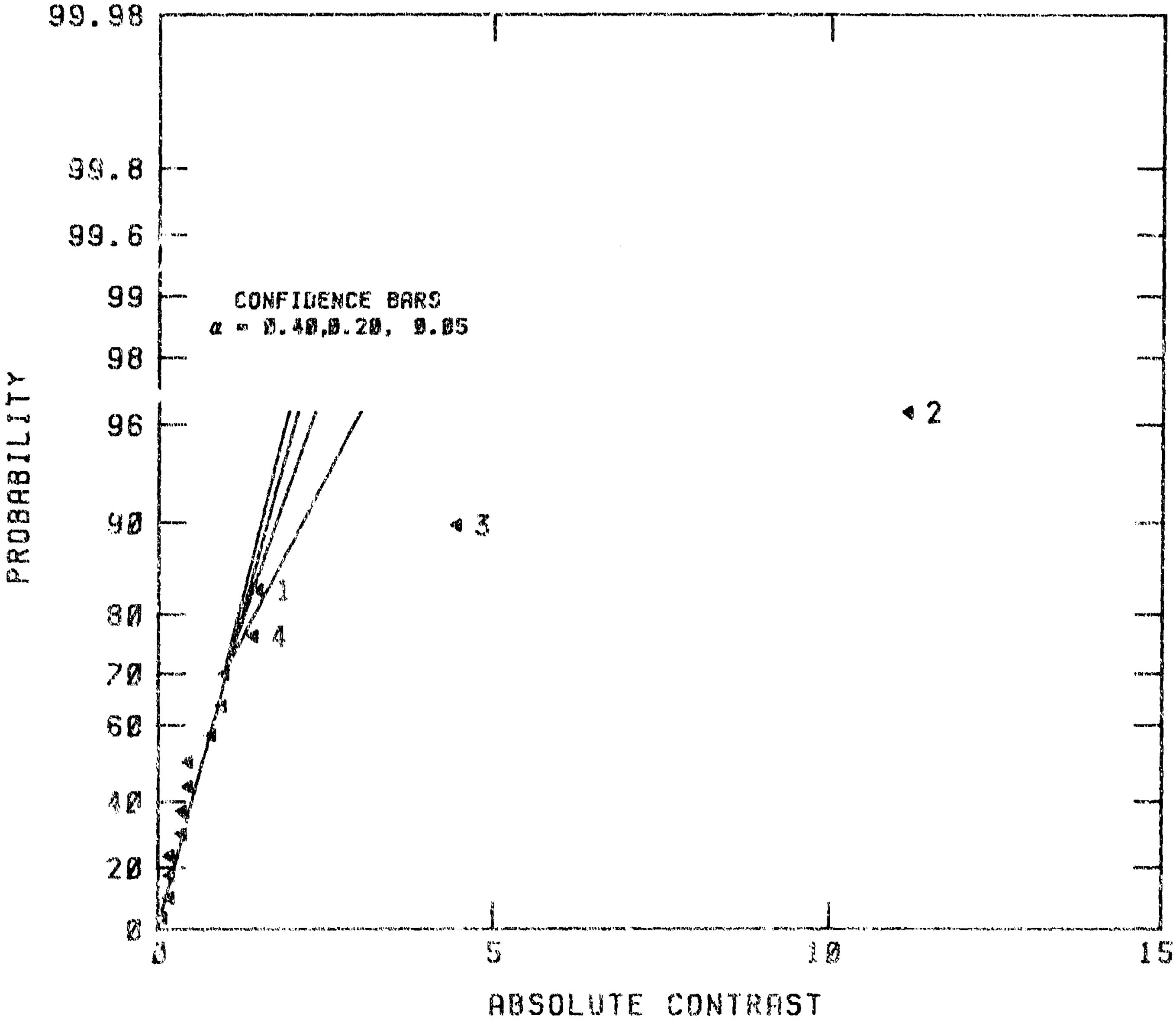


FIGURE K-8. HALF NORMAL PROBABILTIY PLOT OF FACTORIAL EXPERIMENT PERCENT OF CONTAMINATION RECOVERED AS VAPOR AFTER 3 HR FROM 2 MM DIA DROPS ON LEAF SURFACE AT 60 DEG F AND 42% RH

TABLE K-18. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 6 HR FROM LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 62 | 71.3 | - |
| 2 | 1 | 61 | .1 | .0625 |
| 3 | 2 | 84 | 30.6 | 3751.5625 |
| 4 | 12 | 94 | 2.6 | 27.5625 |
| 5 | 3 | 54 | -7.6 | 232.5625 |
| 6 | 13 | 53 | -1.1 | 5.0625 |
| 7 | 23 | 84 | 3.4 | 45.5625 |
| 8 | 123 | 85 | -1.6 | 10.5625 |
| 9 | 4 | 64 | -1.6 | 10.5625 |
| 10 | 14 | 59 | -2.1 | 18.0625 |
| 11 | 24 | 88 | 1.4 | 7.5625 |
| 12 | 124 | 89 | -.6 | 1.5625 |
| 13 | 34 | 49 | -1.4 | 7.5625 |
| 14 | 134 | 46 | 1.1 | 5.0625 |
| 15 | 234 | 85 | 1.6 | 10.5625 |
| 16 | 1234 | 84 | .6 | 1.5625 |
| | | | TOTAL = | 4135.4375 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1. | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

TABLE K-19. RANKED STANDARDIZED MAGNITUDE OF EFFECTS PERCENT OF DROPLET ([illegible] MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 6 HR FROM LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 30.6 | 96.67 | 14.57 | 98.33 |
| 14 | 3 | 7.6 | 90 | 3.62 | 95 |
| 13 | 23 | 3.4 | 83.33 | 1.62 | 91.67 |
| 12 | 12 | 2.6 | 76.67 | 1.24 | 88.33 |
| 11 | 14 | 2.1 | 70 | 1 | 85 |
| 10 | 234 | 1.6 | 63.33 | .76 | 81.67 |
| 9 | 4 | 1.6 | 56.67 | .76 | 78.33 |
| 8 | 123 | 1.6 | 50 | .76 | 75 |
| 7 | 34 | 1.4 | 43.33 | .67 | 71.67 |
| 6 | 24 | 1.4 | 36.67 | .67 | 68.33 |
| 5 | 134 | 1.1 | 30 | .52 | 65 |
| 4 | 13 | 1.1 | 23.33 | .52 | 61.67 |
| 3 | 1234 | .6 | 16.67 | .29 | 58.33 |
| 2 | 124 | .6 | 10 | .29 | 55 |
| 1 | 1 | .1 | 3.33 | .05 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

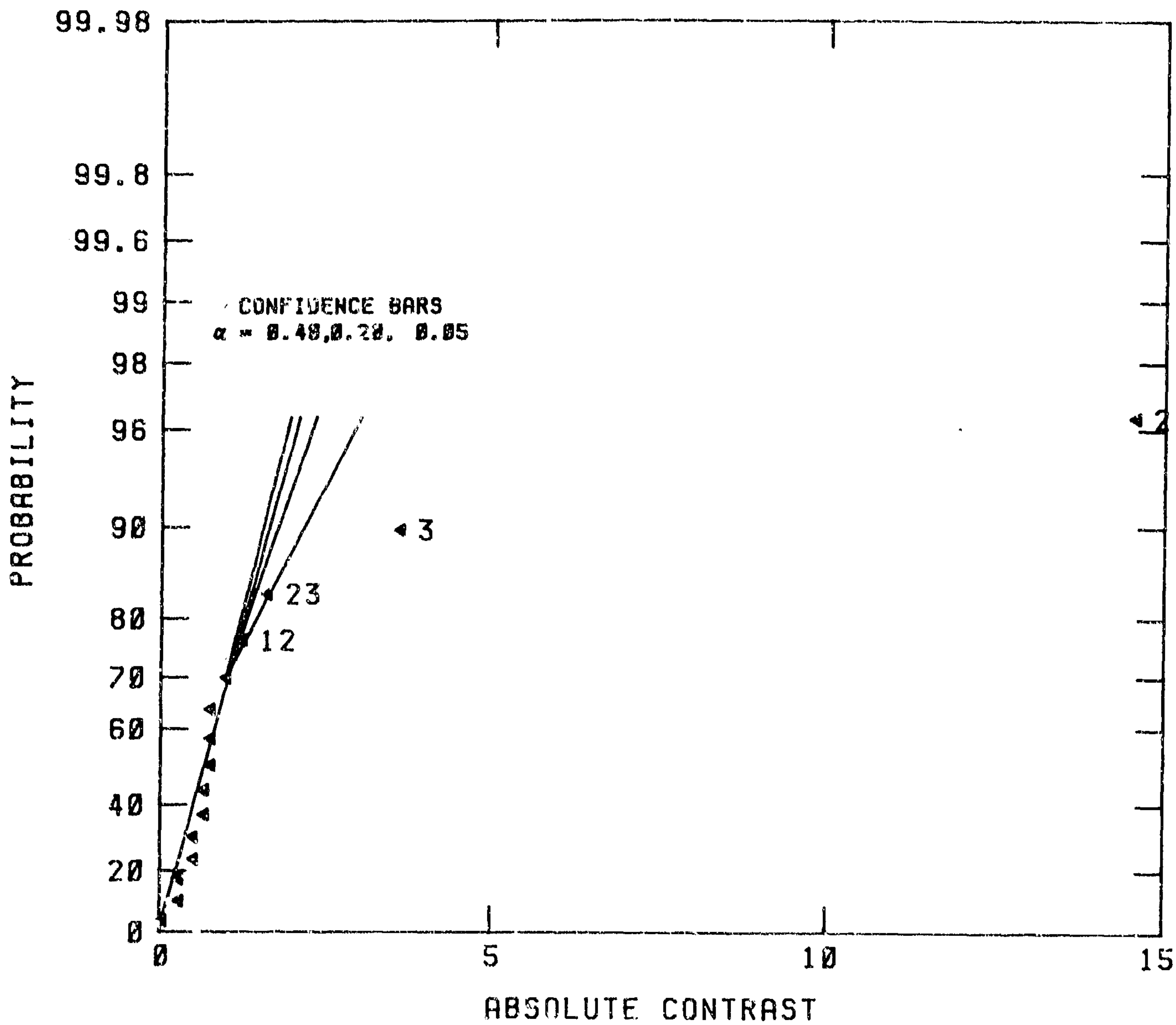


FIGURE K-9. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT PERCENT OF CONTAMINATION RECOVERED AS VAPOR AFTER 0 HR FROM 2 MM DIA DROPS ON LEAF SURFACE AT 80 DEG F AND 42% RH

TABLE K-20. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET (2 MM DIA) DEPOSITED ON LEAF SURFACE FOR 1 HR AT 60 DEG F AND 42‰ RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 17 | 19.9 | – |
| 2 | 1 | 15 | -.9 | 3.06[illegible]5 |
| 3 | 2 | 36 | 14.9 | 885.06[illegible] |
| 4 | 12 | 36 | -.4 | .5625 |
| 5 | 3 | 11 | -7.4 | 217.5625 |
| 6 | 13 | 11 | .9 | 3.0625 |
| 7 | 23 | 23 | -2.4 | 22.5625 |
| 8 | 123 | 23 | .4 | .5625 |
| 9 | 4 | 14 | -3.1 | 39.0625 |
| 10 | 14 | 14 | -.4 | .5625 |
| 11 | 24 | 31 | -1.1 | 5.0625 |
| 12 | 124 | 26 | -.9 | 3.0625 |
| 13 | 34 | 9 | 1.6 | 10.5625 |
| 14 | 134 | 9 | .4 | .5625 |
| 15 | 234 | 22 | 1.6 | 10.5625 |
| 16 | 1234 | 22 | .9 | 3.0625 |

TOTAL = 1204.9375

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

TABLE K-21. RANKED STANDARDIZED MAGNITUDE OF EFFECTS AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET (2 MM DIA) DEPOSITED ON LEAF SURFACE FOR 1 HR AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 14.9 | 96.67 | 9.31 | 98.33 |
| 14 | 3 | 7.4 | 90 | 4.63 | 95 |
| 13 | 4 | 3.1 | 83.33 | 1.94 | 91.67 |
| 12 | 23 | 2.4 | 76.67 | 1.5 | 88.33 |
| 11 | 234 | 1.6 | 70 | 1 | 85 |
| 10 | 34 | 1.6 | 63.33 | 1 | 81.67 |
| 9 | 24 | 1.1 | 56.67 | .69 | 78.33 |
| 8 | 1234 | .9 | 50 | .56 | 75 |
| 7 | 124 | .9 | 43.33 | .56 | 71.67 |
| 6 | 13 | .9 | 36.67 | .56 | 68.33 |
| 5 | 1 | .9 | 30 | .56 | 65 |
| 4 | 134 | .4 | 23.33 | .25 | 61.67 |
| 3 | 14 | .4 | 16.67 | .25 | 58.33 |
| 2 | 123 | .4 | 10 | .25 | 55 |
| 1 | 12 | .4 | 3.33 | .25 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

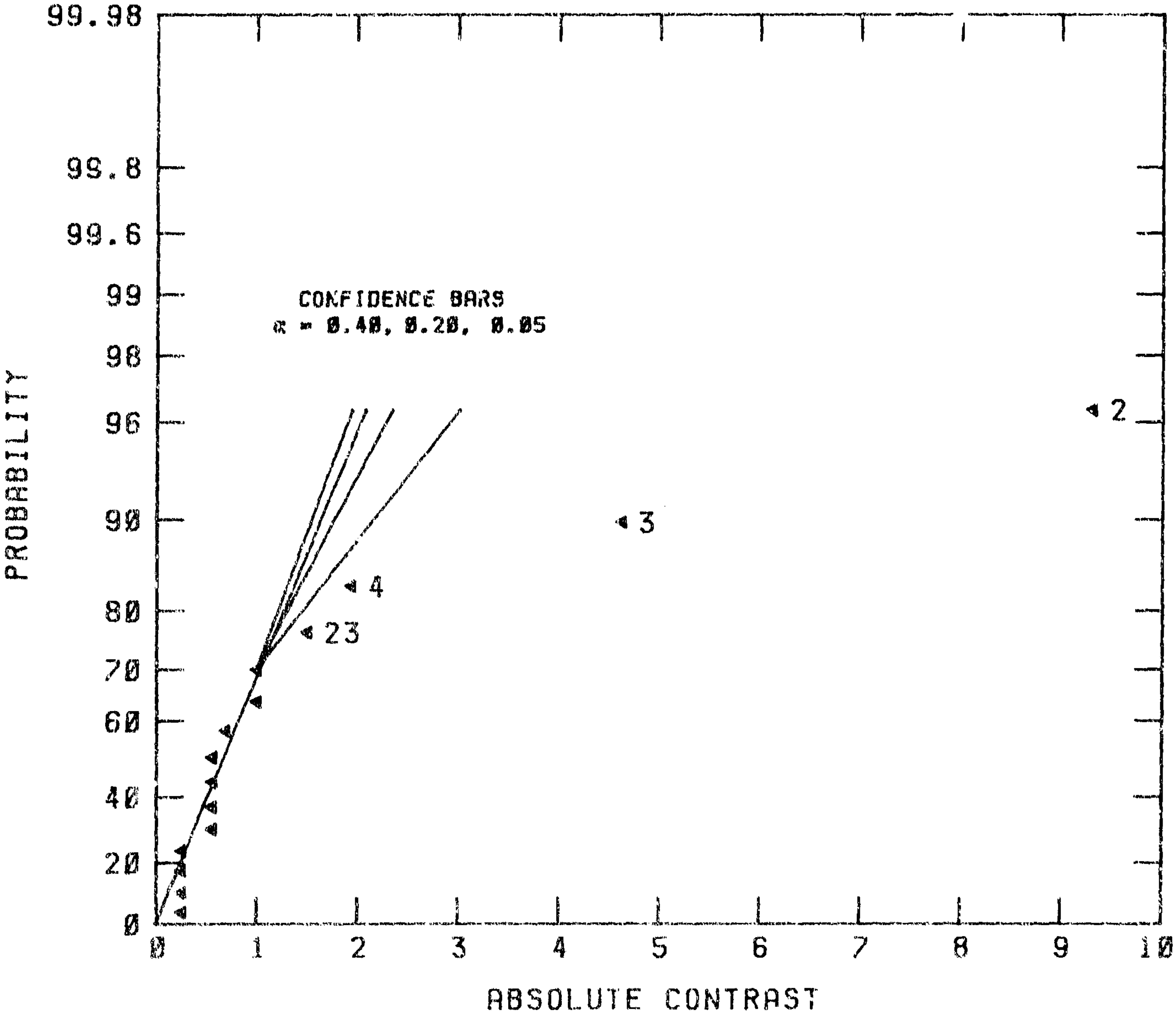


FIGURE K-10. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT AVERAGE EVAPORATION RATE OF 2MM DIA DROPS DEPOSITED ON LEAF SURFACE FOR 1 HR AT 80 DEG F AND 42% RH

TABLE K-22. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET (2 MM DIA) DEPOSITED ON LEAF SURFACE FOR 2 HR AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 15 | 17.8 | - |
| 2 | 1 | 14 | .1 | .0625 |
| 3 | 2 | 29 | 12.9 | 663.0625 |
| 4 | 12 | 31 | -.1 | .0625 |
| 5 | 3 | 10 | -5.6 | 126.5625 |
| 6 | 13 | 10 | .4 | .5625 |
| 7 | 23 | 21 | -1.4 | 7.5625 |
| 8 | 123 | 22 | .1 | .0625 |
| 9 | 4 | 12 | -2.4 | 22.5625 |
| 10 | 14 | 13 | -.4 | .5625 |
| 11 | 24 | 27 | -.6 | 1.5625 |
| 12 | 124 | 24 | -1.1 | 5.0625 |
| 13 | 34 | 8 | .9 | 3.0625 |
| 14 | 134 | 9 | .4 | .5625 |
| 15 | 234 | 20 | .6 | 1.5625 |
| 16 | 1234 | 20 | .6 | 1.5625 |
| | | | TOTAL = | 834.4375 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

TABLE K-23. RANKED STANDARDIZED MAGNITUDE OF EFFECTS AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET (2 MM DIA) DEPOSITED ON LEAF SURFACE FOR 2 HR AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 12.9 | 96.67 | 11.73 | 98.33 |
| 14 | 3 | 5.6 | 90 | 5.09 | 95 |
| 13 | 4 | 2.4 | 83.33 | 2.18 | 91.67 |
| 12 | 23 | 1.4 | 76.67 | 1.27 | 88.33 |
| 11 | 124 | 1.1 | 70 | 1 | 85 |
| 10 | 34 | .9 | 63.33 | .82 | 81.67 |
| 9 | 1234 | .6 | 56.67 | .55 | 78.33 |
| 8 | 234 | .6 | 50 | .55 | 75 |
| 7 | 24 | .6 | 43.33 | .55 | 71.67 |
| 6 | 134 | .4 | 36.67 | .36 | 68.33 |
| 5 | 14 | .4 | 30 | .36 | 65 |
| 4 | 13 | .4 | 23.33 | .36 | 61.67 |
| 3 | 123 | .1 | 16.67 | .09 | 58.33 |
| 2 | 12 | .1 | 10 | .09 | 55 |
| 1 | 1 | .1 | 3.33 | .09 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

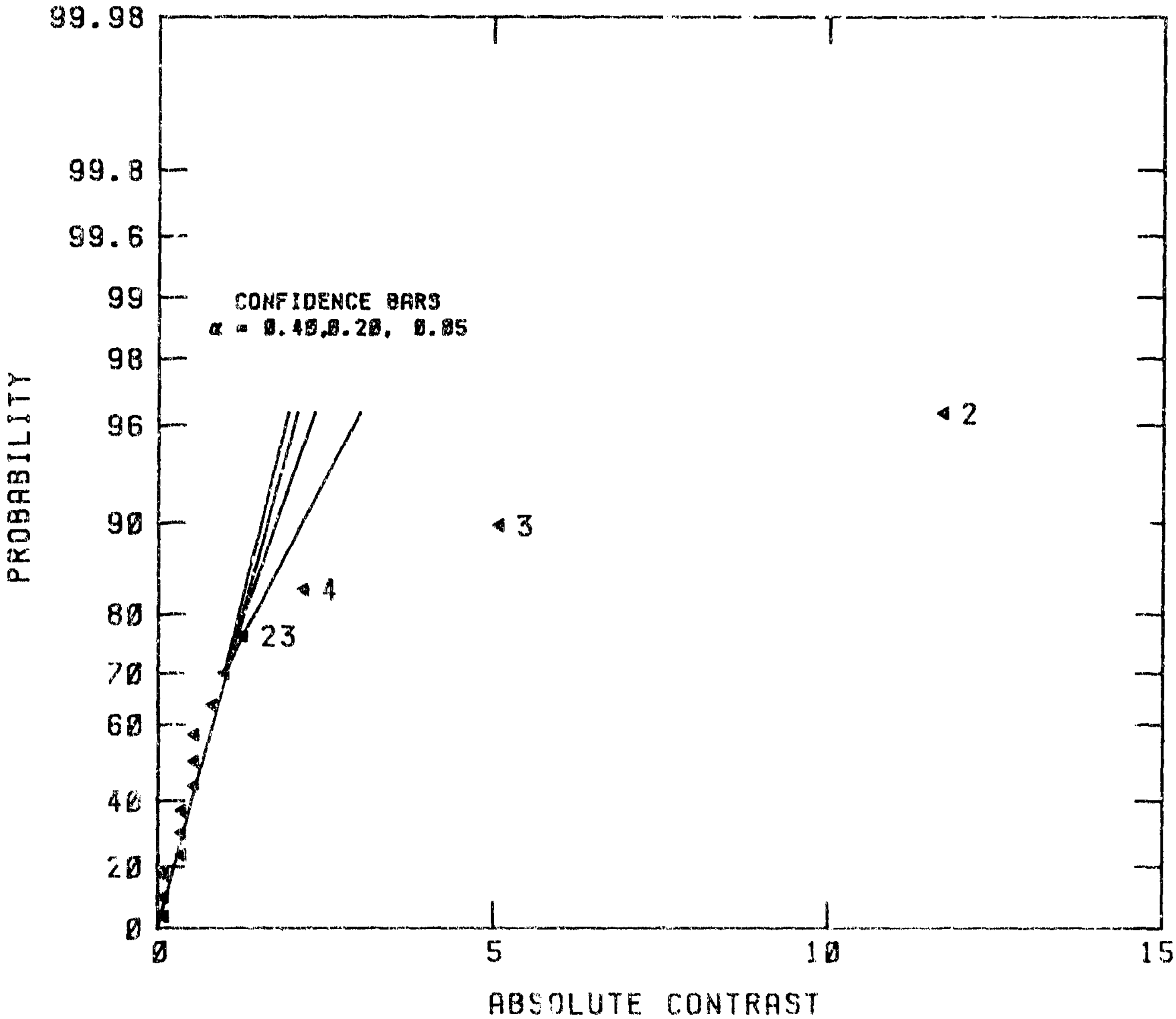


FIGURE K-11. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT AVERAGE EVAPORATION RATE OF 2 MM DIA DROPS DEPOSITED ON LEAF SURFACE FOR 2 HR AT 60 DEG F AND 42% RH

