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Spectral Transmittance Characteristics of Adhesives From 0.2 to 15.0 Micrometers

by

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MARCH 1974

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Naval Weapons Center

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Paul E. Pugh, RADM, USN ..... Commander

Leroy Riggs ..... Technical Director (Acting)

FOREWORD

This report documents efforts undertaken in the Systems Assembly and Evaluation Branch of the Infrared Optics and Measurements Division, Systems Development Department of the Naval Weapons Center, China Lake, Calif.

The work was conducted during the period of November 1972 through February 1974. Funding was provided by Naval Air Systems Command AirTasks A03P-03P2/008C/3W16-25-001 and A-259-5108/216-6/1259-000-001.

This report has been reviewed for technical accuracy by E. M. Allen and L. H. Wilkins.

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(U) *Spectral Transmittance Characteristics of Adhesives From 0.2 Through 15.0 Micrometers*, by Marion D. Williams and Eugene C. Foust. China Lake, Calif., Naval Weapons Center, March 1974. 262 pp. (NWC TP 5583, publication UNCLASSIFIED.)

(U) Transmission tests were conducted to measure the effect of adhesives on the infrared spectrum. Of the adhesives tested, the data indicates that maximum transmission occurred at numerous distinct wavelengths within the 0.2 through 15.0 micrometer range.

(U) Analysis of the data indicates that adhesive joining of optical doublets can be accomplished without large transmission losses.

CONTENTS

INTRODUCTION

Tests to determine the transmission of candidate lense-bonding adhesives were conducted over the spectrum of 0.2 to 15.0 microns.* The purpose of the tests was to select adhesives that would provide optimized spectral transmission through a cemented doublet. Test samples were comprised of sodium chloride substrates joined together with an adhesive. The tests were conducted at the Naval Weapons Center on 53 cemented samples. Transmission data from 0.2 through 15.0 microns was accumulated. All transmission measurements were conducted at ambient (approximately 74°F) room temperature. In addition, all tests were made at normal (0-deg) incidence.

OBJECTIVE

The objective of this study was to provide data on the transmittance of adhesives and cements from manufacturers throughout the United States. Thirty-two manufacturers of adhesives, epoxies, and silicone rubbers were asked to participate in this optical adhesive study by providing samples of products manufactured by them that they believed would be of value to the study.

DISCUSSION

At the beginning of the study, transmittance between 3.0 and 5.0 microns was the range of interest. However, after considering the possibilities of such a study, it was decided to investigate the transmittance characteristics of a much wider spectral range. The data is reported as follows: ultraviolet range (0.2 to 0.39 microns), Appendix A; visible range (0.35 to 0.75 microns), Appendix B; 0.83- to 2.5-micron range, Appendix C; and the 2.5- to 15.0-micron range, Appendix D.

* The preferred designation for these units in the SI System is now "micrometers" as in the title. However, since all of the instrument charts reproduced in this report carry the former term "microns", this term is used throughout the body of this report.

The substrates for the control throughout the study were sodium chloride spectrophotometer windows (Fig. 1), polished on two sides, 1 inch in diameter and 0.210 inches thickness (+0.016, -0.000 inch). Each sample was kept in a vacuum-sealed dessicator within a clean room environment. Extreme care was taken to handle the substrates by the edges to prevent soiling of the faces and damage from body moisture. Each group (Samples 1-14, 15-25, 26-37, etc.) had its own 100% control line and was run continuously until completed. For example, samples 1-14 were completed before going on to the next group. Each sample has its own laboratory record (Table 1) in reference to what was done by the writer to execute that individual test (date, cure time, cure procedure, mix ration, etc.). Table 2 was developed from Appendix C, Tables 3 and 5 from Appendix D. A list of manufacturers and their products and a list of equipment used are given in Appendix E.

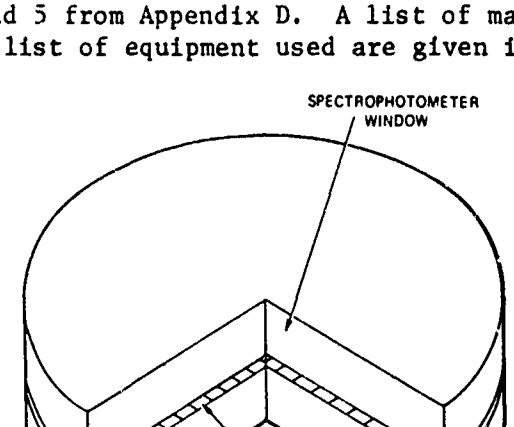


FIG. 1. Sample Configuration.