TABLE K-24. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET (2 MM DIA) DEPOSITED ON LEAF SURFACE FOR 3 HR AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 14 | 16.2 | - |
| 2 | 1 | 13 | .6 | 1.5625 |
| 3 | 2 | 23 | 10.6 | 451.5625 |
| 4 | 12 | 27 | .4 | .5625 |
| 5 | 3 | 10 | -3.9 | 60.0625 |
| 6 | 13 | 10 | -.1 | .0625 |
| 7 | 23 | 20 | -.6 | 1.5625 |
| 8 | 123 | 20 | -.4 | .5625 |
| 9 | 4 | 11 | -1.9 | 14.0625 |
| 10 | 14 | 12 | -.1 | .0625 |
| 11 | 24 | 23 | -.1 | .0625 |
| 12 | 124 | 22 | -.9 | 3.0625 |
| 13 | 34 | 8 | .4 | .5625 |
| 14 | 134 | 9 | .6 | 1.5625 |
| 15 | 234 | 18 | .1 | .0625 |
| 16 | 1234 | 19 | .9 | 3.0625 |
| | | | TOTAL = | 538.4375 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

TABLE K-25. RANKED STANDARDIZED MAGNITUDE OF EFFECTS AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET (2 MM DIA) DEPOSITED ON LEAF SURFACE FOR 3 HR AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 10.6 | 96.67 | 11.78 | 98.33 |
| 14 | 3 | 3.9 | 90 | 4.33 | 95 |
| 13 | 4 | 1.9 | 83.33 | 2.11 | 91.67 |
| 12 | 1234 | .9 | 76.67 | 1 | 88.33 |
| 11 | 124 | .9 | 70 | 1 | 85 |
| 10 | 134 | .6 | 63.33 | .67 | 81.67 |
| 9 | 23 | .6 | 56.67 | .67 | 78.33 |
| 8 | 1 | .6 | 50 | .67 | 75 |
| 7 | 34 | .4 | 43.33 | .44 | 71.67 |
| 6 | 123 | .4 | 36.67 | .44 | 68.33 |
| 5 | 12 | .4 | 30 | .44 | 65 |
| 4 | 234 | .1 | 23.33 | .11 | 61.67 |
| 3 | 24 | .1 | 16.67 | .11 | 58.33 |
| 2 | 14 | .1 | 10 | .11 | 55 |
| 1 | 13 | .1 | 3.33 | .11 | 51.67 |

PROB = ((R(I)-.5)/P(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OA | (-)HICKORY |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

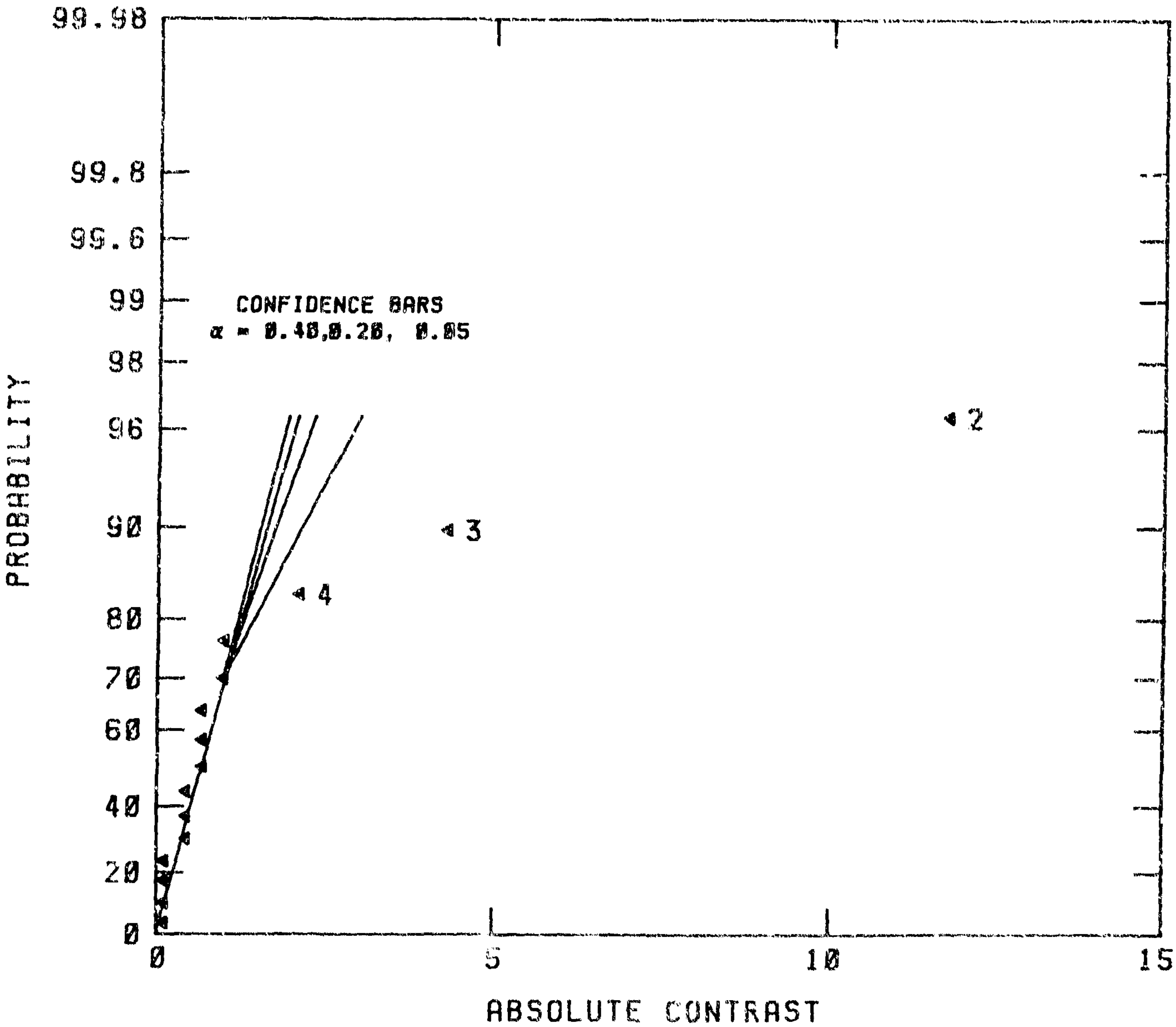


FIGURE K-12. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT AVERAGE EVAPORATION RATE OF 2 MM DROPS DEPOSITED ON LEAF SURFACE FOR 3 HR AT 60 DEG F AND 42% RH

TABLE K-26. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET DEPOSITED ON LEAF SURFACE FOR 6 HR AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 11 | 11.9 | -- |
| 2 | 1 | 11 | 1.5 | 9 |
| 3 | 2 | 13 | 5.2 | 110.25 |
| 4 | 12 | 17 | .5 | 1 |
| 5 | 3 | 8 | -1.7 | 12.25 |
| 6 | 13 | 9 | -.5 | 1 |
| 7 | 23 | 14 | .8 | 2.25 |
| 8 | 123 | 15 | -.5 | 1 |
| 9 | 4 | 9 | -.7 | 2.25 |
| 10 | 14 | 11 | 0 | 0 |
| 11 | 24 | 14 | .3 | .25 |
| 12 | 124 | 16 | -.5 | 1 |
| 13 | 34 | 7 | -.2 | .25 |
| 14 | 134 | 8 | 0 | 0 |
| 15 | 234 | 13 | -.2 | .25 |
| 16 | 1234 | 14 | 5 | 1 |
| | | | TOTAL = | 141.75 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

TABLE K-27. RANKED STANDARDIZED MAGNITUDE OF EFFECTS AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET DEPOSITED ON LEAF SURFACE FOR 6 HR AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 5.3 | 96.67 | 7.57 | 98.33 |
| 14 | 3 | 1.7 | 90 | 2.43 | 95 |
| 13 | 1 | 1.5 | 83.33 | 2.14 | 91.67 |
| 12 | 23 | .8 | 76.67 | 1.14 | 88.33 |
| 11 | 4 | .7 | 70 | 1 | 85 |
| 10 | 1234 | .5 | 63.33 | .71 | 81.67 |
| 9 | 124 | .5 | 56.67 | .71 | 78.33 |
| 8 | 123 | .5 | 50 | .71 | 75 |
| 7 | 13 | .5 | 43.33 | .71 | 71.67 |
| 6 | 12 | .5 | 36.67 | .71 | 68.33 |
| 5 | 24 | .3 | 30 | .43 | 65 |
| 4 | 234 | .2 | 23.33 | .29 | 61.67 |
| 3 | 34 | .2 | 16.67 | .29 | 58.33 |
| 2 | 134 | 0 | 10 | 0 | 55 |
| 1 | 14 | 0 | 3.33 | 0 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

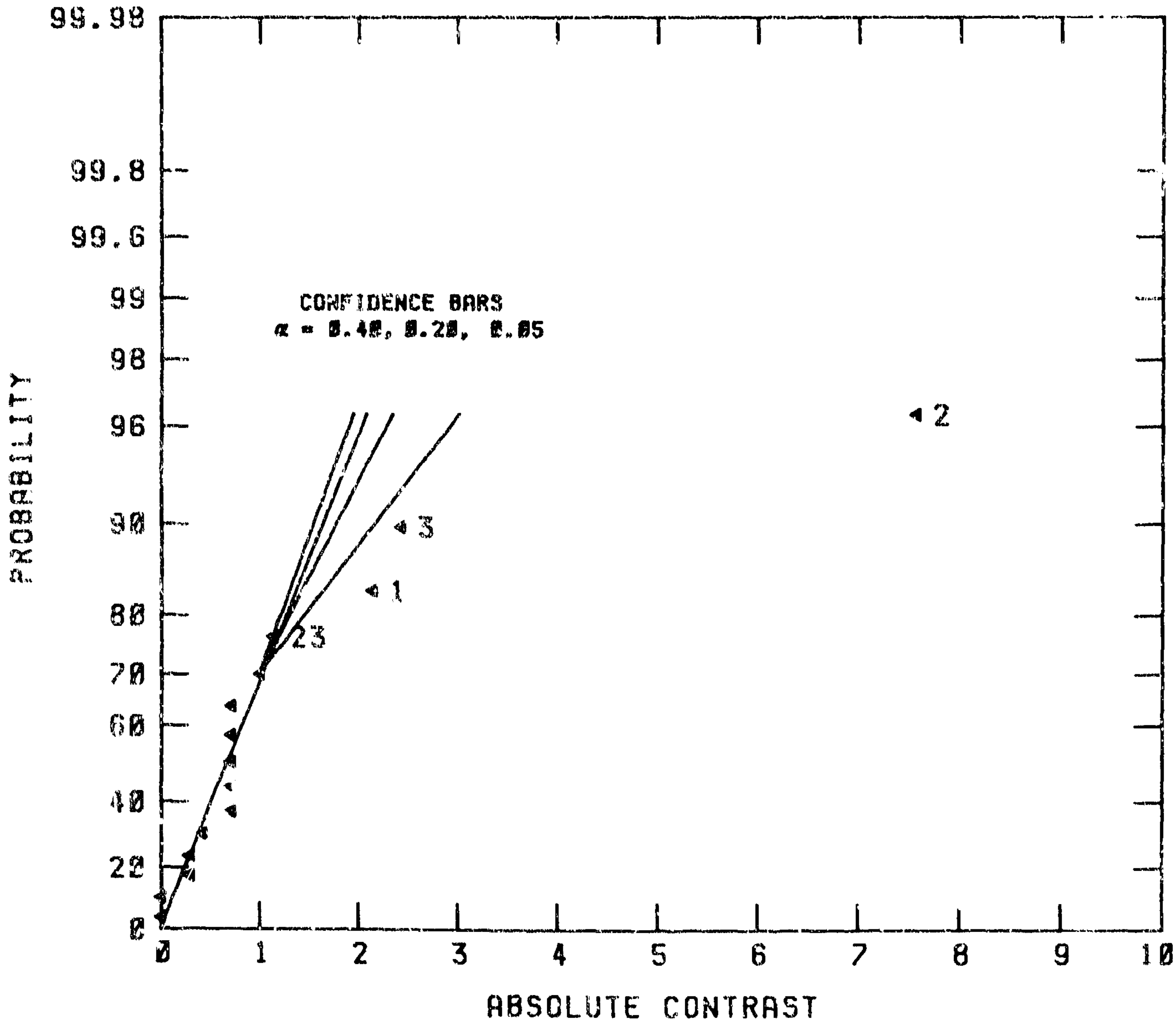


FIGURE K-13. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT AVERAGE EVAPORATION RATE OF 2 MM DIA DROPS DEPOSITED ON LEAF SURFACE FOR 6 HR AT 86 DEG F AND 42% RH

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# APPENDIX L

## FACTORIAL ANALYSIS AND HALF NORMAL PROBABILITY PLOTS OF STANDARDIZED ABSOLUTE CONTRASTS FOR TESTS ON GREEN AND RED OAK LEAVES

TABLE L-1. THE DESIGN MATRIX FOR THE $2^4$ FACTORIAL EXPERIMENT NO. 2.

| TEST | VARIABLES 1 | 2 | 3 | 4 | CONTRAST CONFOUNDING |
|---|---|---|---|---|---|
| 1 | − | − | − | − | MEAN |
| 2 | + | − | − | − | 1 |
| 3 | − | + | − | − | 2 |
| 4 | + | + | − | − | 12 |
| 5 | − | − | + | − | 3 |
| 6 | + | − | + | − | 13 |
| 7 | − | + | + | − | 23 |
| 8 | + | + | + | − | 123 |
| 9 | − | − | − | + | 4 |
| 10 | + | − | − | + | 14 |
| 11 | − | + | − | + | 24 |
| 12 | + | + | − | + | 124 |
| 13 | − | − | + | + | 34 |
| 14 | + | − | + | + | 134 |
| 15 | − | + | + | + | 234 |
| 16 | + | + | + | + | 1234 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (−)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (−)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (−)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (−)RED |

TABLE L-2. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES HALF-LIFE OF DROPLET (2 MM DIA) CONTAMINATION DEPOSITED ON OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 339 | 233.4 | - |
| 2 | 1 | 315 | 9.6 | 370.5625 |
| 3 | 2 | 142 | -186.4 | 138942.563 |
| 4 | 12 | 137 | 2.4 | 22.5625 |
| 5 | 3 | 341 | 41.6 | 6930.56252 |
| 6 | 13 | 315 | -2.6 | 27.5625 |
| 7 | 23 | 145 | -18.6 | 1387.5625 |
| 8 | 123 | 150 | -.9 | 3.0625 |
| 9 | 4 | 245 | -4.1 | 68.0625 |
| 10 | 14 | 287 | 22.1 | 1958.0625 |
| 11 | 24 | 100 | -2.4 | 22.5625 |
| 12 | 124 | 136 | -10.1 | 410.0625 |
| 13 | 34 | 367 | 37.1 | 5513.0625 |
| 14 | 134 | 404 | -4.6 | 85.5625 |
| 15 | 234 | 150 | -22.1 | 1958.0625 |
| 16 | 1234 | 162 | -3.9 | 60.0625 |
| | | | TOTAL = | 157759.938 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

TABLE L-3. RANKED STANDARDIZED MAGNITUDE OF EFFECTS HALF-LIFE OF DROPLET (2 MM DIA) CONTAMINATION DEPOSITED ON OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 185.4 | 96.67 | 8.43 | 98.33 |
| 14 | 3 | 41.6 | 90 | 1.88 | 95 |
| 13 | 34 | 37.1 | 83.33 | 1.68 | 91.67 |
| 12 | 234 | 22.1 | 76.67 | 1 | 88.33 |
| 11 | 14 | 22.1 | 70 | 1 | 85 |
| 10 | 23 | 18.6 | 63.33 | .84 | 81.67 |
| 9 | 124 | 10.1 | 56.67 | .46 | 78.33 |
| 8 | 1 | 9.6 | 50 | .43 | 75 |
| 7 | 134 | 4.6 | 43.33 | .21 | 71.67 |
| 6 | 4 | 4.1 | 36.67 | .19 | 68.33 |
| 5 | 1234 | 3.9 | 30 | .18 | 65 |
| 4 | 13 | 2.6 | 23.33 | .12 | 61.67 |
| 3 | 24 | 2.4 | 16.67 | .11 | 58.33 |
| 2 | 12 | 2.4 | 10 | .11 | 55 |
| 1 | 123 | .9 | 3.33 | .04 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

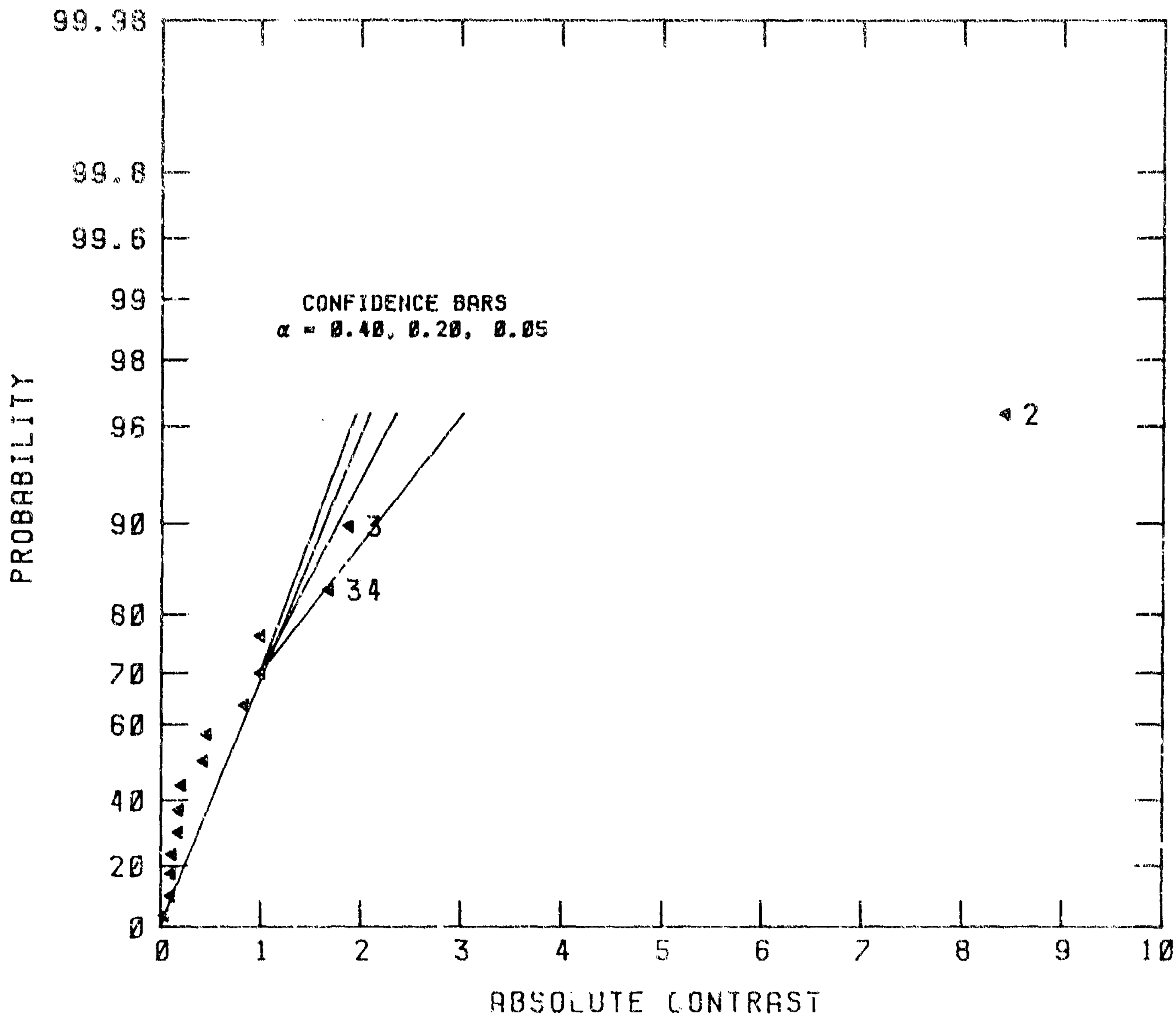


FIGURE L-1. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT HALF-LIFE OF 2 MM DIAMETER DROPS DEPOSITED ON OAK LEAF SURFACE AT 60 DEG F AND 42% RH

TABLE L-4. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES AVERAGE EVAPORATION RATE (MMG/MIN) OVER HALF-LIFE OF DROPLET (2 MM DIA) DEPOSITED ON OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 9 | 15.8 | - |
| 2 | 1 | 10 | .5 | 1 |
| 3 | 2 | 22 | 13 | 676 |
| 4 | 12 | 24 | -.5 | 1 |
| 5 | 3 | 9 | -3 | 36 |
| 6 | 13 | 10 | .5 | 1 |
| 7 | 23 | 20 | -1.5 | 9 |
| 8 | 123 | 22 | .5 | 1 |
| 9 | 4 | 10 | 0 | 0 |
| 10 | 14 | 11 | -1 | 4 |
| 11 | 24 | 28 | .5 | 1 |
| 12 | 124 | 24 | -1 | 4 |
| 13 | 34 | 7 | -2 | 16 |
| 14 | 134 | 8 | .5 | 1 |
| 15 | 234 | 19 | -.5 | 1 |
| 16 | 1234 | 19 | .5 | 1 |
| | | | TOTAL = | 753 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

TABLE L-5. RANKED STANDARDIZED MAGNITUDE OF EFFECTS AVERAGE EVAPORATION RATE (MMG/MIN) OVER HALF-LIFE OF DROPLET (2 MM DIA) DEPOSITED ON OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 13 | 96.67 | 13 | 98.33 |
| 14 | 3 | 3 | 90 | 3 | 95 |
| 13 | 34 | 2 | 83.33 | 2 | 91.67 |
| 12 | 23 | 1.5 | 76.67 | 1.5 | 88.33 |
| 11 | 124 | 1 | 70 | 1 | 85 |
| 10 | 14 | 1 | 63.33 | 1 | 81.67 |
| 9 | 1234 | .5 | 56.67 | .5 | 78.33 |
| 8 | 234 | .5 | 50 | .5 | 75 |
| 7 | 134 | .5 | 43.33 | .5 | 71.67 |
| 6 | 24 | .5 | 36.67 | .5 | 68.33 |
| 5 | 123 | .5 | 30 | .5 | 65 |
| 4 | 13 | .5 | 23.33 | .5 | 61.67 |
| 3 | 12 | .5 | 16.67 | .5 | 58.33 |
| 2 | 1 | .5 | 10 | .5 | 55 |
| 1 | 4 | 0 | 3.33 | 0 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

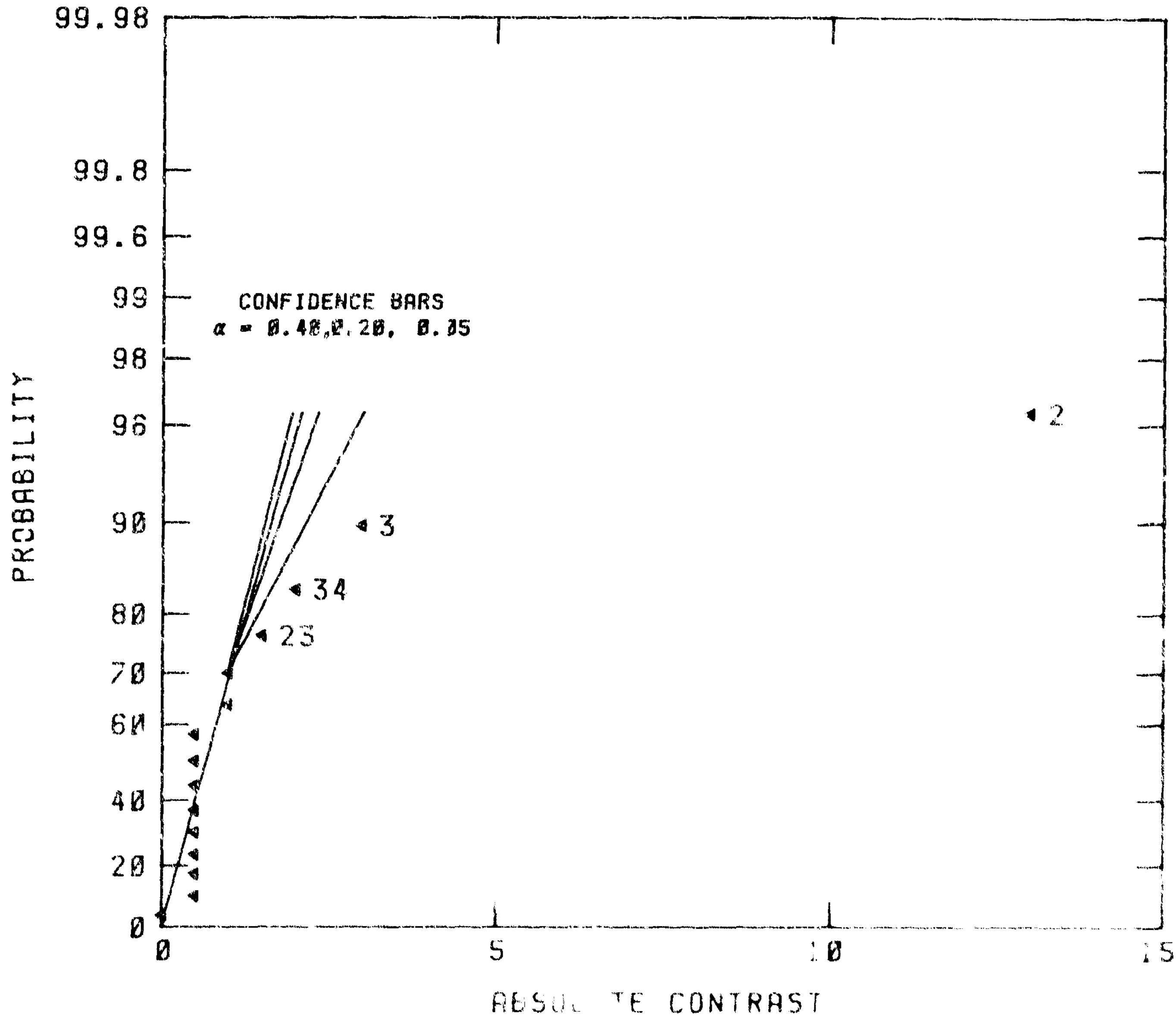


FIGURE L-2. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT AVERAGE EVAPORATION RATE OVER HALF-LIFE OF 2 MM DIA DROPS DEPOSITED ON OAK LEAF SURFACE AT 80 DEG F AND 42% RH

TABLE L-6. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES TOTAL PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR FROM OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 81 | 87.6 | - |
| 2 | 1 | 98 | 6.3 | 156.25 |
| 3 | 2 | 86 | 4.3 | 72.25 |
| 4 | 12 | 98 | -1.2 | 6.25 |
| 5 | 3 | 83 | -.5 | 1 |
| 6 | 13 | 93 | -2 | 16 |
| 7 | 23 | 88 | -.5 | 1 |
| 8 | 123 | 96 | .5 | 1 |
| 9 | 4 | 80 | -5.5 | 121 |
| 10 | 14 | 83 | -5.5 | 121 |
| 11 | 24 | 88 | 1 | 4 |
| 12 | 124 | 89 | .5 | 1 |
| 13 | 34 | 83 | .3 | .25 |
| 14 | 134 | 83 | .8 | 2.25 |
| 15 | 234 | 87 | -1.2 | 6.25 |
| 16 | 1234 | 86 | -.2 | .25 |
| | | | TOTAL = | 509.75 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

TABLE L-7. RANKED STANDARDIZED MAGNITUDE OF EFFECTS TOTAL PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR FROM OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 1 | 6.3 | 96.67 | 3.15 | 98.33 |
| 14 | 14 | 5.5 | 90 | 2.75 | 95 |
| 13 | 4 | 5.5 | 83.33 | 2.75 | 91.67 |
| 12 | 2 | 4.3 | 76.67 | 2.15 | 88.33 |
| 11 | 13 | 2 | 70 | 1 | 85 |
| 10 | 234 | 1.2 | 63.33 | .6 | 81.67 |
| 9 | 12 | 1.2 | 56.67 | .6 | 78.33 |
| 8 | 24 | 1 | 50 | .5 | 75 |
| 7 | 134 | .8 | 43.33 | .4 | 71.67 |
| 6 | 124 | .5 | 36.67 | .25 | 68.33 |
| 5 | 123 | .5 | 30 | .25 | 65 |
| 4 | 23 | .5 | 23.33 | .25 | 61.67 |
| 3 | 3 | .5 | 16.67 | .25 | 58.33 |
| 2 | 34 | .3 | 10 | .15 | 55 |
| 1 | 1234 | .2 | 3.33 | .1 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

VARIABLE θ'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

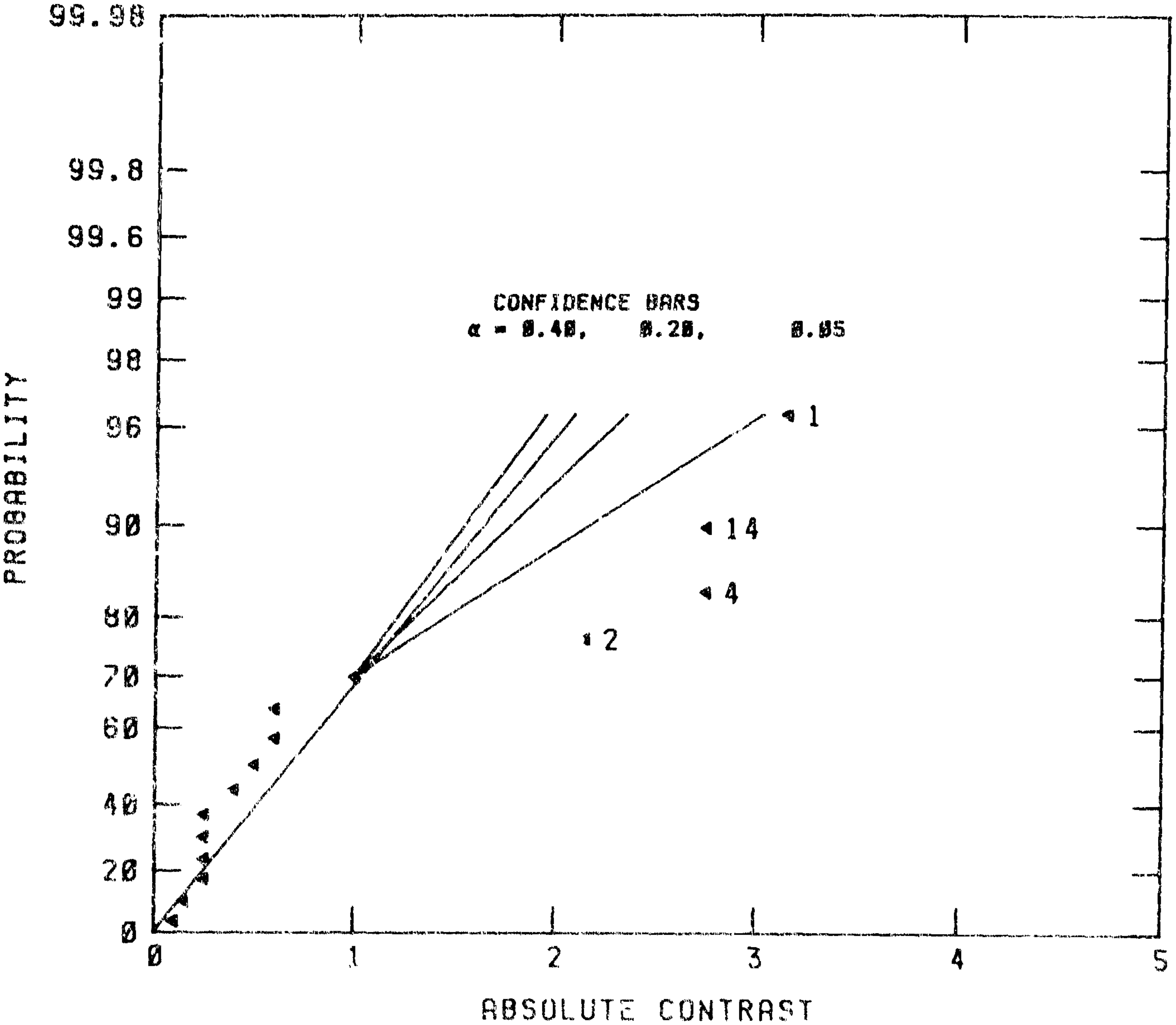


FIGURE L-3. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT TOTAL PERCENT OF CONTAMINATION RECOVERED AS VAPOR FROM 2 MM DIA DROPS ON OAK LEAVES AT 80 DEF F AND 42% RH

TABLE L-8. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES LIFE TIME OF DROPLET (2 MM DIA) CONTAMINATION ON OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 1215 | 794.1 | - |
| 2 | 1 | 1280 | 38.1 | 5814.0625 |
| 3 | 2 | 450 | -675.6 | 1825876.56 |
| 4 | 12 | 560 | -18.1 | 1314.0625 |
| 5 | 3 | 1140 | 89.4 | 31951.5625 |
| 6 | 13 | 1240 | -58.1 | 13514.0625 |
| 7 | 23 | 510 | -56.9 | 12939.0625 |
| 8 | 123 | 480 | 8.1 | 264.0625 |
| 9 | 4 | 780 | -130.6 | 68251.5626 |
| 10 | 14 | 960 | -23.1 | 2139.0625 |
| 11 | 24 | 360 | 43.1 | 7439.06252 |
| 12 | 124 | 390 | 3.1 | 39.0625 |
| 13 | 34 | 1280 | 123.1 | 60639.0626 |
| 14 | 134 | 1160 | -31.9 | 4064.0625 |
| 15 | 234 | 465 | -80.6 | 26001.5625 |
| 16 | 1234 | 435 | 51.9 | 10764.0625 |
| | | | TOTAL = | 2071010.94 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

TABLE L-9. RANKED STANDARDIZED MAGNITUDE OF EFFECTS LIFE TIME OF DROPLET (2 MM DIA) CONTAMINATION ON OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 675.6 | 96.67 | 8.38 | 98.33 |
| 14 | 4 | 130.6 | 90 | 1.62 | 95 |
| 13 | 34 | 123.1 | 83.33 | 1.53 | 91.67 |
| 12 | 3 | 89.4 | 76.67 | 1.11 | 88.33 |
| 11 | 234 | 80.6 | 70 | 1 | 85 |
| 10 | 13 | 58.1 | 63.33 | .72 | 81.67 |
| 9 | 23 | 56.9 | 56.67 | .71 | 78.33 |
| 8 | 1234 | 51.9 | 50 | .64 | 75 |
| 7 | 24 | 43.1 | 43.33 | .53 | 71.67 |
| 6 | 1 | 38.1 | 36.67 | .47 | 68.33 |
| 5 | 134 | 31.9 | 30 | .4 | 65 |
| 4 | 14 | 23.1 | 23.33 | .29 | 61.67 |
| 3 | 12 | 18.1 | 16.67 | .22 | 58.33 |
| 2 | 123 | 8.1 | 10 | .1 | 55 |
| 1 | 124 | 3.1 | 3.33 | .04 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

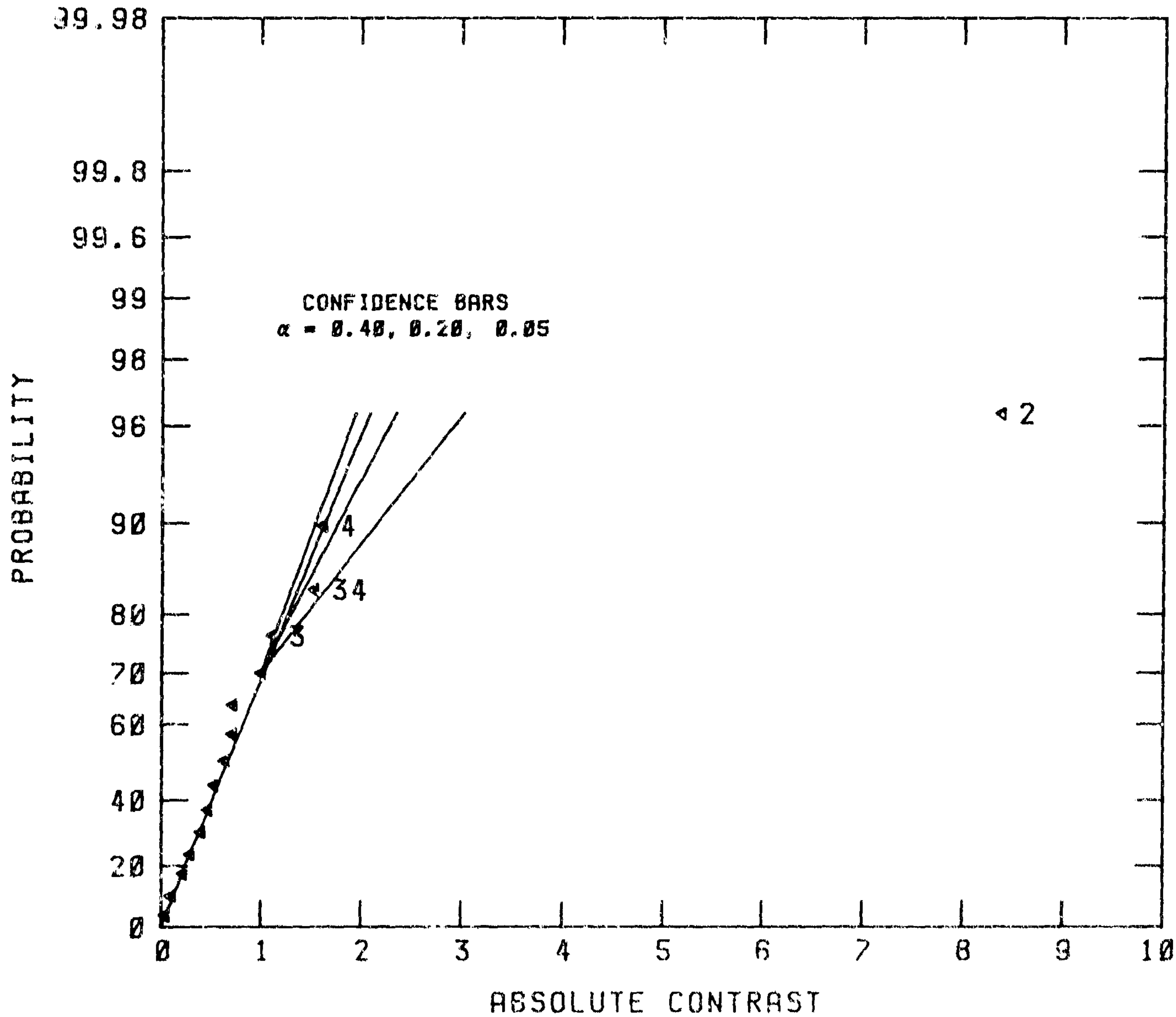


FIGURE L-4. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT LIFE TIME OF 2 MM DIA DROPLETS DEPOSITED ON OAK LEAF SURFACE AT 60 DEG F AND 42% RH

TABLE L-10. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES AVERAGE EVAPORATION RATE (MMG/MIN) OVER LIFE TIME OF DROPLET (2 MM DIA) CONTAMINATION ON OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 4 | 8.6 | - |
| 2 | 1 | 5 | 1.1 | 5.0625 |
| 3 | 2 | 12 | 7.6 | 232.5625 |
| 4 | 12 | 12 | .1 | .0625 |
| 5 | 3 | 4 | -1.1 | 5.0625 |
| 6 | 13 | 5 | .4 | .5625 |
| 7 | 23 | 10 | -.6 | 1.5625 |
| 8 | 123 | 13 | .4 | .5625 |
| 9 | 4 | 5 | .9 | 3.0625 |
| 10 | 14 | 6 | -.1 | .0625 |
| 11 | 24 | 14 | .4 | .5625 |
| 12 | 124 | 15 | -.1 | .0625 |
| 13 | 34 | 4 | -.9 | 3.0625 |
| 14 | 134 | 5 | -.4 | .5625 |
| 15 | 234 | 11 | -.4 | .5625 |
| 16 | 1234 | 12 | -.4 | .5625 |
| | | | TOTAL = | 253.9375 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

TABLE L-11. RANKED STANDARDIZED MAGNITUDE OF EFFECTS AVERAGE EVAPORATION RATE (MMG/MIN) OVER LIFE TIME OF DROPLET (2 MM DIA) CONTAMINATION ON OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 7.6 | 96.67 | 8.44 | 98.33 |
| 14 | 3 | 1.1 | 90 | 1.22 | 95 |
| 13 | 1 | 1.1 | 83.33 | 1.22 | 91.67 |
| 12 | 34 | .9 | 76.67 | 1 | 88.33 |
| 11 | 4 | .9 | 70 | 1 | 85 |
| 10 | 23 | .6 | 63.33 | .67 | 81.67 |
| 9 | 1234 | .4 | 56.67 | .44 | 78.33 |
| 8 | 234 | .4 | 50 | .44 | 75 |
| 7 | 134 | .4 | 43.33 | .44 | 71.67 |
| 6 | 24 | .4 | 36.67 | .44 | 68.33 |
| 5 | 123 | .4 | 30 | .44 | 65 |
| 4 | 13 | .4 | 23.33 | .44 | 61.67 |
| 3 | 124 | .1 | 16.67 | .11 | 58.33 |
| 2 | 14 | .1 | 10 | .11 | 55 |
| 1 | 12 | .1 | 3.33 | .11 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

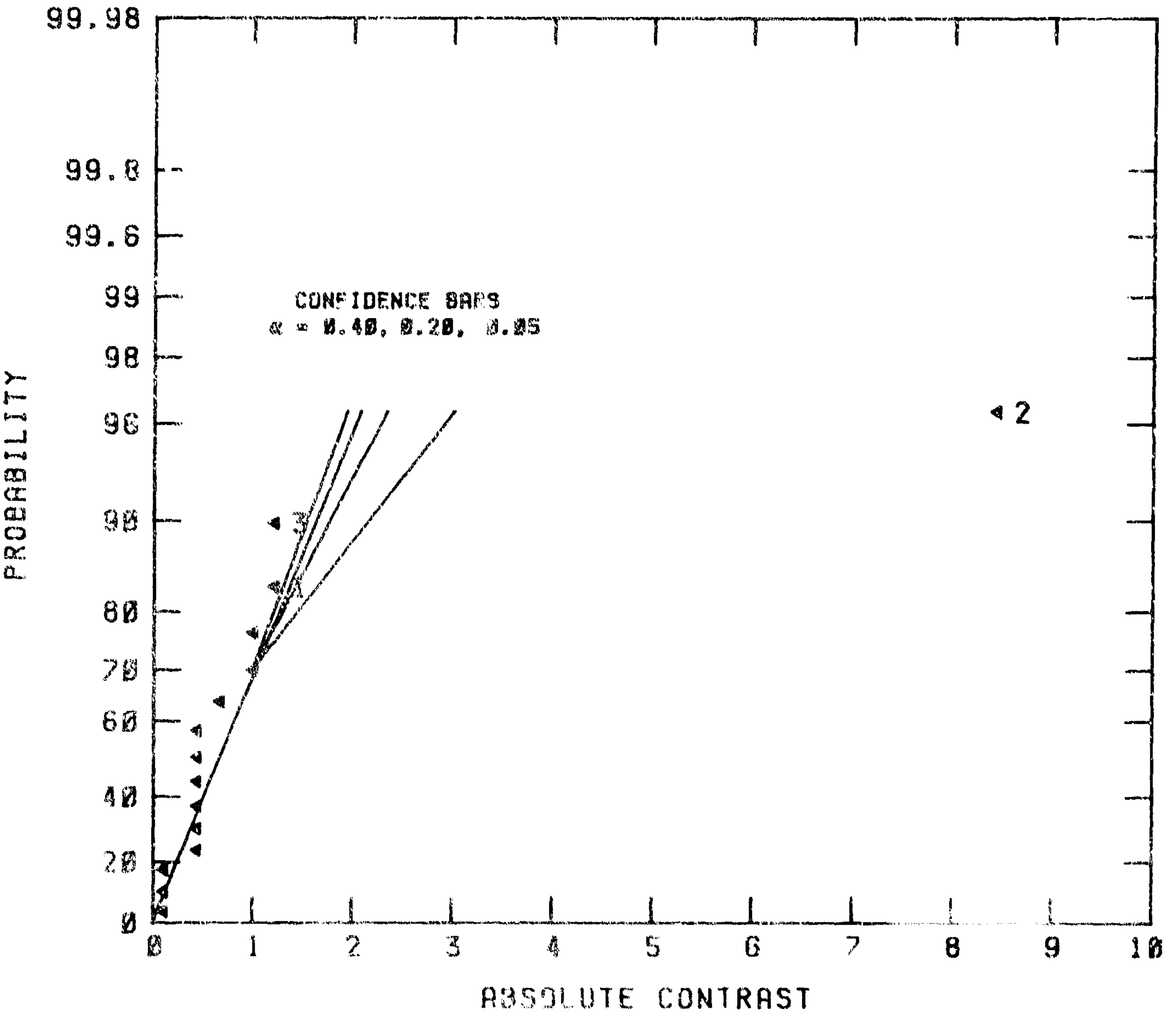


FIGURE L-5. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT AVERAGE EVAPORATION RATE FOR 2 MM DIA DROPLETS DEPOSITED ON OAK LEAVES AT 80 DEG F AND 42% RH

TABLE L-12. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 1 HR FROM OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 10 | 17.7 | - |
| 2 | 1 | 11 | -1.6 | 10.5625 |
| 3 | 2 | 14 | 12.9 | 663.0625 |
| 4 | 12 | 24 | -1.1 | 5.0625 |
| 5 | 3 | 10 | -3.4 | 45.5625 |
| 6 | 13 | 11 | 1.1 | 5.0625 |
| 7 | 23 | 23 | -.9 | 3.0625 |
| 8 | 123 | 22 | .6 | 1.5625 |
| 9 | 4 | 16 | 1.6 | 10.5625 |
| 10 | 14 | 13 | -1.9 | 14.0625 |
| 11 | 24 | 33 | .1 | .0625 |
| 12 | 124 | 24 | -.4 | .5625 |
| 13 | 34 | 10 | -2.6 | 27.5625 |
| 14 | 134 | 9 | 1.4 | 7.5625 |
| 15 | 234 | 22 | -.1 | .0625 |
| 16 | 1234 | 21 | .9 | 3.0625 |

TOTAL = 757.4375

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)10[illegible] | (-)[illegible] |
| 2: | WIND SPEED | (+)11 MPH | (-)[illegible] MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