Separate sheets were developed to generate average transmittance values for the convenience of the reader. For example, average transmittance for all adhesives involved are recorded in the order they were tested in the ranges: 0.90 to 1.1 microns (Table 2), 3.0 to 5.0 microns (Table 3), 5.0 to 7.0 microns (Table 4), and 8.0 to 15.0 microns (Table 5). Average transmittance was not recorded in the ultraviolet and visible ranges because the charts are read in absorbance values, but a conversion chart for changing absorbance values to percent of transmittance was prepared (Fig. 2). For example, in Table 3 (the 3.0- to 5.0-micron range), a transmittance value was taken at 3-, 4-, and 5-micron points on the spectrophotometer chart, then the highest and lowest percentage points. These five values were then averaged together to give the reader a general idea of the value of the adhesive in the 3.0- to 5.0-micron range. Tables 2-5 were computed in this manner. An example would be Epon 828 with V-25 (Table 3, Sample 1) where the values were as follows:

3.0 micron	=	45%	57.6%	= Average
4.0 micron	=	75%	5/288.00%	transmittance
5.0 micron	=	80%	25	
Highest point	=	83%	38	
Lowest point	=	05%	35	
		288%	30	
			30	

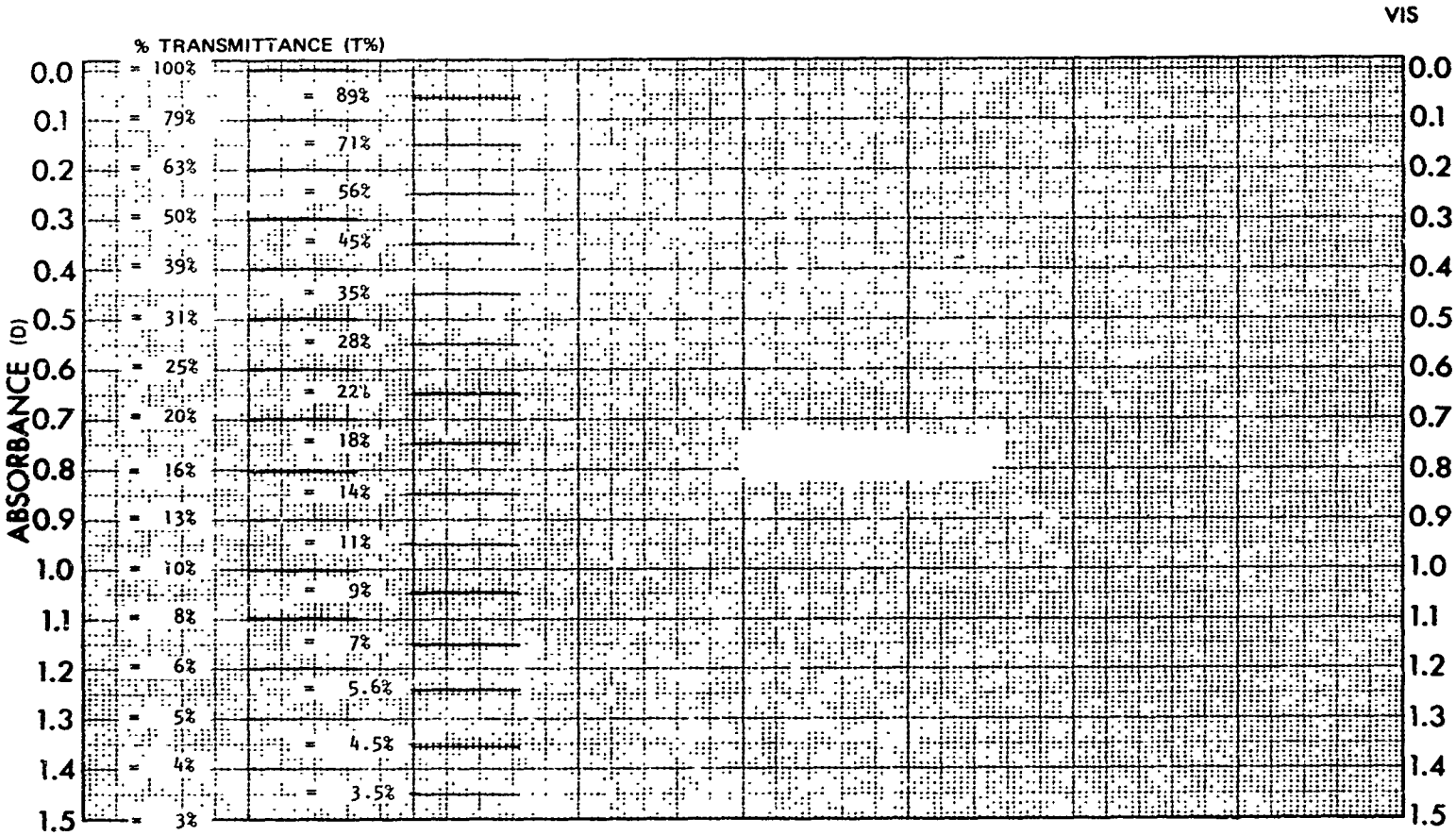
A sodium chloride control was prepared at the beginning of the study so that true transmittance values of an adhesive would be given in spectral measurements. First, the transmittance of a single sodium chloride window was measured (Fig. 3). Second, the transmittance of a double sodium chloride window was measured (Fig. 4)--the former measuring 92% transmittance and the latter, 85%. The adhesive then could be measured between the two crystals--in effect making a sandwich. The overall thickness of each sample was recorded on each transmittance chart and showed a variance due to the viscosity and density of the adhesive.