TABLE L-13. RANKED STANDARDIZED MAGNITUDE OF EFFECTS PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 1 HR FROM OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 12.9 | 96.67 | 8.06 | 98.33 |
| 14 | 3 | 3.4 | 90 | 2.13 | 95 |
| 13 | 34 | 2.6 | 83.33 | 1.62 | 91.67 |
| 12 | 14 | 1.9 | 76.67 | 1.19 | 88.33 |
| 11 | 4 | 1.6 | 70 | 1 | 85 |
| 10 | 1 | 1.6 | 63.33 | 1 | 81.67 |
| 9 | 134 | 1.4 | 56.67 | .88 | 78.33 |
| 8 | 13 | 1.1 | 50 | .69 | 75 |
| 7 | 12 | 1.1 | 43.33 | .69 | 71.67 |
| 6 | 1234 | .9 | 36.67 | .56 | 68.33 |
| 5 | 23 | .9 | 30 | .56 | 65 |
| 4 | 123 | .6 | 23.33 | .38 | 61.67 |
| 3 | 124 | .4 | 16.67 | .25 | 58.33 |
| 2 | 234 | .1 | 10 | .06 | 55 |
| 1 | 24 | .1 | 3.33 | .06 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

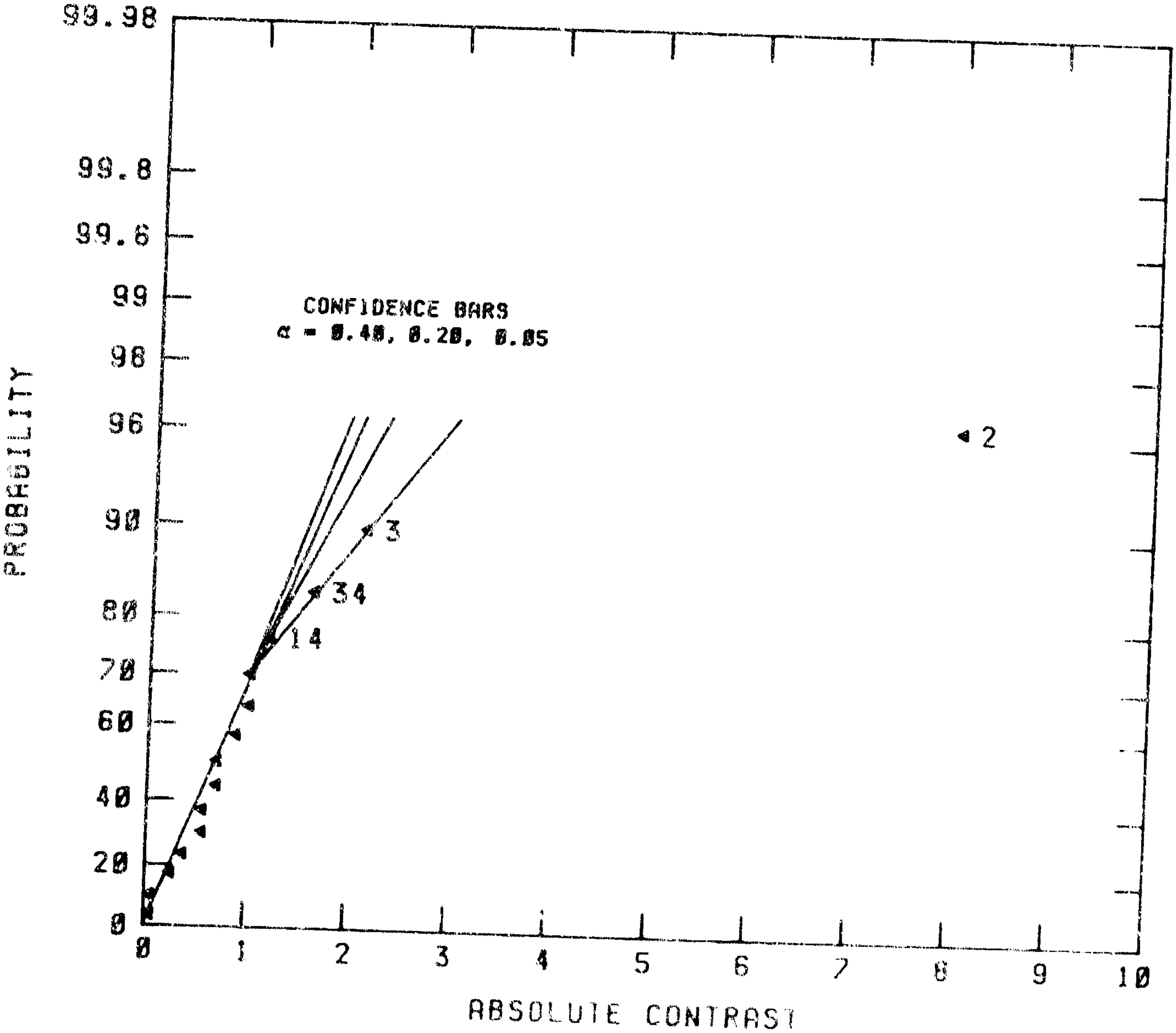


FIGURE L-6. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT PERCENT OF CONTAMINATION RECOVERED AS VAPOR AFTER 1 HR FROM 2 MM DIA DROPS ON OAK LEAVES AT 80 DEG F AND 42% RH

TABLE L-14. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 2 HR FROM OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 20 | 32.9 | - |
| 2 | 1 | 21 | -2.7 | 30.25 |
| 3 | 2 | 44 | 23 | 2116 |
| 4 | 12 | 44 | -1.5 | 9 |
| 5 | 3 | 20 | -5.2 | 110.25 |
| 6 | 13 | 21 | 1.3 | 6.25 |
| 7 | 23 | 43 | -1 | 4 |
| 8 | 123 | 41 | .5 | 1 |
| 9 | 4 | 29 | 2.3 | 20.25 |
| 10 | 14 | 24 | -2.7 | 30.25 |
| 11 | 24 | 57 | .5 | 1 |
| 12 | 124 | 45 | -.5 | 1 |
| 13 | 34 | 19 | -4.2 | 72.25 |
| 14 | 134 | 17 | 1.8 | 12.25 |
| 15 | 234 | 42 | 0 | 0 |
| 16 | 1234 | 39 | 1 | 4 |
| | | | TOTAL = | 2417.75 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

TABLE L-15. RANKED STANDARDIZED MAGNITUDE OF EFFECTS PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 2 HR FROM OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 23 | 96.67 | 8.52 | 98.33 |
| 14 | 3 | 5.2 | 90 | 1.93 | 95 |
| 13 | 34 | 4.2 | 83.33 | 1.56 | 91.67 |
| 12 | 14 | 2.7 | 76.67 | 1 | 88.33 |
| 11 | 1 | 2.7 | 70 | 1 | 85 |
| 10 | 4 | 2.3 | 63.33 | .85 | 81.67 |
| 9 | 134 | 1.8 | 56.67 | .67 | 78.33 |
| 8 | 12 | 1.5 | 50 | .56 | 75 |
| 7 | 13 | 1.3 | 43.33 | .48 | 71.67 |
| 6 | 1234 | 1 | 36.67 | .37 | 68.33 |
| 5 | 23 | 1 | 30 | .37 | 65 |
| 4 | 124 | .5 | 23.33 | .19 | 61.67 |
| 3 | 24 | .5 | 16.67 | .19 | 58.33 |
| 2 | 123 | .5 | 10 | .19 | 55 |
| 1 | 234 | 0 | 3.33 | 0 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

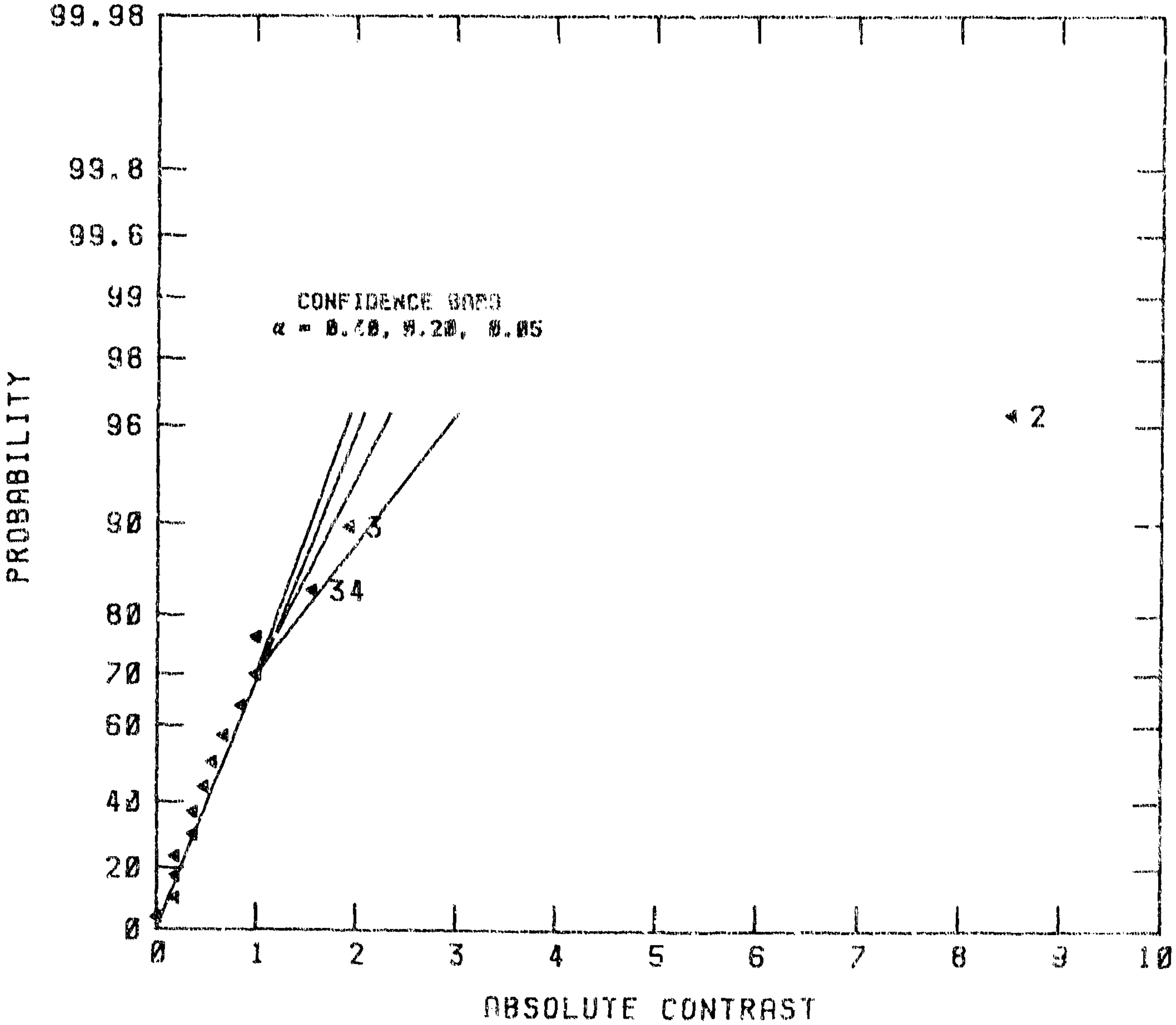


FIGURE L-7. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT PERCENT OF CONTAMINATION RECOVERED AS VAPOR AFTER 3 HR FROM 2 MM DIA DROPS ON OAK LEAVES AT 80 DEG F AND 52% RH

TABLE L-16. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 3 HR FROM OAK LEAF SURFACE AT 60 DEG F AND 43% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 29 | 45.6 | - |
| 2 | 1 | 31 | -2.7 | 30.25 |
| 3 | 2 | 60 | 30.5 | 3721 |
| 4 | 12 | 62 | -1 | 4 |
| 5 | 3 | 29 | -6.7 | 182.25 |
| 6 | 13 | 30 | .8 | 2.25 |
| 7 | 23 | 59 | -.5 | 1 |
| 8 | 123 | 58 | .5 | 1 |
| 9 | 4 | 40 | 1.8 | 12.25 |
| 10 | 14 | 34 | -3.7 | 56.25 |
| 11 | 24 | 74 | .5 | 1 |
| 12 | 124 | 62 | -.5 | 1 |
| 13 | 34 | 27 | -5.2 | 110.25 |
| 14 | 134 | 23 | 1.8 | 12.25 |
| 15 | 234 | 58 | .5 | 1 |
| 16 | 1234 | 54 | 1 | 4 |

TOTAL = 4139.75

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

TABLE L-17. RANKED STANDARDIZED MAGNITUDE OF EFFECTS PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 3 HR FROM OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 30.5 | 96.67 | 11.3 | 98.33 |
| 14 | 3 | 6.7 | 90 | 2.48 | 95 |
| 13 | 34 | 5.2 | 33.33 | 1.93 | 91.67 |
| 12 | 14 | 3.7 | 76.67 | 1.37 | 88.33 |
| 11 | 1 | 2.7 | 70 | 1 | 85 |
| 10 | 134 | 1.8 | 63.33 | .67 | 81.67 |
| 9 | 4 | 1.8 | 56.67 | .67 | 78.33 |
| 8 | 1234 | 1 | 50 | .37 | 75 |
| 7 | 12 | 1 | 4[illegible].33 | .37 | 71.67 |
| 6 | 13 | .8 | 36.67 | .3 | 68.33 |
| 5 | 234 | .5 | 30 | .19 | 65 |
| 4 | 124 | .5 | 23.33 | .19 | 61.67 |
| 3 | 24 | .5 | 16.67 | .19 | 58.33 |
| 2 | 123 | .5 | 10 | .19 | 55 |
| 1 | 23 | .5 | 3.33 | .19 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

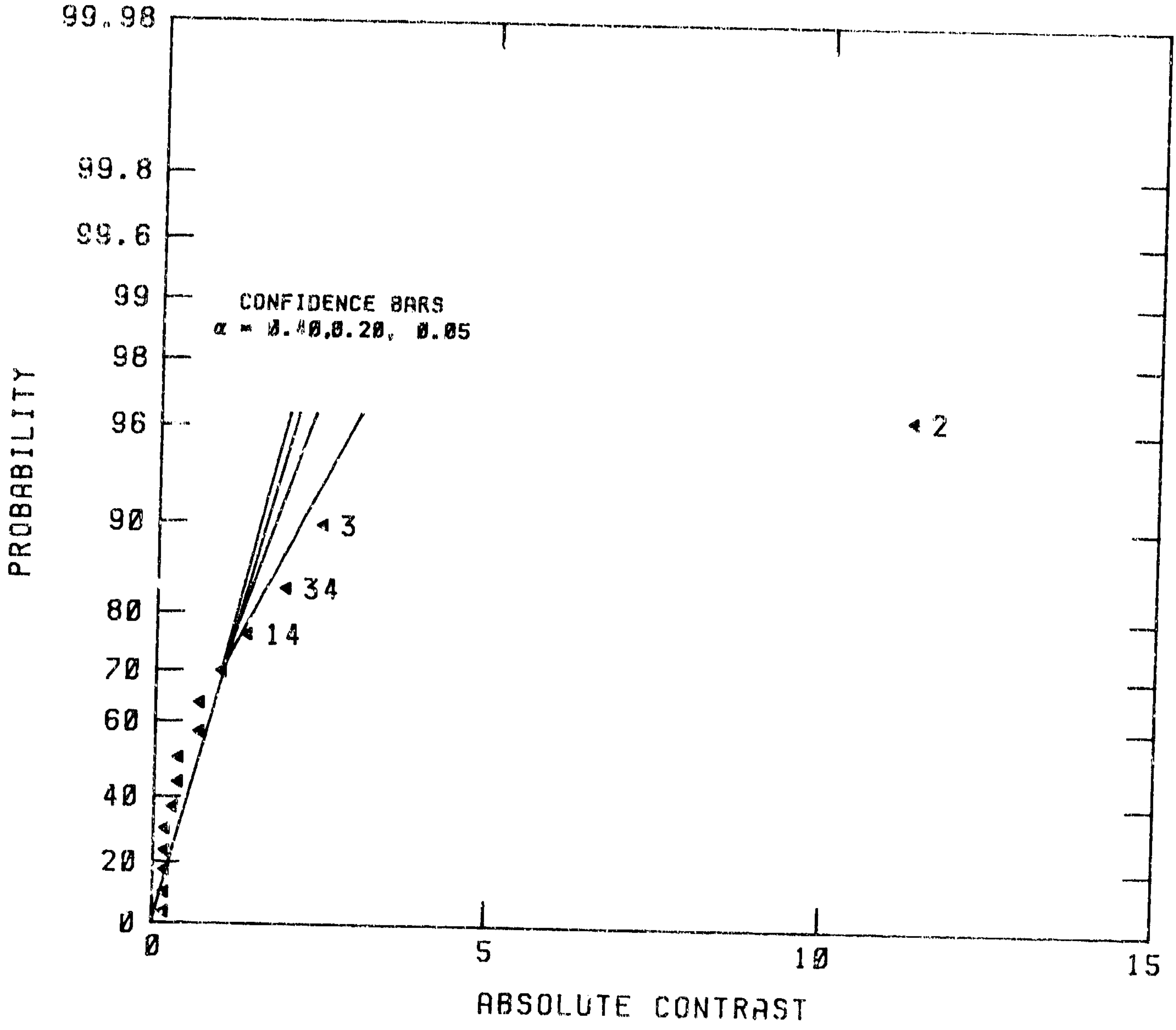


FIGURE L-8. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT PERCENT OF CONTAMINATION RECOVERED AS VAPOR AFTER 3 HR FROM 2 MM DIA DROPS ON OAK LEAVES AT 80 DEG F AND 42% RH

TABLE L-18. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 6 HR FROM OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 54 | 71.1 | - |
| 2 | 1 | 56 | 1.9 | 14.0625 |
| 3 | 2 | 85 | 33.1 | 4389.0625 |
| 4 | 12 | 94 | 2.4 | 22.5625 |
| 5 | 3 | 52 | -5.1 | 105.0625 |
| 6 | 13 | 56 | .1 | .0625 |
| 7 | 23 | 84 | 2.4 | 22.5625 |
| 8 | 123 | 92 | -.9 | 3.0625 |
| 9 | 4 | 64 | -1.1 | 5.0625 |
| 10 | 14 | 59 | -3.9 | 60.0625 |
| 11 | 24 | 88 | -1.1 | 5.0625 |
| 12 | 124 | 89 | -.4 | .5625 |
| 13 | 34 | 49 | -3.9 | 60.0625 |
| 14 | 134 | 46 | -.1 | .0625 |
| 15 | 234 | 85 | 2.6 | 27.5625 |
| 16 | 1234 | 84 | -.1 | .0625 |
| | | | TOTAL = | 4714.9375 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

TABLE L-19. RANKED STANDARDIZED MAGNITUDE OF EFFECTS PERCENT OF DROPLET (2 MM DIA) CONTAMINATION RECOVERED AS VAPOR AFTER 6 HR FROM OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 33.1 | 96.67 | 12.73 | 98.33 |
| 14 | 3 | 5.1 | 90 | 1.96 | 95 |
| 13 | 34 | 3.9 | 83.33 | 1.5 | 91.67 |
| 12 | 14 | 3.9 | 76.67 | 1.5 | 88.33 |
| 11 | 234 | 2.6 | 70 | 1 | 85 |
| 10 | 23 | 2.4 | 63.33 | .92 | 81.67 |
| 9 | 12 | 2.4 | 56.67 | .92 | 78.33 |
| 8 | 1 | 1.9 | 50 | .73 | 75 |
| 7 | 24 | 1.1 | 43.33 | .42 | 71.67 |
| 6 | 4 | 1.1 | 36.67 | .42 | 68.33 |
| 5 | 123 | .9 | 30 | .35 | 65 |
| 4 | 124 | .4 | 23.33 | .15 | 61.67 |
| 3 | 1234 | .1 | 16.67 | .04 | 58.33 |
| 2 | 134 | .1 | 10 | .04 | 55 |
| 1 | 13 | .1 | 3.33 | .04 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

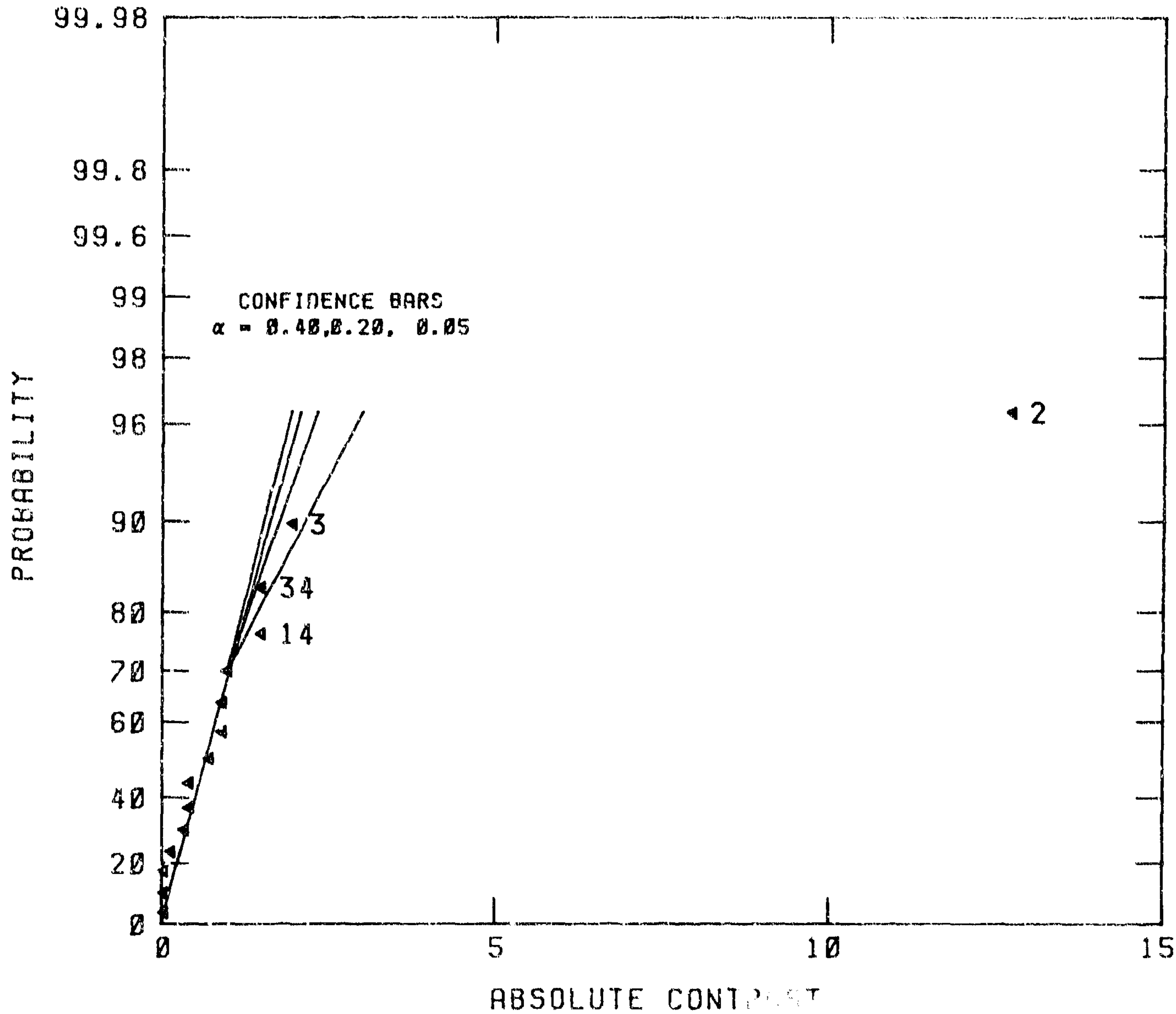


FIGURE L-9. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT PERCENT OF CONTAMINATION RECOVERED AS VAPOR AFTER 8 HR FROM 2 MM DIA DROPS ON OAK LEAVES AT 60 DEG F AND 42% RH

TABLE L-20. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET (2 MM DIA) DEPOSITED ON OAK LEAF SURFACE FOR 1 HR AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 11 | 18.1 | - |
| 2 | 1 | 12 | -.1 | .0625 |
| 3 | 2 | 25 | 13.4 | 715.5625 |
| 4 | 12 | 26 | -.4 | .5625 |
| 5 | 3 | 11 | -3.6 | 52.5625 |
| 6 | 13 | 11 | .6 | 1.5625 |
| 7 | 23 | 22 | -.9 | 3.0625 |
| 8 | 123 | 24 | .9 | 3.0625 |
| 9 | 4 | 14 | .6 | 1.5625 |
| 10 | 14 | 14 | -1.1 | 5.0625 |
| 11 | 24 | 31 | .4 | .5625 |
| 12 | 124 | 26 | -.9 | 3.0625 |
| 13 | 34 | 9 | -2.1 | 18.0625 |
| 14 | 134 | 9 | .6 | 1.5625 |
| 15 | 234 | 22 | .1 | .0625 |
| 16 | 1234 | 22 | .4 | .5625 |
| | | | TOTAL = | 806.9375 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

TABLE L-21. RANKED STANDARDIZED MAGNITUDE OF EFFECTS AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET (2 MM DIA) DEPOSITED ON OAK LEAF SURFACE FOR 1 HR AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 13.4 | 96.67 | 14.89 | 98.33 |
| 14 | 3 | 3.6 | 90 | 4 | 95 |
| 13 | 34 | 2.1 | 83.33 | 2.33 | 91.67 |
| 12 | 14 | 1.1 | 76.67 | 1.22 | 88.33 |
| 11 | 124 | .9 | 70 | 1 | 85 |
| 10 | 123 | .9 | 63.33 | 1 | 81.67 |
| 9 | 23 | .9 | 56.67 | 1 | 78.33 |
| 8 | 134 | .6 | 50 | .67 | 75 |
| 7 | 4 | .6 | 43.33 | .67 | 71.67 |
| 6 | 13 | .6 | 36.67 | .67 | 68.33 |
| 5 | 1234 | .4 | 30 | .44 | 65 |
| 4 | 24 | .4 | 23.33 | .44 | 61.67 |
| 3 | 12 | .4 | 16.67 | .44 | 58.33 |
| 2 | 234 | .1 | 10 | .11 | 55 |
| 1 | 1 | .1 | 3.33 | .11 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

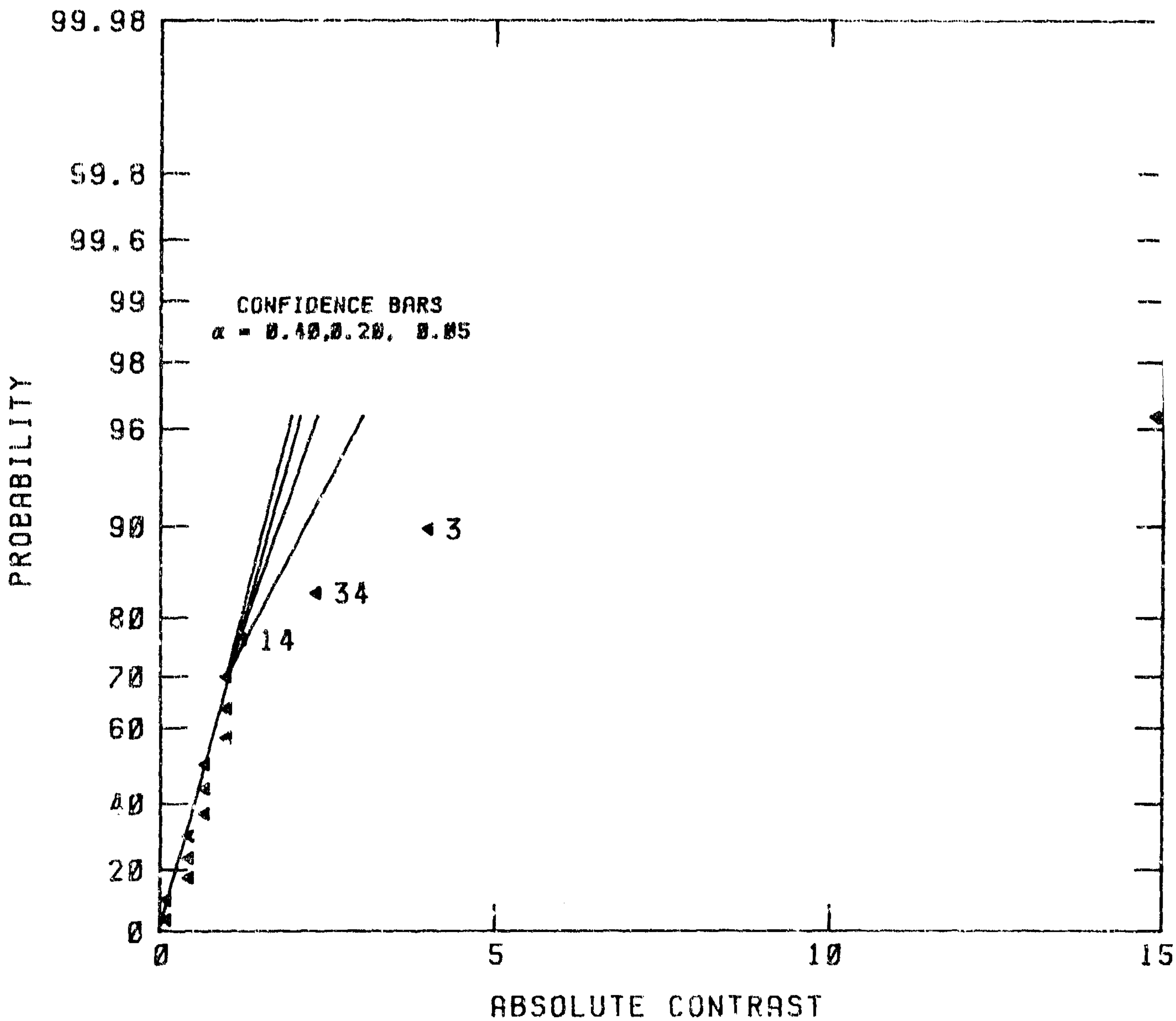


FIGURE L-10. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT AVERAGE EVAPORATION RATE OF 2MM DIA DROPS DEPOSITED ON OAK LEAVES FOR 1 HR AT 60 DEG F AND 42% RH

TABLE L-22. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET (2 MM DIA) DEPOSITED ON OAK LEAF SURFACE FOR 2 HR AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 10 | 16.7 | - |
| 2 | 1 | 11 | .6 | 1.5625 |
| 3 | 2 | 23 | 12.4 | 612.5625 |
| 4 | 12 | 25 | -.4 | .5625 |
| 5 | 3 | 10 | -2.9 | 33.0625 |
| 6 | 13 | 11 | .4 | .5625 |
| 7 | 23 | 21 | -.9 | 3.0625 |
| 8 | 123 | 23 | .4 | .5625 |
| 9 | 4 | 12 | -.1 | .0625 |
| 10 | 14 | 13 | -.9 | 3.0625 |
| 11 | 24 | 27 | -.1 | .0625 |
| 12 | 124 | 24 | -.9 | 3.0625 |
| 13 | 34 | 8 | -1.9 | 14.0625 |
| 14 | 134 | 9 | .4 | .5625 |
| 15 | 234 | 20 | .1 | .0625 |
| 16 | 1234 | 20 | .4 | .5625 |

TOTAL = 673.4375

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

TABLE L-23. RANKED STANDARDIZED MAGNITUDE OF EFFECTS AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET (2 MM DIA) DEPOSITED ON OAK LEAF SURFACE FOR 2 HR AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 12.4 | 96.67 | 13.78 | 98.33 |
| 14 | 3 | 2.9 | 90 | 3.22 | 95 |
| 13 | 34 | 1.9 | 83.33 | 2.11 | 91.67 |
| 12 | 124 | .9 | 76.67 | 1 | 88.33 |
| 11 | 14 | .9 | 70 | 1 | 85 |
| 10 | 23 | .9 | 63.33 | 1 | 81.67 |
| 9 | 1 | .6 | 56.67 | .67 | 78.33 |
| 8 | 1234 | .4 | 50 | .44 | 75 |
| 7 | 134 | .4 | 43.33 | .44 | 71.67 |
| 6 | 123 | .4 | 36.67 | .44 | 68.33 |
| 5 | 13 | .4 | 30 | .44 | 65 |
| 4 | 12 | .4 | 23.33 | .44 | 61.67 |
| 3 | 234 | .1 | 16.67 | .11 | 58.33 |
| 2 | 24 | .1 | 10 | .11 | 55 |
| 1 | 4 | .1 | 3.33 | .11 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

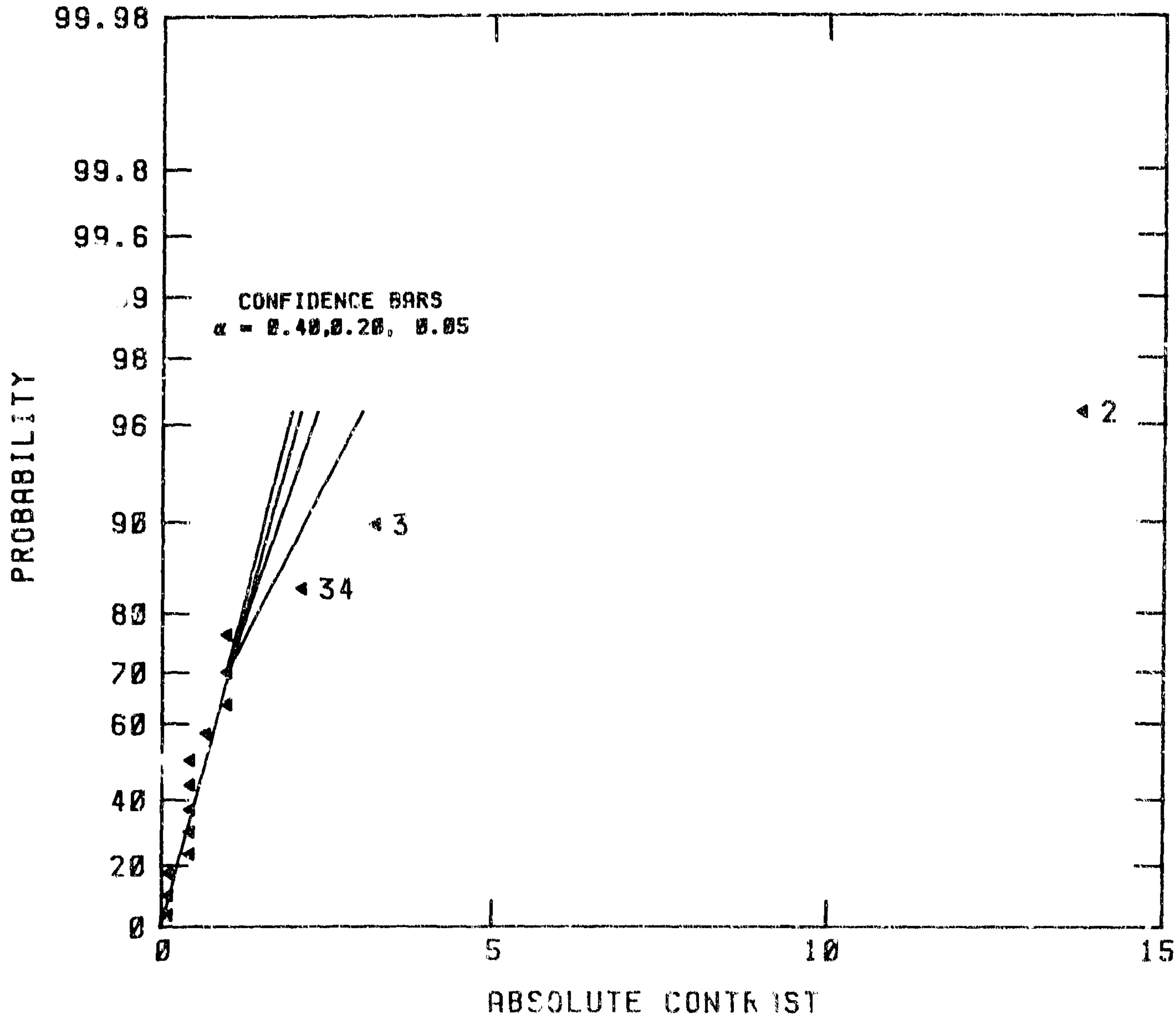


FIGURE L-11. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT AVERAGE EVAPORATION RATE OF 2 MM DIA DROPS DEPOSITED ON OAK LEAVES FOR 2 HR AT 80 DEG F AND 42% RH

TABLE L-24. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET (2 MM DIA) DEPOSITED FOR 3 HR ON OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 10 | 15.5 | - |
| 2 | 1 | 11 | 1 | 4 |
| 3 | 2 | 21 | 10.5 | 441 |
| 4 | 12 | 23 | 0 | 0 |
| 5 | 3 | 10 | -2.2 | 20.25 |
| 6 | 13 | 11 | .3 | .25 |
| 7 | 23 | 19 | -.7 | 2.25 |
| 8 | 123 | 21 | .3 | .25 |
| 9 | 4 | 11 | -.5 | 1 |
| 10 | 14 | 12 | -.5 | 1 |
| 11 | 24 | 23 | 0 | 0 |
| 12 | 124 | 22 | -.5 | 1 |
| 13 | 34 | 8 | -1.2 | 6.25 |
| 14 | 134 | 9 | .3 | .25 |
| 15 | 234 | 18 | .3 | .25 |
| 16 | 1234 | 19 | .3 | .25 |
| | | | TOTAL = | 478 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

TABLE L-25. RANKED STANDARDIZED MAGNITUDE OF EFFECTS AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET (2 MM DIA) DEPOSITED FOR 3 HR ON OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 10.5 | 96.67 | 15 | 98.33 |
| 14 | 3 | 2.2 | 90 | 3.14 | 95 |
| 13 | 34 | 1.2 | 83.33 | 1.71 | 91.67 |
| 12 | 1 | 1 | 76.67 | 1.43 | 88.33 |
| 11 | 23 | .7 | 70 | 1 | 85 |
| 10 | 124 | .5 | 63.33 | .71 | 81.67 |
| 9 | 14 | .5 | 56.67 | .71 | 78.33 |
| 8 | 4 | .5 | 50 | .71 | 75 |
| 7 | 1234 | .3 | 43.33 | .43 | 71.67 |
| 6 | 234 | .3 | 36.67 | .43 | 68.33 |
| 5 | 134 | .3 | 30 | .43 | 65 |
| 4 | 123 | .3 | 23.33 | .43 | 61.67 |
| 3 | 13 | .3 | 16.67 | .43 | 58.33 |
| 2 | 24 | 0 | 10 | 0 | 55 |
| 1 | 12 | 0 | 3.33 | 0 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

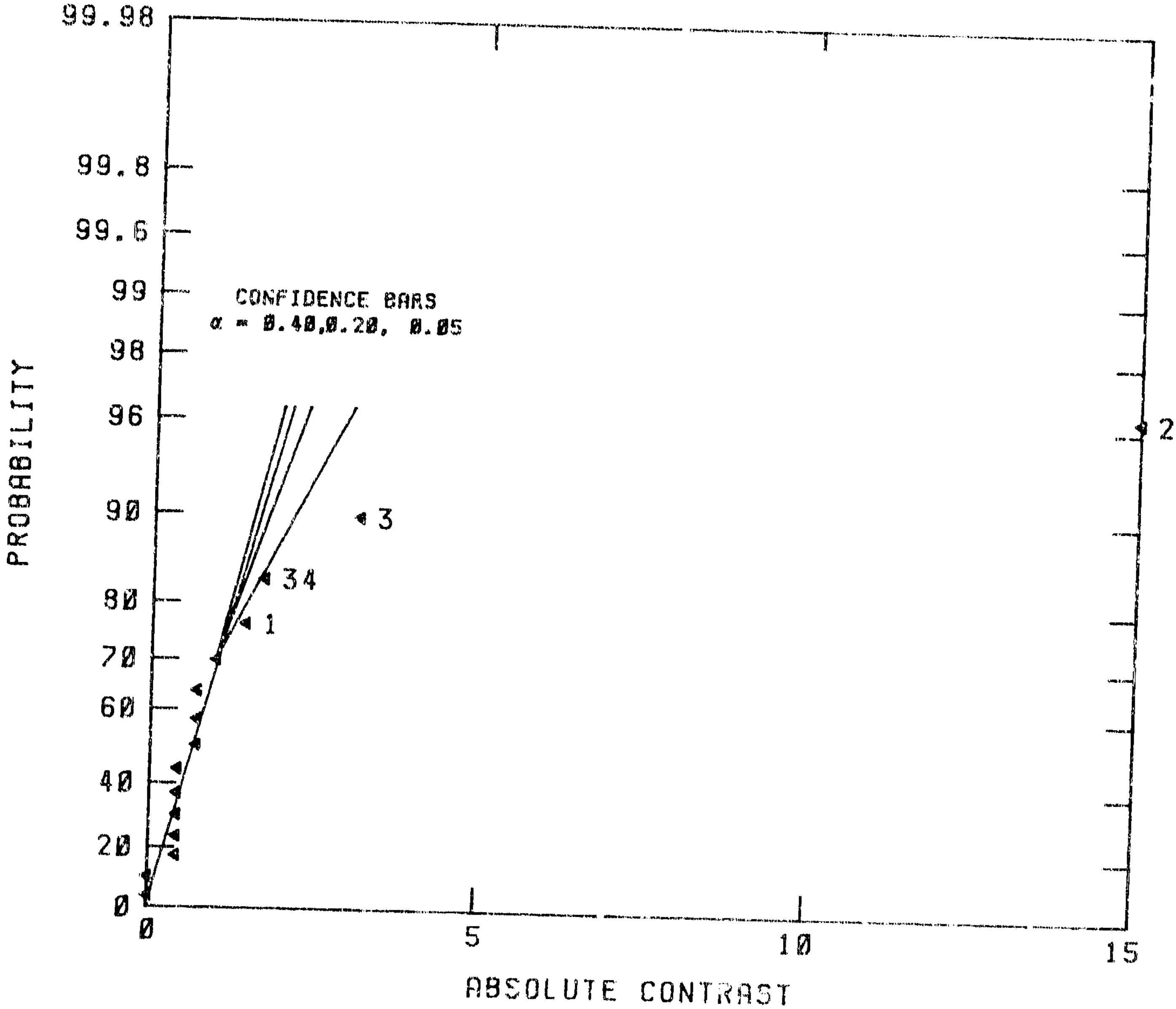


FIGURE L-12. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT AVERAGE EVAPORATION RATE OF 2 MM DIA DROPS DEPOSITED ON OAK LEAVES FOR 3 HR AT 60 DEG F AND 42% RH

TABLE L-26. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET (2 MM DIA) DEPOSITED FOR 6 HR ONOAK LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 9 | 12.1 | - |
| 2 | 1 | 10 | 1.8 | 12.25 |
| 3 | 2 | 15 | 6 | 144 |
| 4 | 12 | 18 | .5 | 1 |
| 5 | 3 | 9 | -1.2 | 6.25 |
| 6 | 13 | 10 | -.2 | .25 |
| 7 | 23 | 14 | 0 | 0 |
| 8 | 123 | 17 | 0 | 0 |
| 9 | 4 | 9 | -1.2 | 6.25 |
| 10 | 14 | 11 | -.2 | .25 |
| 11 | 24 | 14 | -.5 | 1 |
| 12 | 124 | 16 | -.5 | 1 |
| 13 | 34 | 7 | -.7 | 2.25 |
| 14 | 134 | 8 | -.2 | .25 |
| 15 | 234 | 13 | .5 | 1 |
| 16 | 1234 | 14 | 0 | 0 |
| | | | TOTAL = | 175.75 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

TABLE L-27. RANKED STANDARDIZED MAGNITUDE OF EFFECTS AVERAGE EVAPORATION RATE (MMG/MIN) FOR DROPLET (2 MM DIA) DEPOSITED FOR 6 HR ONOAK LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 2 | 6 | 96.67 | 8.57 | 98.33 |
| 14 | 1 | 1.8 | 90 | 2.57 | 95 |
| 13 | 4 | 1.2 | 83.33 | 1.71 | 91.67 |
| 12 | 3 | 1.2 | 76.67 | 1.71 | 88.33 |
| 11 | 34 | .7 | 70 | 1 | 85 |
| 10 | 234 | .5 | 63.33 | .71 | 81.67 |
| 9 | 124 | .5 | 56.67 | .71 | 78.33 |
| 8 | 24 | .5 | 50 | .71 | 75 |
| 7 | 12 | .5 | 43.33 | .71 | 71.67 |
| 6 | 134 | .2 | 36.67 | .29 | 68.33 |
| 5 | 14 | .2 | 30 | .29 | 65 |
| 4 | 13 | .2 | 23.33 | .29 | 61.67 |
| 3 | 1234 | 0 | 16.67 | 0 | 58.33 |
| 2 | 123 | 0 | 10 | 0 | 55 |
| 1 | 23 | 0 | 3.33 | 0 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

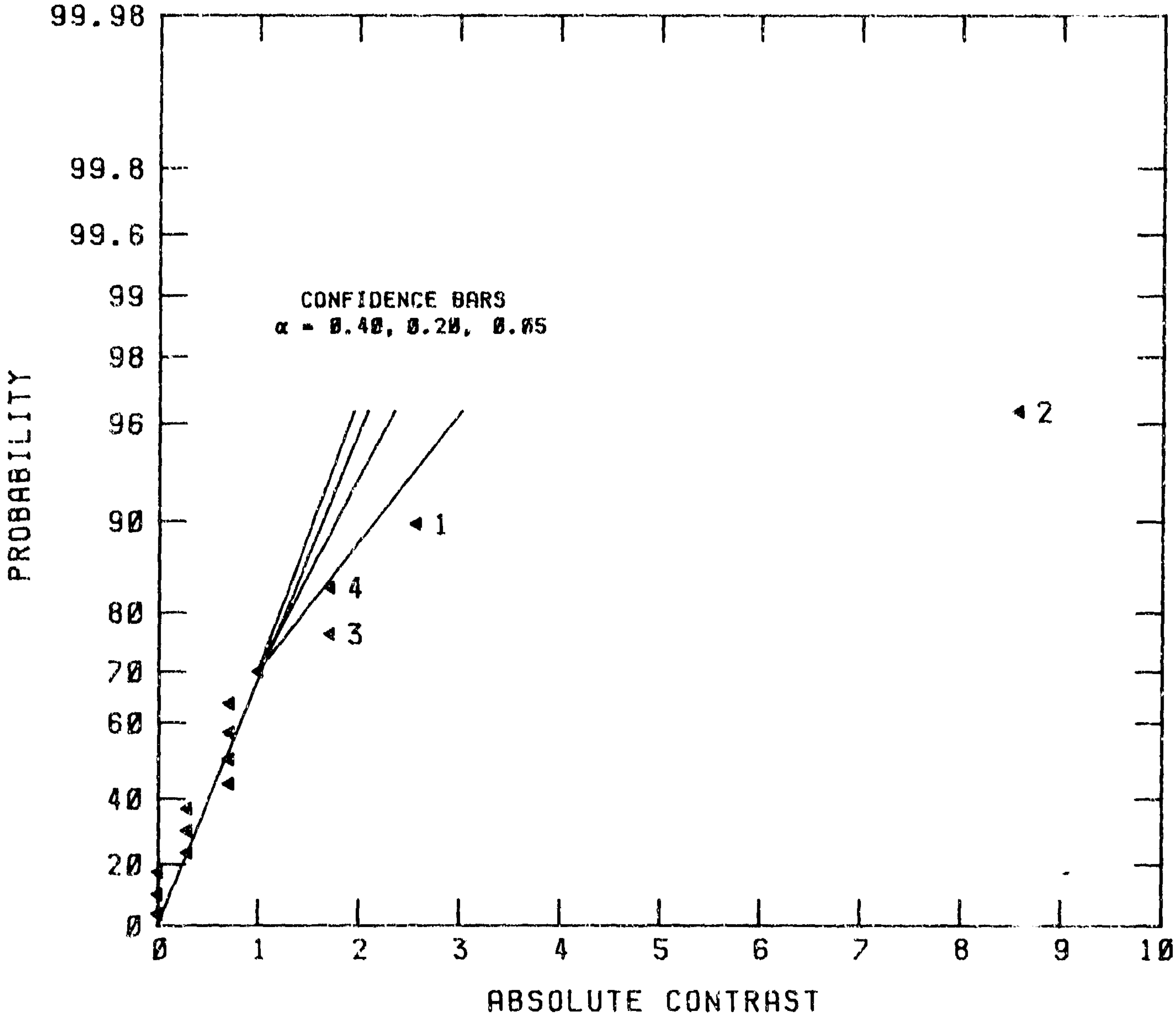


FIGURE L-13. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT AVERAGE EVAPORATON RATE OF 2 MM DIA DROPS DEPOSITED ON OAK LEAVES FOR 6 HR AT 80 DEG F AND 42% RH

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# APPENDIX M

## ANOVA TABLES OF $2^4$ FACTORIAL EXPERIMENTS ON DROPLET EVAPORATION CHARACTERISTICS

TABLE M-1. ANOVA Table of $2^4$ Experiment No. 1 - Half-Life Droplet Contamination Deposited on Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 2,002.562 | 1 | 2,002.562 | 7.285 ** |
| 2 Wind Speed | 127,985.063 | 1 | 127,985.063 | 465.633 **** |
| 3 Leaf Surface | 20,952.562 | 1 | 20,952.562 | 76.229 **** |
| 4 Leaf Type | 2,575.562 | 1 | 2,575.562 | 9.370 ** |
| 1x2 | 95.0625 | 1 | 95.0625 | 0.346 |
| 1x3 | 105.0625 | 1 | 105.0625 | 0.382 |
| 1x4 | 351.5625 | 1 | 351.5625 | 1.279 |
| 2x3 | 2,093.0625 | 1 | 2,093.0625 | 7.615 ** |
| 2x4 | 390.0625 | 1 | 390.0625 | 1.419 |
| 3x4 | 162.5625 | 1 | 162.5625 | 0.591 |
| 1x2x3 | 22.5625 | 1 | | |
| 1x2x4 | 33.0625 | 1 | | |
| 1x3x4 | 18.0625 | 1 | | |
| 2x3x4 | 1,278.0625 | 1 | | |
| 1x2x3x4 | 22.5625 | 1 | | |
| | 1,374.3125 | 5 | 274.8625 | |

Total Sum of Squares = 158,087.438

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-2. ANOVA Table of $2^4$ Experiment No. 2 - Half-Li e Droplet Contamination Deposited on Oak Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 370.5625 | 1 | 370.5625 | 0.736 |
| 2 Wind Speed | 138,942.5625 | 1 | 138,942.5625 | 276.029 **** |
| 3 Leaf Surface | 6,930.5625 | 1 | 6,930.5625 | 13.769 ** |
| 4 Leaf Condition | 68.0625 | 1 | 68.0625 | 0.135 |
| 1x2 | 22.5625 | 1 | 22.5625 | 0.045 |
| 1x3 | 27.5625 | 1 | 27.5625 | 0.055 |
| 1x4 | 1,958.0625 | 1 | 1,958.0625 | 3.890 |
| 2x3 | 1,387.5625 | 1 | 1,387.5625 | 2.757 |
| 2x4 | 22.5626 | 1 | 22.5626 | 0.045 |
| 3x4 | 5,513.0625 | 1 | 5,513.0625 | 10.952 ** |
| 1x2x3 | 3.0625 | 1 | | |
| 1x2x4 | 410.0625 | 1 | | |
| 1x3x4 | 85.5625 | 1 | | |
| 2x3x4 | 1,958.0625 | 1 | | |
| 1x2x3x4 | 62.0625 | 1 | | |
| | 2,516.8125 | 5 | 503.3625 | |

Total Sum of Squares = 158,087.438

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-3. ANOVA Table of $2^4$ Experiment No. 1 - Average Evaporation Rate Over Half-life of Droplet Deposited on Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio | |
|---|---|---|---|---|---|
| 1 Liquid Viscosity | 0.25 | 1 | 0.25 | 0.10 | |
| 2 Wind Speed | 870.25 | 1 | 870.25 | 348.10 | **** |
| 3 Leaf Surface | 169.00 | 1 | 169.00 | 67.60 | **** |
| 4 Leaf Type | 36.00 | 1 | 36.00 | 14.40 | ** |
| 1x2 | 1.00 | 1 | 1.00 | 0.40 | |
| 1x3 | 2.25 | 1 | 2.25 | 0.90 | |
| 1x4 | 0.25 | 1 | 0.25 | 0.10 | |
| 2x3 | 42.25 | 1 | 42.25 | 16.90 | *** |
| 2x4 | 6.25 | 1 | 6.25 | 2.50 | |
| 3x4 | 9.00 | 1 | 9.00 | 3.60 | |
| 1x2x3 | 1.000 | 1 | | | |
| 1x2x4 | 4.000 | 1 | | | |
| 1x3x4 | 0.250 | 1 | | | |
| 2x3x4 | 6.250 | 1 | | | |
| 1x2x3x4 | 1.000 | 1 | | | |
| | 15.5 | 5 | 2.5 | | |

Total Sum of Squares = 1149

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-4. ANOVA Table of $2^4$ Experiment No. 2 - Average Evaporation Rate Over Half-life of Droplet Deposited on Oak Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 1.00 | 1 | 1.00 | 0.625 |
| 2 Wind Speed | 676.00 | 1 | 676.00 | 422.5 **** |
| 3 Leaf Surface | 36.00 | 1 | 36.00 | 22.50 *** |
| 4 Leaf Condition | 1.00 | 1 | 1.00 | 0.625 |
| 1x2 | 1.00 | 1 | 1.00 | 0.625 |
| 1x3 | 1.00 | 1 | 1.00 | 0.625 |
| 1x4 | 4.00 | 1 | 4.00 | 2.5 |
| 2x3 | 9.00 | 1 | 9.00 | 5.625 * |
| 2x4 | 1.00 | 1 | 1.00 | 0.625 |
| 3x4 | 16.00 | 1 | 16.00 | 10.0 ** |
| 1x2x3 | 1.00 | 1 | | |
| 1x2x4 | 4.00 | 1 | | |
| 1x3x4 | 1.00 | 1 | | |
| 2x3x4 | 1.00 | 1 | | |
| 1x2x3x4 | 1.00 | 1 | | |
| | 8.0 | 5 | 1.6 | |

Total Sum of Squares = 754

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-5. ANOVA Table of $2^4$ Experiment No. 1 - Total Percent of Droplet Contamination Recovered as Vapor From Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 39.0625 | 1 | 39.0625 | 10.965 ** |
| 2 Wind Speed | 248.0625 | 1 | 248.0625 | 69.632 **** |
| 3 Leaf Surface | 7.5625 | 1 | 7.5625 | 2.123 |
| 4 Leaf Type | 10.5625 | 1 | 10.5625 | 2.965 |
| 1x2 | 0.0625 | 1 | 0.0625 | 0.018 |
| 1x3 | 22.5625 | 1 | 22.5625 | 6.333 * |
| 1x4 | 22.5625 | 1 | 22.5625 | 6.333 * |
| 2x3 | 0.0625 | 1 | 0.0625 | 0.018 |
| 2x4 | 27.5625 | 1 | 27.5625 | 7.737 ** |
| 3x4 | 5.0625 | 1 | 5.0625 | 1.421 |
| 1x2x3 | 0.0625 | 1 | | |
| 1x2x4 | 1.5625 | 1 | | |
| 1x3x4 | 5.0625 | 1 | | |
| 2x3x4 | 10.5625 | 1 | | |
| 1x2x3x4 | 0.5625 | 1 | | |
| | 17.8125 | 5 | 3.5625 | |

Total Sum of Squares = 400.9375

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-6. ANOVA Table of $2^4$ Experiment No. 2 - Total Percent of Droplet Contamination Recovered as Vapor From Oak Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 156.25 | 1 | 156.25 | 72.764 **** |
| 2 Wind Speed | 72.25 | 1 | 72.25 | 33.604 *** |
| 3 Leaf Surface | 1.0 | 1 | 1.0 | 0.465 |
| 4 Leaf Condition | 121.0 | 1 | 121.0 | 56.279 **** |
| 1x2 | 6.25 | 1 | 6.25 | 2.907 |
| 1x3 | 16.0 | 1 | 16.0 | 7.442 ** |
| 1x4 | 121.0 | 1 | 121.0 | 56.279 **** |
| 2x3 | 1.0 | 1 | 1.0 | 0.465 |
| 2x4 | 4.0 | 1 | 4.0 | 1.860 |
| 3x4 | 0.25 | 1 | 0.25 | 0.116 |
| 1x2x3 | 1.0 | 1 | | |
| 1x2x4 | 1.0 | 1 | | |
| 1x3x4 | 2.25 | 1 | | |
| 2x3x4 | 6.25 | 1 | | |
| 1x2x3x4 | 0.25 | 1 | | |
| | 10.750 | 5 | 2.15 | |

Total Sum of Squares = 509.75

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-7. ANOVA Table of $2^4$ Experiment No. 1 - Life Time of Droplet Contamination on Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 3,906.25 | 1 | 3,906.25 | 0.30[illegible] |
| 2 Wind Speed | 1,265,625.00 | 1 | 1,265,625.00 | 99.812 **** |
| 3 Leaf Surface | 57,600.00 | 1 | 57,600.00 | 4.543 * |
| 4 Leaf Type | 14,400.00 | 1 | 14,400.00 | 1.136 |
| 1x2 | 3,306.25 | 1 | 3,306.25 | 0.261 |
| 1x3 | 15,006.25 | 1 | 15,006.25 | 1.183 |
| 1x4 | 1,056.25 | 1 | 1,056.25 | 0.083 |
| 2x3 | 2,500.00 | 1 | 2,500.00 | 0.197 |
| 2x4 | 19,600.00 | 1 | 19,600.00 | 1.546 |
| 3x4 | 34,225.00 | 1 | 34,225.00 | 2.699 |
| 1x2x3 | 7656.25 | 1 | | |
| 1x2x4 | 756.25 | 1 | | |
| 1x3x4 | 3306.25 | 1 | | |
| 2x3x4 | 50,625.00 | 1 | | |
| 1x2x3x4 | 1,056.25 | 1 | | |
| | 63,400.0 | 5 | 12,680.0 | |

Total Sum of Squares = 1,480,625

Critical Values:

**** $F_{1,5,0.999} = 47.16$

*** $F_{1,5,0.99} = 16.26$

** $F_{1,5,0.95} = 6.61$

* $F_{1,5,0.90} = 4.06$

$F_{1,5,0.75} = 1.69$

TABLE M-8. ANOVA Table of $2^4$ Experiment No. 2 - Life Time of Droplet Contamination on Oak Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 5,814.0625 | 1 | 5,814.0625 | 0.707 |
| 2 Wind Speed | 1,825,876.56 | 1 | 1,825,876.56 | 221.949 **** |
| 3 Leaf Surface | 31,951.5625 | 1 | 31,951.5625 | 3.884 |
| 4 Leaf Condition | 68,251.5625 | 1 | 68,251.5625 | 8.296 ** |
| 1x2 | 1,314.0625 | 1 | 1,314.0625 | 0.160 |
| 1x3 | 13,514.0625 | 1 | 13,514.0625 | 1.643 |
| 1x4 | 2,139.0625 | 1 | 2,139.0625 | 0.260 |
| 2x3 | 12,939.0625 | 1 | 12,939.0625 | 1.573 |
| 2x4 | 7,439.0625 | 1 | 7,439.0625 | 0.904 |
| 3x4 | 60,639.0625 | 1 | 60,639.0625 | 7.371 ** |
| 1x2x3 | 264.0625 | 1 | | |
| 1x2x4 | 39.0625 | 1 | | |
| 1x3x4 | 4064.0625 | 1 | | |
| 2x3x4 | 26,001.5625 | 1 | | |
| 1x2x3x4 | 10,764.0625 | 1 | | |
| | 41,132.8125 | 5 | 8,256.5625 | |

Total Sum of Squares = 2,071,010.94

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.99}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-9. ANOVA Table of $2^4$ Experiment No. 1 - Average Evaporation Rate Over Life Time of Droplet Contamination on Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 4.0 | 1 | 4.0 | 10.0 ** |
| 2 Wind Speed | 256.0 | 1 | 256.0 | 640.0 **** |
| 3 Leaf Surface | 12.25 | 1 | 12.25 | 30.625 *** |
| 4 Leaf Type | 0.0 | 1 | 0.0 | 0.0 |
| 1x2 | 1.0 | 1 | 1.0 | 0.4 |
| 1x3 | 0.25 | 1 | 0.25 | 0.625 |
| 1x4 | 0.0 | 1 | 0.0 | 0.0 |
| 2x3 | 6.25 | 1 | 6.25 | 15.625 ** |
| 2x4 | 0.0 | 1 | 0.0 | 0.0 |
| 3x4 | 0.25 | 1 | 0.25 | 0.625 |
| 1x2x3 | 0.25 | 1 | | |
| 1x2x4 | 1.00 | 1 | | |
| 1x3x4 | 0.25 | 1 | | |
| 2x3x4 | 0.25 | 1 | | |
| 1x2x3x4 | 0.25 | 1 | | |
| | 2.0 | 5 | 0.4 | |

Total Sum of Squares = 282

Critical Values:

**** $F_{1,5,0.999} = 47.18$

*** $F_{1,5,0.99} = 16.26$

** $F_{1,5,0.95} = 6.61$

* $F_{1,5,0.90} = 4.06$

$F_{1,5,0.75} = 1.69$

TABLE M-10. ANOVA Table of $2^4$ Experiment No. 2 - Average Evaporation Rate Over Life Time of Droplet Contamination on Oak Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 5.0625 | 1 | 5.0625 | 10.946 ** |
| 2 Wind Speed | 232.5625 | 1 | 232.5625 | 502.838 **** |
| 3 Leaf Surface | 5.0526 | 1 | 5.0526 | 10.946 *** |
| 4 Leaf Condition | 3.0625 | 1 | 3.0625 | 6.622 ** |
| 1x2 | 0.0625 | 1 | 0.0625 | 0.135 |
| 1x3 | 0.5625 | 1 | 0.5625 | 1.216 |
| 1x4 | 0.0625 | 1 | 0.0625 | 0.135 |
| 2x3 | 1.5625 | 1 | 1.5625 | 3.378 |
| 2x4 | 0.5625 | 1 | 0.5625 | 1.216 |
| 3x4 | 3.0625 | 1 | 3.0625 | 6.622 ** |
| 1x2x3 | 0.5625 | 1 | | |
| 1x2x4 | 0.0625 | 1 | | |
| 1x3x4 | 0.5625 | 1 | | |
| 2x3x4 | 0.5625 | 1 | | |
| 1x2x3x4 | 0.5625 | 1 | | |
| | 2.315 | 5 | 0.4625 | |

Total Sum of Squares = 253.9375

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-11. ANOVA Table of $2^4$ Experiment No. 1 - Percent Of Droplet Contamination Recovered as Vapor After 1 Hr from Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 36.0 | 1 | 36.0 | 7.579 ** |
| 2 Wind Speed | 841.0 | 1 | 841.0 | 177.053 **** |
| 3 Leaf Surface | 210.25 | 1 | 210.25 | 44.263 *** |
| 4 Leaf Type | 30.25 | 1 | 30.25 | 6.368 * |
| 1x2 | 6.25 | 1 | 6.25 | 1.316 |
| 1x3 | 16.0 | 1 | 16.0 | 3.368 |
| 1x4 | 1.0 | 1 | 1.0 | 0.210 |
| 2x3 | 36.0 | 1 | 36.0 | 7.579 ** |
| 2x4 | 9.0 | 1 | 9.0 | 1.895 |
| 3x4 | 6.25 | 1 | 6.25 | 1.316 |
| 1x2x3 | 6.25 | 1 | | |
| 1x2x4 | 0.25 | 1 | | |
| 1x3x4 | 1.0 | 1 | | |
| 2x3x4 | 16.0 | 1 | | |
| 1x2x3x4 | 0.25 | 1 | | |
| | 23.75 | 5 | 4.75 | |

Total Sum of Squares = 1215.75

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-12. ANOVA Table of $2^4$ Experiment No. 2 - Percent Of Droplet Contamination Recovered as Vapor After 1 Hr from Oak Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 10.5625 | 1 | 10.5625 | 4.122 * |
| 2 Wind Speed | 663.0625 | 1 | 663.0625 | 258.756 **** |
| 3 Leaf Surface | 45.5625 | 1 | 45.5625 | 17.780 *** |
| 4 Leaf Condition | 10.5625 | 1 | 10.5625 | 4.122 * |
| 1x2 | 5.0625 | 1 | 5.0625 | 1.976 |
| 1x3 | 5.0625 | 1 | 5.0625 | 1.976 |
| 1x4 | 14.0625 | 1 | 14.0625 | 5.487 * |
| 2x3 | 3.0625 | 1 | 3.0625 | 1.195 |
| 2x4 | 0.0625 | 1 | 0.0625 | 0.024 |
| 3x4 | 27.5625 | 1 | 27.5625 | 10.756 ** |
| 1x2x3 | 1.5625 | 1 | | |
| 1x2x4 | 0.5625 | 1 | | |
| 1x3x4 | 7.5625 | 1 | | |
| 2x3x4 | 0.0625 | 1 | | |
| 1x2x3x4 | 3.0625 | 1 | | |
| | 12.8125 | 5 | 2.5625 | |

Total Sum of Squares = 797.4375

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-13. ANOVA Table of $2^4$ Experiment No. 1 - Percent Of Droplet Contamination Recovered as Vapor After 2 Hr from Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 64.0 | 1 | 64.0 | 7.950 ** |
| 2 Wind Speed | 2450.25 | 1 | 2450.25 | 304.379 **** |
| 3 Leaf Surface | 506.25 | 1 | 506.25 | 62.888 **** |
| 4 Leaf Type | 56.25 | 1 | 56.25 | 6.988 ** |
| 1x2 | 9.0 | 1 | 9.0 | 1.118 |
| 1x3 | 16.0 | 1 | 16.0 | 1.988 |
| 1x4 | 9.0 | 1 | 9.0 | 1.118 |
| 2x3 | 56.25 | 1 | 56.25 | 6.988 ** |
| 2x4 | 5.25 | 1 | 6.25 | 0.776 |
| 3x4 | 12.25 | 1 | 12.25 | 1.522 |
| 1x2x3 | 4.0 | 1 | | |
| 1x2x4 | 1.0 | 1 | | |
| 1x3x4 | 4.0 | 1 | | |
| 2x3x4 | 30.25 | 1 | | |
| 1x2x3x4 | 1.0 | 1 | | |
| | 40.25 | 5 | 8.05 | |

Total Sum of Squares = 3225.75

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-14. ANOVA Table of $2^4$ Experiment No. 2 - Percent Of Droplet Contamination Recovered as Vapor After 2 Hr from Oak Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 30.25 | 1 | 30.25 | 8.288 ** |
| 2 Wind Speed | 2116.0 | 1 | 2116.0 | 579.726 **** |
| 3 Leaf Surface | 110.25 | 1 | 110.25 | 30.205 *** |
| 4 Leaf Condition | 20.25 | 1 | 20.25 | 5.548 * |
| 1x2 | 9.0 | 1 | 9.0 | 2.466 |
| 1x3 | 6.25 | 1 | 6.25 | 1.712 |
| 1x4 | 30.25 | 1 | 30.25 | 8.288 ** |
| 2x3 | 4.0 | 1 | 4.0 | 1.096 |
| 2x4 | 1.0 | 1 | 1.0 | 0.274 |
| 3x4 | 72.75 | 1 | 72.75 | 19.794 *** |
| 1x2x3 | 1.0 | 1 | | |
| 1x2x4 | 1.0 | 1 | | |
| 1x3x4 | 12.25 | 1 | | |
| 2x3x4 | 0.0 | 1 | | |
| 1x2x3x4 | 4.0 | 1 | | |
| | 18.25 | 5 | 3.65 | |

Total Sum of Squares = 2417.755

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-15. ANOVA Table of $2^4$ Experiment No. 1 - Percent Of Droplet Contamination Recovered as Vapor After 3 Hr from Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 72.25 | 1 | 72.25 | 7.940 ** |
| 2 Wind Speed | 3906.25 | 1 | 3906.25 | 429.258 **** |
| 3 Leaf Surface | 625.0 | 1 | 625.0 | 68.681 **** |
| 4 Leaf Type | 64.0 | 1 | 64.0 | 7.032 ** |
| 1x2 | 1.0 | 1 | 1.0 | 0.110 |
| 1x3 | 6.25 | 1 | 6.25 | 0.687 |
| 1x4 | 20.25 | 1 | 20.25 | 2.225 |
| 2x3 | 30.25 | 1 | 30.25 | 3.324 |
| 2x4 | 0.25 | 1 | 0.25 | 0.027 |
| 3x4 | 1.0 | 1 | 1.0 | 0.110 |
| 1x2x3 | 1.0 | 1 | | |
| 1x2x4 | 4.0 | 1 | | |
| 1x3x4 | 6.25 | 1 | | |
| 2x3x4 | 30.25 | 1 | | |
| 1x2x3x4 | 4.0 | 1 | | |
| | 45.50 | 5 | 9.1 | |

Total Sum of Squares = 4772.0

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-16. ANOVA Table of $2^4$ Experiment No. 2 - Percent Of Droplet Contamination Recovered as Vapor After 3 Hr from Oak Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 30.25 | 1 | 30.25 | 7.857 ** |
| 2 Wind Speed | 3721.0 | 1 | 3721.0 | 966.493 **** |
| 3 Leaf Surface | 182.25 | 1 | 182.25 | 47.338 **** |
| 4 Leaf Condition | 12.25 | 1 | 12.25 | 3.182 |
| 1x2 | 4.0 | 1 | 4.0 | 1.039 |
| 1x3 | 2.25 | 1 | 2.25 | 0.584 |
| 1x4 | 56.25 | 1 | 56.25 | 14.610 ** |
| 2x3 | 1.0 | 1 | 1.0 | 0.260 |
| 2x4 | 1.0 | 1 | 1.0 | 0.260 |
| 3x4 | 110.25 | 1 | 110.25 | 28.636 *** |
| 1x2x3 | 1.0 | 1 | | |
| 1x2x4 | 1.0 | 1 | | |
| 1x3x4 | 12.25 | 1 | | |
| 2x3x4 | 1.0 | 1 | | |
| 1x2x3x4 | 4.0 | 1 | | |
| | 19.25 | 5 | 3.85 | |

Total Sum of Squares = 4129.755

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

** $F_{1,5,0.90}$ = 4.06

* $F_{1,5,0.75}$ = 1.69

TABLE M-17. ANOVA Table of $2^4$ Experiment No. 1 - Percent Of Droplet Contamination Recovered as Vapor After 6 Hr from Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 0.0625 | 1 | 0.0625 | 0.062 |
| 2 Wind Speed | 3751.5625 | 1 | 3751.5625 | 639.925 **** |
| 3 Leaf Surface | 232.5625 | 1 | 232.5625 | 39.670 *** |
| 4 Leaf Type | 10.5625 | 1 | 10.5625 | 1.802 |
| 1x2 | 27.5625 | 1 | 27.5625 | 4.701 * |
| 1x3 | 5.0625 | 1 | 5.0625 | 0.864 |
| 1x4 | 18.0625 | 1 | 18.0625 | 3.081 |
| 2x3 | 45.5625 | 1 | 45.5625 | 7.771 ** |
| 2x4 | 7.5625 | 1 | 7.5625 | 1.290 |
| 3x4 | 7.5625 | 1 | 7.5625 | 1.290 |
| 1x2x3 | 10.5625 | 1 | | |
| 1x2x4 | 1.5625 | 1 | | |
| 1x3x4 | 5.0625 | 1 | | |
| 2x3x4 | 10.5625 | 1 | | |
| 1x2x3x4 | 1.5625 | 1 | | |
| | 29.3125 | 5 | 5.8625 | |

Total Sum of Squares = 4135.4375

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-18. ANOVA Table of $2^4$ Experiment No. 2 - Percent Of Droplet Contamination Recovered as Vapor After 6 Hr from Oak Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 14.0625 | 1 | 14.0625 | 2.246 |
| 2 Wind Speed | 4389.0625 | 1 | 4389.0625 | 700.848 **** |
| 3 Leaf Surface | 105.0625 | 1 | 105.0625 | 16.776 *** |
| 4 Leaf Condition | 5.0625 | 1 | 5.0625 | 0.808 |
| 1x2 | 22.5625 | 1 | 22.5625 | 3.603 |
| 1x3 | 0.0625 | 1 | 0.0625 | 0.010 |
| 1x4 | 60.0625 | 1 | 60.0625 | 9.591 ** |
| 2x3 | 22.5625 | 1 | 22.5625 | 3.603 |
| 2x4 | 5.0625 | 1 | 5.0625 | 0.808 |
| 3x4 | 60.0625 | 1 | 60.0625 | 9.591 ** |
| 1x2x3 | 3.0625 | 1 | | |
| 1x2x4 | 0.5625 | 1 | | |
| 1x3x4 | 0.0625 | 1 | | |
| 2x3x4 | 27.5625 | 1 | | |
| 1x2x3x4 | 0.0625 | 1 | | |
| | 31.3125 | 5 | 6.2625 | |

Total Sum of Squares = 4714.9375

Critical Values:

**** $F_{1,5,0.999} = 47.18$

*** $F_{1,5,0.99} = 16.26$

** $F_{1,5,0.95} = 6.61$

* $F_{1,5,0.90} = 4.06$

$F_{1,5,0.75} = 1.69$

TABLE M-19. ANOVA Table of $2^4$ Experiment No. 1 - Average Evaporation Rate After 1 Hr For 2.2 mm (Dia.) Droplet Deposited on Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 3.0625 | 1 | 3.0625 | 0.860 |
| 2 Wind Speed | 885.0625 | 1 | 885.0625 | 248.439 **** |
| 3 Leaf Surface | 217.5625 | 1 | 217.5625 | 61.070 **** |
| 4 Leaf Type | 39.0625 | 1 | 39.0625 | 10.965 ** |
| 1x2 | 0.5625 | 1 | 0.5625 | 0.158 |
| 1x3 | 3.0625 | 1 | 3.0625 | 0.860 |
| 1x4 | 0.5625 | 1 | 0.5625 | 0.158 |
| 2x3 | 22.5625 | 1 | 22.5625 | 6.333 * |
| 2x4 | 5.0525 | 1 | 5.0525 | 1.421 |
| 3x4 | 10.5625 | 1 | 10.5625 | 2.965 |
| 1x2x3 | 0.5626 | 1 | | |
| 1x2x4 | 3.0625 | 1 | | |
| 1x3x4 | 0.5625 | 1 | | |
| 2x3x4 | 10.5625 | 1 | | |
| 1x2x3x4 | 3.0625 | 1 | | |
| | 17.8125 | 5 | 3.5625 | |

Total Sum of Squares = 1204.9375

Critical Values

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-20. ANOVA Table of $2^4$ Experiment No. 2 - Average Evaporation Rate After 1 Hr For 2.2 mm (Dia.) Droplet Deposited on Oak Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 0.0625 | 1 | 0.0625 | 0.038 |
| 2 Wind Speed | 715.5625 | 1 | 715.5625 | 430.414 **** |
| 3 Leaf Surface | 52.5625 | 1 | 52.5625 | 31.616 *** |
| 4 Leaf Condition | 1.5625 | 1 | 1.5625 | 0.940 |
| 1x2 | 0.5625 | 1 | 0.5625 | 0.338 |
| 1x3 | 1.5625 | 1 | 1.5625 | 0.940 |
| 1x4 | 5.0625 | 1 | 5.0625 | 3.045 |
| 2x3 | 3.0625 | 1 | 3.0625 | 1.842 |
| 2x4 | 0.5625 | 1 | 0.5625 | 0.338 |
| 3x4 | 18.0625 | 1 | 18.0625 | 10.865 ** |
| 1x2x3 | 3.0625 | 1 | | |
| 1x2x4 | 3.0625 | 1 | | |
| 1x3x4 | 1.5625 | 1 | | |
| 2x3x4 | 0.0625 | 1 | | |
| 1x2x3x4 | 0.5625 | 1 | | |
| | 8.3125 | 5 | 1.6625 | |

Total Sum of Squares = 806.9375

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-21. ANOVA Table of $2^4$ Experiment No. 1 - Average Evaporation Rate After 2 Hr For 2.2 mm (Dia.) Droplet Deposited on Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 0.0625 | 1 | 0.0625 | 0.035 |
| 2 Wind Speed | 663.0625 | 1 | 663.0625 | 376.206 **** |
| 3 Leaf Surface | 126.5625 | 1 | 126.5625 | 71.805 **** |
| 4 Leaf Type | 22.5625 | 1 | 22.5625 | 12.801 ** |
| 1x2 | 0.0625 | 1 | 0.0625 | 0.035 |
| 1x3 | 0.5625 | 1 | 0.5625 | 0.319 |
| 1x4 | 0.5625 | 1 | 0.5625 | 0.319 |
| 2x3 | 7.5625 | 1 | 7.5625 | 4.291 * |
| 2x4 | 1.5625 | 1 | 1.5625 | 0.886 |
| 3x4 | 3.0625 | 1 | 3.0625 | 1.738 |
| 1x2x3 | 0.0625 | 1 | | |
| 1x2x4 | 5.0625 | 1 | | |
| 1x3x4 | 0.5625 | 1 | | |
| 2x3x4 | 1.5625 | 1 | | |
| 1x2x3x4 | 1.5625 | 1 | | |
| | 8.8125 | 5 | 1.7625 | |

Total Sum of Squares = 834.4375

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-22. ANOVA Table of $2^4$ Experiment No. 2 - Average Evaporation Rate After 2 Hr For 2.2 mm (Dia.) Droplet Deposited on Oak Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 1.5625 | 1 | 1.5625 | 1.623 |
| 2 Wind Speed | 612.5625 | 1 | 612.5625 | 636.429 **** |
| 3 Leaf Surface | 33.0625 | 1 | 33.0625 | 34.351 *** |
| 4 Leaf Condition | 0.0625 | 1 | 0.0625 | 0.065 |
| 1x2 | 0.5625 | 1 | 0.5625 | 0.584 |
| 1x3 | 0.5625 | 1 | 0.5625 | 0.584 |
| 1x4 | 3.0625 | 1 | 3.0625 | 3.182 |
| 2x3 | 3.0625 | 1 | 3.0625 | 3.182 |
| 2x4 | 0.0625 | 1 | 0.0625 | 0.065 |
| 3x4 | 14.0625 | 1 | 14.0625 | 14.610 ** |
| 1x2x3 | 0.5625 | 1 | | |
| 1x2x4 | 3.0525 | 1 | | |
| 1x3x4 | 0.5625 | 1 | | |
| 2x3x4 | 0.0625 | 1 | | |
| 1x2x3x4 | 0.5625 | 1 | | |
| | 4.8125 | 5 | 0.9625 | |

Total Sum of Squares = 673.4375

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-23. ANOVA Table of $2^4$ Experiment No. 1 - Average Evaporation Rate After 3 Hr For 2.2 mm (Dia.) Droplet Deposited on Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 1.5625 | 1 | 1.5625 | 0.940 |
| 2 Wind Speed | 451.5625 | 1 | 451.5625 | 271.616 **** |
| 3 Leaf Surface | 60.0625 | 1 | 60.0625 | 36.128 *** |
| 4 Leaf Type | 14.0625 | 1 | 14.0625 | 8.459 ** |
| 1x2 | 0.5625 | 1 | 0.5625 | 0.338 |
| 1x3 | 0.0625 | 1 | 0.0625 | 0.038 |
| 1x4 | 0.0625 | 1 | 0.0625 | 0.038 |
| 2x3 | 1.5625 | 1 | 1.5625 | 0.940 |
| 2x4 | 0.0625 | 1 | 0.0625 | 0.038 |
| 3x4 | 0.5625 | 1 | 0.5625 | 1.338 |
| 1x2x3 | 0.5625 | 1 | | |
| 1x2x4 | 3.0625 | 1 | | |
| 1x3x4 | 1.5625 | 1 | | |
| 2x3x4 | 0.0625 | 1 | | |
| 1x2x3x4 | 3.0625 | 1 | | |
| | 8.3125 | 5 | 1.6625 | |

Total Sum of Squares = 538.4375

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-24. ANOVA Table of $2^4$ Experiment No. 2 - Average Evaporation Rate After 3 Hr For 2.2 mm (Dia.) Droplet Deposited on Oak Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 4.0 | 1 | 4.0 | 10.0 ** |
| 2 Wind Speed | 441.0 | 1 | 441.0 | 1102.5 **** |
| 3 Leaf Surface | 20.25 | 1 | 20.25 | 50.625 **** |
| 4 Leaf Condition | 1.0 | 1 | 1.0 | 2.5 |
| 1x2 | 0.0 | 1 | 0.0 | 0.0 |
| 1x3 | 0.25 | 1 | 0.25 | 0.625 |
| 1x4 | 1.0 | 1 | 1.0 | 2.5 |
| 2x3 | 2.25 | 1 | 2.25 | 5.625 * |
| 2x4 | 0.0 | 1 | 0.0 | 0.0 |
| 3x4 | 6.25 | 1 | 6.25 | 15.625 ** |
| 1x2x3 | 0.25 | 1 | | |
| 1x2x4 | 1.0 | 1 | | |
| 1x3x4 | 0.25 | 1 | | |
| 2x3x4 | 0.25 | 1 | | |
| 1x2x3x4 | 0.25 | 1 | | |
| | 2.0 | 5 | 0.40 | |

Total Sum of Squares = 478.0

Critical Values:

**** $F_{1,5,0.999} = 47.18$

*** $F_{1,5,0.99} = 16.26$

** $F_{1,5,0.95} = 6.61$

* $F_{1,5,0.90} = 4.06$

$F_{1,5,0.75} = 1.69$

TABLE M-25. ANOVA Table of $2^4$ Experiment No. 1 - Average Evaporation Rate After 6 Hr For 2.2 mm (Dia.) Droplet Deposited on Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 9.0 | 1 | 9.0 | 13.846 ** |
| 2 Wind Speed | 110.25 | 1 | 110.25 | 169.615 **** |
| 3 Leaf Surface | 12.25 | 1 | 12.25 | 18.846 *** |
| 4 Leaf Type | 2.25 | 1 | 2.25 | 3.462 |
| 1x2 | 1.0 | 1 | 1.0 | 1.538 |
| 1x3 | 1.0 | 1 | 1.0 | 1.538 |
| 1x4 | 0.0 | 1 | 0.0 | 0.000 |
| 2x3 | 2.25 | 1 | 2.25 | 3.462 |
| 2x4 | 0.25 | 1 | 0.25 | 0.385 |
| 3x4 | 0.25 | 1 | 0.25 | 0.385 |
| 1x2x3 | 1.0 | 1 | | |
| 1x2x4 | 1.0 | 1 | | |
| 1x3x4 | 0.0 | 1 | | |
| 2x3x4 | 0.25 | 1 | | |
| 1x2x3x4 | 1.0 | 1 | | |
| | 3.25 | 5 | 0.65 | |

Total Sum of Squares = 141.75

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE M-26. ANOVA Table of $2^4$ Experiment No. 2 - Average Evaporation Rate After 6 Hr For 2.2 mm (Dia.) Droplet Deposited on Oak Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 12.25 | 1 | 12.25 | 27.222 *** |
| 2 Wind Speed | 144.0 | 1 | 144.0 | 320.0 **** |
| 3 Leaf Surface | 6.25 | 1 | 6.25 | 13.895 ** |
| 4 Leaf Condition | 6.25 | 1 | 6.25 | 13.889 ** |
| 1x2 | 1.0 | 1 | 1.0 | 2.222 |
| 1x3 | 0.25 | 1 | 0.25 | 0.556 |
| 1x4 | 0.25 | 1 | 0.25 | 0.556 |
| 2x3 | 0.0 | 1 | 0.0 | 0.0 |
| 2x4 | 1.0 | 1 | 1.0 | 2.222 |
| 3x4 | 2.25 | 1 | 2.25 | 5.0 * |
| 1x2x3 | 0.0 | 1 | | |
| 1x2x4 | 1.0 | 1 | | |
| 1x3x4 | 0.25 | 1 | | |
| 2x3x4 | 1.0 | 1 | | |
| 1x2x3x4 | 0.0 | 1 | | |
| | 2.25 | 5 | 0.45 | |

Total Sum of Squares = 175.75

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

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# APPENDIX N

## FACTORIAL ANALYSIS AND HALF NORMAL PROBABILITY PLOTS OF DROPLET SPREAD FACTOR RESULTS

TABLE N-1. THE DESIGN MATRIX FOR THE FACTORIAL EXPERIMENT AVERAGE SPREAD FACTOR OF DROPLET (2 MM DIA) DEPOSITED ON LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | VARIABLES 1 | 2 | 3 | 4 | CONTRAST CONFOUNDING |
|---|---|---|---|---|---|
| 1 | − | | − | − | MEAN |
| 2 | + | − | − | − | 1 |
| 3 | − | + | − | − | 2 |
| 4 | + | + | − | − | 12 |
| 5 | − | − | + | − | 3 |
| 6 | + | − | | − | 13 |
| 7 | − | + | | − | 23 |
| 8 | + | + | + | − | 123 |
| 9 | − | − | − | + | 4 |
| 10 | + | − | − | + | 14 |
| 11 | − | + | − | | 24 |
| 12 | + | + | − | + | 124 |
| 13 | − | − | + | + | 34 |
| 14 | + | − | + | + | 134 |
| 15 | − | + | + | + | 234 |
| 16 | + | + | + | + | 1234 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (−)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (−)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (−)TOP |
| 4: | LEAF TYPE | (+)OAK | (−)HICKORY |

TABLE N-2. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES AVERAGE SPREAD FACTOR OF DROPLET (2 MM DIA) DEPOSITED ON LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | CONTRAST | YIELD* | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 247 | 222.6 | - |
| 2 | 1 | 267 | -8 | 256 |
| 3 | 2 | 272 | -4.7 | 90.25 |
| 4 | 12 | 280 | 2 | 16 |
| 5 | 3 | 189 | -68.5 | 18769 |
| 6 | 13 | 191 | .8 | 2.25 |
| 7 | 23 | 191 | 3 | 36 |
| 8 | 123 | 185 | -4.7 | 90.25 |
| 9 | 4 | 290 | -10.2 | 420.25 |
| 10 | 14 | 239 | -14 | 784 |
| 11 | 24 | 236 | -13.2 | 702.25 |
| 12 | 124 | 224 | 7 | 196 |
| 13 | 34 | 194 | 9 | 324 |
| 14 | 134 | 183 | 8.8 | 306.25 |
| 15 | 234 | 194 | 13.5 | 729 |
| 16 | 1234 | 180 | -5.7 | 132.25 |
| | | | TOTAL = | 22853.75 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

* SPREAD FACTOR X 100

TABLE N-3. RANKED STANDARDIZED MAGNITUDE OF EFFECTS AVERAGE SPREAD FACTOR OF DROPLET (2 MM DIA) DEPOSITED ON LEAF SURFACE AT 60 DEG [illegible] AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 3 | 68.5 | 96.67 | 6.72 | 98.33 |
| 14 | 14 | 14 | 90 | 1.37 | 95 |
| 13 | 234 | 13.5 | 83.33 | 1.32 | 91.67 |
| 12 | 24 | 13.2 | 76.67 | 1.29 | 88.33 |
| 11 | 4 | 10.2 | 70 | 1 | 85 |
| 10 | 34 | 9 | 63.33 | .88 | 81.67 |
| 9 | 134 | 8.8 | 56.67 | .86 | 78.33 |
| 8 | 1 | 8 | 50 | .78 | 75 |
| 7 | 124 | 7 | 43.33 | .69 | 71.67 |
| 6 | 1234 | 5.7 | 36.67 | .56 | 68.33 |
| 5 | 123 | 4.7 | 30 | .46 | 65 |
| 4 | 2 | 4.7 | 23.33 | .46 | 61.67 |
| 3 | 23 | 3 | 16.67 | .2[illegible] | 58.33 |
| 2 | 12 | 2 | 10 | [illegible] | 55 |
| 1 | 13 | .8 | 3.33 | .08 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF TYPE | (+)OAK | (-)HICKORY |

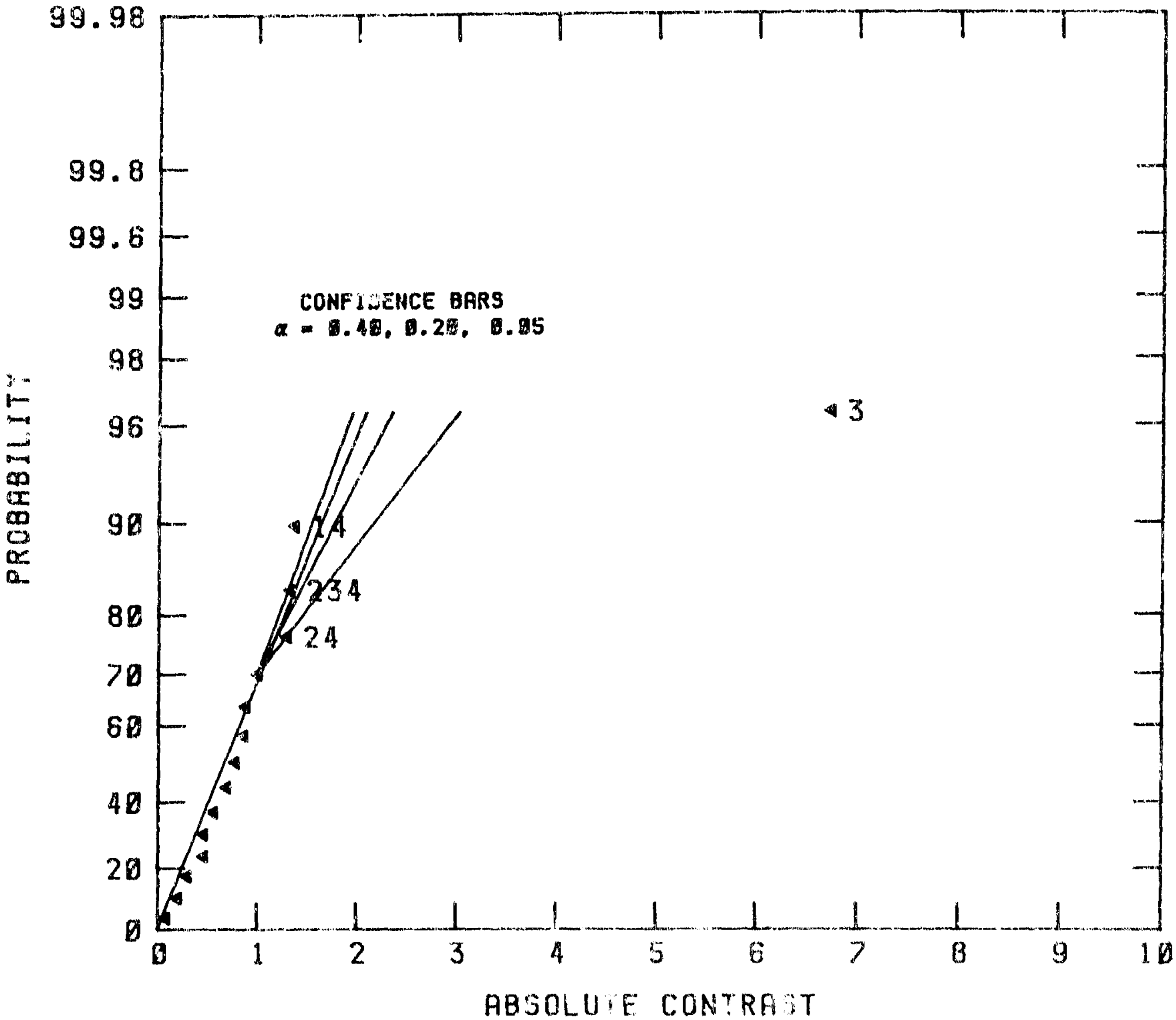


FIGURE N-1. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT SPREAD FACTOR OF 2 MM DIAMETER DROPS DEPOSITED ON LEAF SURFACE AT 80 DEG F AND 42% RH

TABLE N-4. THE DESIGN MATRIX FOR THE FACTORIAL EXPERIMENT AVERAGE SPREAD FACTOR OF DROPLET (2 MM DIA) DEPOSITED ON OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| TEST | VARIABLES 1 | 2 | 3 | 4 | CONTRAST CONFOUNDING |
|---|---|---|---|---|---|
| 1 | − | − | − | − | MEAN |
| 2 | + | − | − | − | 1 |
| 3 | − | + | − | − | 2 |
| 4 | + | + | − | − | 12 |
| 5 | − | − | + | − | 3 |
| 6 | + | − | + | − | 13 |
| 7 | − | + | + | − | 23 |
| 8 | + | + | + | − | 123 |
| 9 | − | − | − | + | 4 |
| 10 | + | − | − | + | 14 |
| 11 | − | + | − | + | 24 |
| 12 | + | + | − | + | 124 |
| 13 | − | − | + | + | 34 |
| 14 | + | − | + | + | 134 |
| 15 | − | + | + | + | 234 |
| 16 | + | + | + | + | 1234 |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (−)100 CP |
| 2: | WIND SPEED | (+)1[illegible] MPH | (−)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (−)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (−)RED |

TABLE N-5. ESTIMATES OF AVERAGE EFFECTS AND SUM OF SQUARES AVERAGE SPREAD FACTOR OF DROPLET (2 MM DIA) DEPOSITED ON OAK LEAF SURFACE AT 60 DEG F AND 32% RH

| TEST | CONTRAST | YIELD* | AVG EFFECTS | SUM OF SQUARES |
|---|---|---|---|---|
| 1 | MEAN | 197 | 202.4 | -- |
| 2 | 1 | 199 | -10.5 | 441 |
| 3 | 2 | 186 | -9 | 324 |
| 4 | 12 | 199 | 4.8 | 90.25 |
| 5 | 3 | 177 | -37.7 | 5700.25 |
| 6 | 13 | 176 | 1.5 | 9 |
| 7 | 23 | 187 | 11 | 484 |
| 8 | 123 | 177 | -7.7 | 240.25 |
| 9 | 4 | 290 | 30.3 | 3660.25 |
| 10 | 14 | 239 | -11.5 | 529 |
| 11 | 24 | 236 | -9 | 324 |
| 12 | 124 | 224 | 4.3 | 72.25 |
| 13 | 34 | 154 | -21.7 | 1892.25 |
| 14 | 134 | 183 | 8 | 256 |
| 15 | 234 | 194 | 5.5 | 121 |
| 16 | 1234 | 180 | -2.7 | 30.25 |

TOTAL = 14173.75

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)2 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

* SPREAD FACTOR X 100

TABLE N-6. RANKED STANDARDIZED MAGNITUDE OF EFFECTS AVERAGE SPREAD FACTOR OF DROPLET (2 MM DIA) DEPOSITED ON OAK LEAF SURFACE AT 60 DEG F AND 42% RH

| RANK | CONTRAST | MAG OF EFFECT | PROB | STD MAG | HALF NORMAL |
|---|---|---|---|---|---|
| 15 | 3 | 37.7 | 96.67 | 3.43 | 98.33 |
| 14 | 4 | 30.3 | 90 | 2.75 | 95 |
| 13 | 34 | 21.7 | 83.33 | 1.97 | 91.67 |
| 12 | 14 | 11.5 | 76.67 | 1.05 | 88.33 |
| 11 | 23 | 11 | 70 | 1 | 85 |
| 10 | 1 | 10.5 | 63.33 | .95 | 81.67 |
| 9 | 24 | 9 | 56.67 | .82 | 78.33 |
| 8 | 2 | 9 | 50 | .82 | 75 |
| 7 | 134 | 8 | 43.33 | .73 | 71.67 |
| 6 | 123 | 7.7 | 36.67 | .7 | 68.33 |
| 5 | 234 | 5.5 | 30 | .5 | 65 |
| 4 | 12 | 4.8 | 23.33 | .44 | 61.67 |
| 3 | 124 | 4.3 | 16.67 | .39 | 58.33 |
| 2 | 1234 | 2.7 | 10 | .25 | 55 |
| 1 | 13 | 1.5 | 3.33 | .14 | 51.67 |

PROB = ((R(I)-.5)/R(MAX))*100% WHERE R(I) IS THE RANK.

STANDARDIZED MAGNITUDE = ABSOLUTE VALUE / U WHERE U IS DEFINED AS THE MAGNITUDE OF THE CONTRAST NEAREST 68.3 PERCENTILE.

HALF NORMAL = (PROB+100%)/2

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

VARIABLE #'S AND IDENTITIES

| | | | |
|---|---|---|---|
| 1: | LIQUID VISCOSITY | (+)1000 CP | (-)100 CP |
| 2: | WIND SPEED | (+)11 MPH | (-)3 MPH |
| 3: | LEAF SURFACE | (+)BOTTOM | (-)TOP |
| 4: | LEAF CONDITION | (+)GREEN | (-)RED |

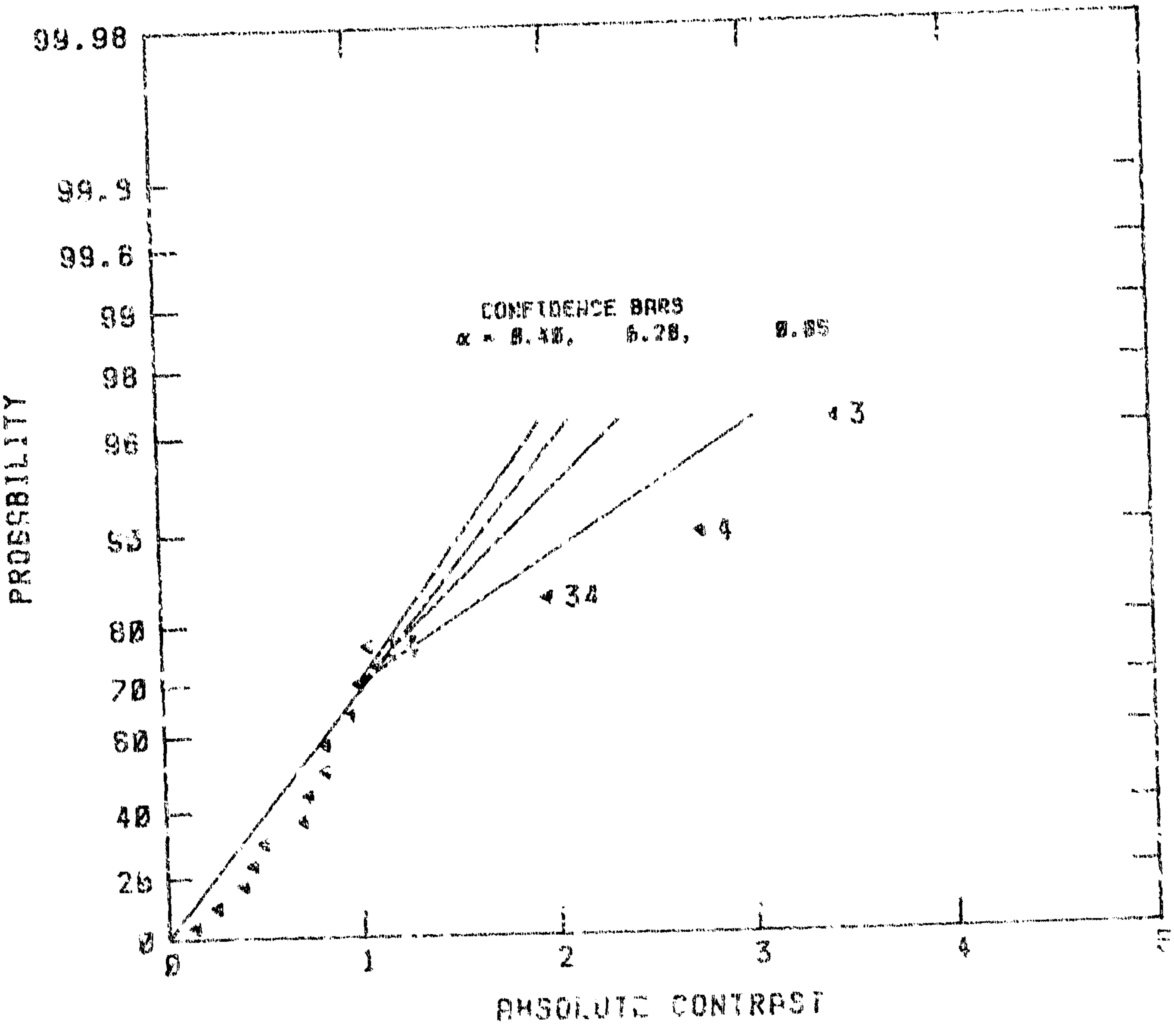


FIGURE N-7. HALF NORMAL PROBABILITY PLOT OF FACTORIAL EXPERIMENT SPREAD FACTOR OF 2 MM DIAMETER DROPS DEPOSITED ON DRY LEAF SURFACE AT [illegible] DEG F AND 42% RH

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# APPENDIX O

## ANOVA TABLES OF $2^4$ FACTORIAL EXPERIMENTS ON DROPLET SPREAD FACTOR RESULTS

TABLE O-1. ANOVA Table of $2^4$ Experiment No. 1 - Average Spread Factor of Droplet (2 mm Dia.) Deposited on Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 256.0 | 1 | 256.0 | 0.880 |
| 2 Wind Speed | 90.25 | 1 | 90.25 | 0.310 |
| 3 Leaf Surface | 18,769.0 | 1 | 18,769.0 | 64.554 **** |
| 4 Leaf Type | 420.25 | 1 | 420.25 | 1.445 |
| 1x2 | 16.0 | 1 | 16.0 | 0.055 |
| 1x3 | 2.25 | 1 | 2.25 | 0.008 |
| 1x4 | 784.0 | 1 | 784.0 | 2.696 |
| 2x3 | 36.0 | 1 | 36.0 | 0.124 |
| 2x4 | 702.25 | 1 | 702.25 | 2.415 |
| 3x4 | 324.0 | 1 | 324.0 | 1.114 |
| 1x2x3 | 90.25 | 1 | | |
| 1x2x4 | 196.0 | 1 | | |
| 1x3x4 | 306.25 | 1 | | |
| 2x3x4 | 729.0 | 1 | | |
| 1x2x3x4 | 132.25 | 1 | | |
| | 1,453.75 | 5 | 290.75 | |

Total Sum of Squares = 22853.75

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

TABLE O-2. ANOVA Table of $2^4$ Experiment No. 2 - Average Spread Factor of Droplet (2 mm Dia.) Deposited on Oak Leaf Surface.

| Source | Sum of Squares | Degrees of Freedom | Mean Square | Mean Square Ratio |
|---|---|---|---|---|
| 1 Liquid Viscosity | 441.0 | 1 | 441.0 | 1.517 |
| 2 Wind Speed | 324.0 | 1 | 324.0 | 1.114 |
| 3 Leaf Surface | 5,700.25 | 1 | 5,700.25 | 19.605 *** |
| 4 Leaf Condition | 3,660.25 | 1 | 3,660.25 | 12.590 ** |
| 1x2 | 90.25 | 1 | 90.25 | 0.310 |
| 1x3 | 9.0 | 1 | 9.0 | 0.031 |
| 1x4 | 529.0 | 1 | 529.0 | 1.819 |
| 2x3 | 484.0 | 1 | 484.0 | 1.665 |
| 2x4 | 324.25 | 1 | 324.25 | 1.114 |
| 3x4 | 1892.25 | 1 | 1892.25 | 6.508 * |
| 1x2x3 | 240.25 | 1 | | |
| 1x2x4 | 72.25 | 1 | | |
| 1x3x4 | 256.0 | 1 | | |
| 2x3x4 | 121.0 | 1 | | |
| 1x2x3x4 | 30.25 | 1 | | |
| | 719.75 | 5 | 143.95 | |

Total Sum of Squares = 14173.75

Critical Values:

**** $F_{1,5,0.999}$ = 47.18

*** $F_{1,5,0.99}$ = 16.26

** $F_{1,5,0.95}$ = 6.61

* $F_{1,5,0.90}$ = 4.06

$F_{1,5,0.75}$ = 1.69

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APPENDIX P

REGRESSION MODELS FOR PREDICTING HALF-LIFE OF DROPLETS DEPOSITED ON LEAF FOLIAGE

Table P-1. Model 1 Fit of Half-Life of DEM Droplet Deposited on Leaf Surface

| SOURCE | DF | SS | MS |
|---|---|---|---|
| REGRESS. | 2 | 148937.625 | 74468.812 |
| RESIDUAL | 13 | 9149.812 | 703.832 |
| TOTAL | 15 | 158087.437 | |

F(2,13) = 105.805 P = <.001

MULTIPLE CORRELATION = .9706

R-SQUARED = .9421 ( .9332)

STANDARD ERROR = 26.530

| VARIABLE | COEFFICIENT | T | S.E. | P | SR |
|---|---|---|---|---|---|
| B | -89.4375 | -13.485 | 6.6325 | <.001 | .8096 |
| C | 36.1875 | 5.456 | 6.6325 | <.001 | .1325 |
| CONSTANT | 218.6875 | | | | |

| CASE # | ACTUAL | PREDICTED | RESIDUAL |
|---|---|---|---|
| 1 | 246.000 | 271.938 | -25.938 |
| 2 | 264.000 | 271.938 | -7.938 |
| 3 | 84.000 | 93.063 | -9.063 |
| 4 | 98.000 | 93.063 | 4.937 |
| 5 | 320.000 | 344.313 | -24.313 |
| 6 | 332.000 | 344.313 | -12.313 |
| 7 | 148.000 | 165.438 | -17.438 |
| 8 | 156.000 | 165.438 | -9.438 |
| 9 | 245.000 | 271.938 | -26.938 |
| 10 | 287.000 | 271.938 | 15.063 |
| 11 | 100.000 | 93.063 | 6.937 |
| 12 | 136.000 | 93.063 | 42.937 |
| 13 | 367.000 | 344.313 | 22.688 |
| 14 | 404.000 | 344.313 | 59.688 |
| 15 | 150.000 | 165.438 | -15.438 |
| 16 | 162.000 | 165.438 | -3.438 |

RESIDUALS SUM = -4.76837158E-07

SERIAL CORRELATION, RESIDUALS = .2738

DURBIN-WATSON STATISTIC = 1.3782

Table P-2. Model 1B Fit of Half-Life of DEM Droplet Deposited on Leaf Surface.

| SOURCE | DF | SS | MS |
|---|---|---|---|
| REGRESS. | 5 | 155608.812 | 31121.762 |
| RESIDUAL | 10 | 2478.624 | 247.862 |
| TOTAL | 15 | 158087.437 | |

F(5,10) = 125.561 P = <.001

MULTIPLE CORRELATION = .9921

R-SQUARED = .9843 ( .9765)

STANDARD ERROR = 15.744

| VARIABLE | COEFFICIENT | T | S.E. | P | SR |
|---|---|---|---|---|---|
| B | -89.4375 | -22.723 | 3.9359 | <.001 | .8096 |
| C | 36.1875 | 9.194 | 3.9359 | <.001 | .1325 |
| A | 11.1875 | 2.842 | 3.9359 | .0169 | .0127 |
| D | 12.6875 | 3.224 | 3.9359 | .009 | .0163 |
| BC | -11.4375 | -2.906 | 3.9359 | .0152 | .0132 |
| CONSTANT | 218.6875 | | | | |

| CASE # | ACTUAL | PREDICTED | RESIDUAL |
|---|---|---|---|
| 1 | 246.000 | 236.625 | 9.375 |
| 2 | 264.000 | 259.000 | 5.000 |
| 3 | 84.000 | 80.625 | 3.375 |
| 4 | 98.000 | 103.000 | -5.000 |
| 5 | 320.000 | 331.875 | -11.875 |
| 6 | 332.000 | 354.250 | -22.250 |
| 7 | 148.000 | 130.125 | 17.875 |
| 8 | 156.000 | 152.500 | 3.500 |
| 9 | 245.000 | 262.000 | -17.000 |
| 10 | 287.000 | 284.375 | 2.625 |
| 11 | 100.000 | 106.000 | -6.000 |
| 12 | 136.000 | 128.375 | 7.625 |
| 13 | 367.000 | 357.250 | 9.750 |
| 14 | 404.000 | 379.625 | 24.375 |
| 15 | 150.000 | 155.500 | -5.500 |
| 16 | 162.000 | 177.875 | -15.875 |

RESIDUALS SUM = -4.76837158E-07

SERIAL CORRELATION, RESIDUALS = .0606

DURBIN-WATSON STATISTIC = 1.7540

Table P-3. Model 2 Fit of Half-Life of DEM Droplet Deposited on Leaf Surface.

| SOURCE | DF | SS | MS |
|---|---|---|---|
| REGRESS. | 3 | 151386.187 | 50462.062 |
| RESIDUAL | 12 | 6373.749 | 531.146 |
| TOTAL | 15 | 157759.937 | |

F(3,12) = 95.006 P = <.001

MULTIPLE CORRELATION = .9796

R-SQUARED = .9596 ( .9495)

STANDARD ERROR = 23.047

| VARIABLE | COEFFICIENT | T | S.E. | P | SR |
|---|---|---|---|---|---|
| B | -93.1875 | -16.174 | 5.7617 | <.001 | .8807 |
| C | 20.8125 | 3.612 | 5.7617 | .003 | .0439 |
| CD | 18.5625 | 3.222 | 5.7617 | .007 | .0349 |
| CONSTANT | 233.4375 | | | | |

| CASE # | ACTUAL | PREDICTED | RESIDUAL |
|---|---|---|---|
| 1 | 339.000 | 324.375 | 14.625 |
| 2 | 315.000 | 324.375 | -9.375 |
| 3 | 142.000 | 138.000 | 4.000 |
| 4 | 137.000 | 138.000 | -1.000 |
| 5 | 341.000 | 328.875 | 12.125 |
| 6 | 315.000 | 328.875 | -13.875 |
| 7 | 145.000 | 142.500 | 2.500 |
| 8 | 150.000 | 142.500 | 7.500 |
| 9 | 245.000 | 287.250 | -42.250 |
| 10 | 287.000 | 287.250 | -.250 |
| 11 | 100.000 | 100.875 | -.875 |
| 12 | 136.000 | 100.875 | 35.125 |
| 13 | 367.000 | 366.000 | 1.000 |
| 14 | 404.000 | 366.000 | 38.000 |
| 15 | 150.000 | 179.625 | -29.625 |
| 16 | 162.000 | 179.625 | -17.625 |

RESIDUALS SUM = -3.57627869E-07

SERIAL CORRELATION, RESIDUALS = -.2049

DURBIN-WATSON STATISTIC = 2.3075

Table P-4. Comparison of Predictions of Three Regession Models.

| Expected Droplet Half-life (min) | Predicted Droplet Half-Life Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| 60 | 69 (+9) | 62 (+2) | 67 (+7) |
| 120 | 126 (+6) | 122 (+2) | 125 (+5) |
| 180 | 182 (+2) | 181 (+1) | 182 (+2) |
| 240 | 239 (-1) | 240 ( 0 ) | 240 ( 0 ) |
| 300 | 295 (-5) | 299 (-1) | 297 (-3) |
| 360 | 352 (-8) | 358 (-2) | 355 (-5) |
| 420 | 408 (-12) | 417 (-3) | 412 (-8) |
| 480 | 465 (-15) | 476 (-4) | 470 (-10) |

Model 1: $t_{\frac{1}{2}} = 218.6875 - 89.4375B + 36.1875C$

Model 1b: $t_{\frac{1}{2}} = 218.6875 - 89.4375B + 36.1875C + 11.1875A + 12.4375D - 11.4375BC$

Model 2: $t_{\frac{1}{2}} = 233.4375 - 93.1875B + 20.8125C + 18.5625CE$

Parameters:

A: Liquid Viscosity ( 100 cp = -1 & 1000 cp = +1)
B: Wind Speed ( 3 mph = -1 & 11 mph = +1)
C: Leaf Surface (Top = -1 & Bottom = +1)
D: Leaf Type (Shagbark Hickory = -1 & Northern Red Oak = +1)
E: Leaf Condition/Age (Red, October + -1 & Green, September = +1)

EVAPORATION EXPERIMENTS NO. 1 AND 2 SERIES 2**4 FACTORIAL EXPERIMENT
DIETHYLMALONATE DROPS 2 MM DIA., 100 AND 1000 CP LIQUID VISCOSITY
NOMINAL CONTAMINATION DENSITY 30 G/SQ METER ON OAK AND HICKORY LEAVES
WINDSPEED 3 AND 11 MPH, AIR TEMPERATURE 60 DEG F., RELATIVE HUMIDITY 42%

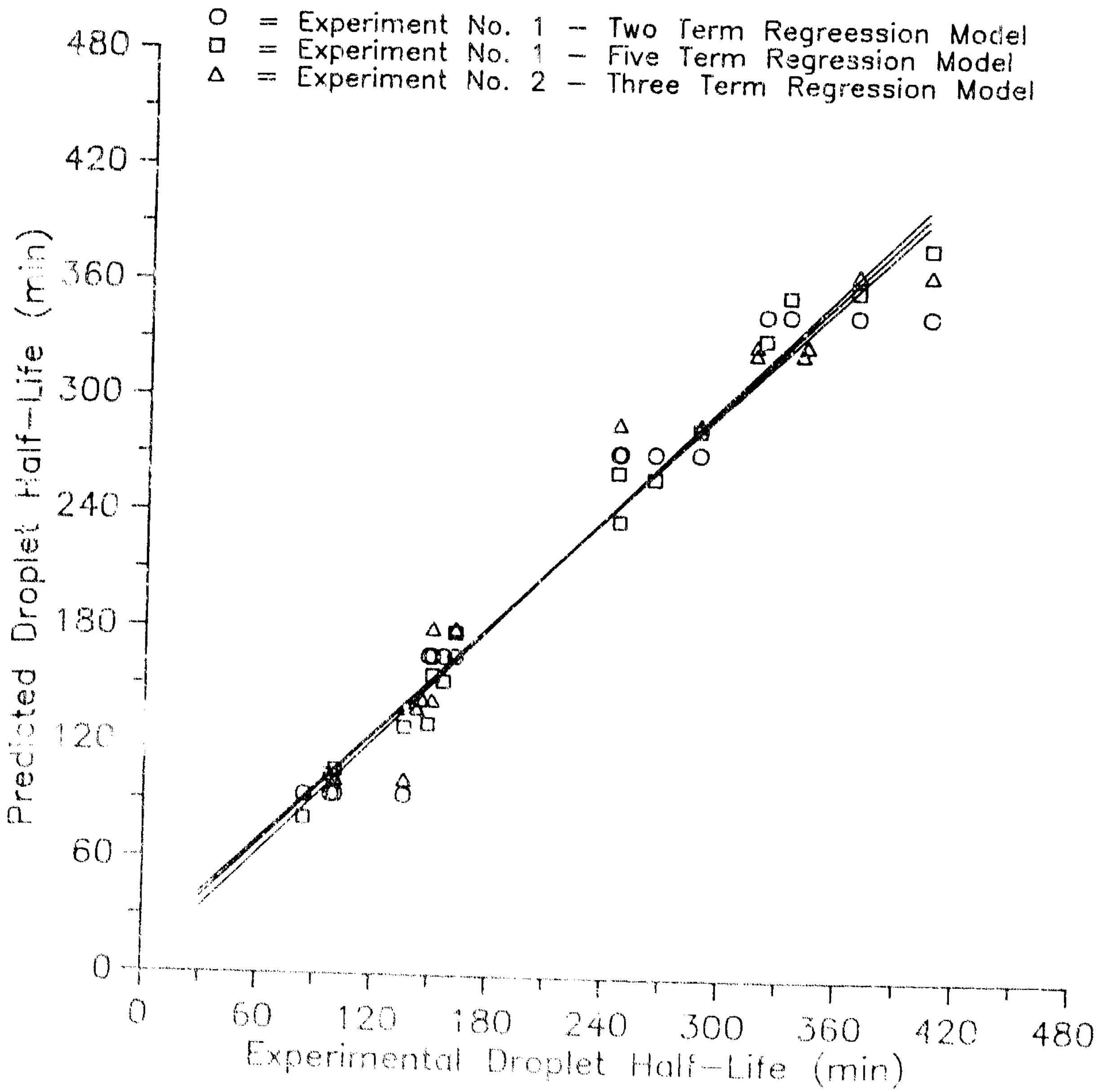


Figure P-1. Experimental versus Predicted Droplet Half-Life.



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