RESULTS

Many interesting results were obtained from the study, which could prove useful in the field of optical design. It was determined that the best optical "transmitters" were of the cyanoacrylate family of adhesives, e.g., Eastman 910 (Sample 29), Aron Alpha 201 (Sample 6), etc. These were one-component (monomer), pressure-sensitive contact cements which are widely used in industry for quick-setting jobs and have very high bond strength.

The study further indicated that the two-component (polymer) epoxy resins were generally good transmitters, but not as consistently good as the cyanoacrylates. The products of Eastman Kodak, Epoxy Technology, and Emerson and Cuming are good examples of two-component epoxy resins. There are two general types of catalysts used in two-component epoxies: amines and anhydrides. The amines are used for room temperature cure and anhydrides are added for elevated heat cures generally above 100°F. For example, Epon 828 with V-25 (Sample 1) is an amine type epoxy, where V-25 is the amine catalyst used. An example of an anhydride catalyst would be the one used in Stycast 1266 (Sample 50). The former cures at room temperature and the latter, at elevated temperature.

Two types of adhesives require some clarification, because they cure at an elevated temperature, but do not belong to the amine or anhydride types of catalysts. They are Canadian Balsam (Sample 18) and

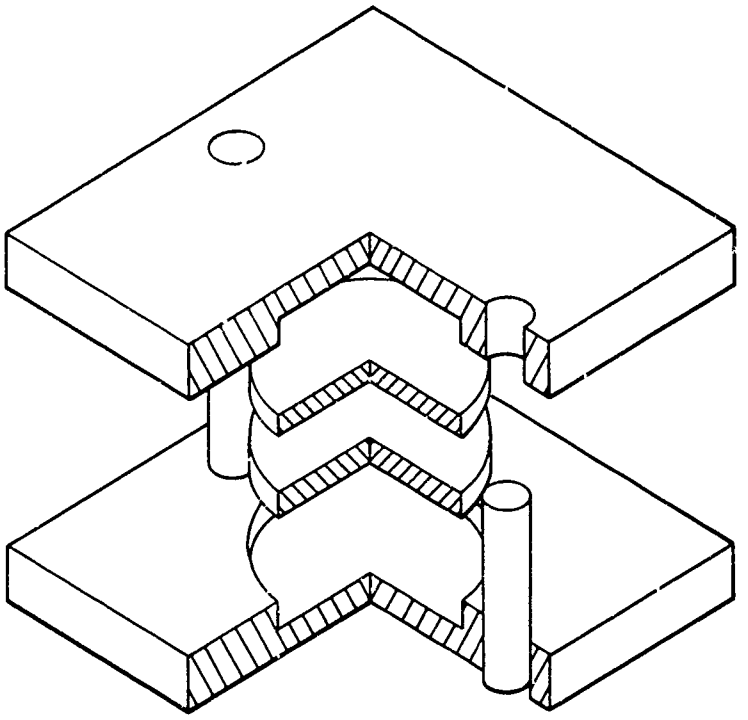


CONVERSION FORMULA: DENSITY (D) – % TRANSMISSION (T%): $D = \text{Log}^{10} (1/T)$

SAMPLE	CURVE NO.	SCAN SPEED	OPERATOR
	CONC.	SLIT	DATE
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE		

FIG. 2.

Cellulose Caprate (Sample 19). Canadian Balsam is a oleoresin, a natural extract from the Canadian balsam tree, and Cellulose Caprate is an ester of cellulose made from caproyl anhydride and cellulose. Both are in solid form and must be chipped or scraped and the particles then placed on lenses for cementing. The lenses must be held in a suitable fixture (shown below) to maintain optical alignment, while at the same time having a constant pressure applied (such as a clamp or steel weight) to allow the cement to melt and flow evenly.



Those adhesives requiring room-temperature or elevated-heat cures were also held in an alignment fixture, but the contact cements were aligned by hand due to the rapid cure time.

The family of silicone rubber (RTV) was also tested in the study and generally found to yield good transmittance in the shorter wavelength (Appendixes A, B, and C); however, the silicones with fillers were not good transmitters.

Concerning fillers, it was found that filled epoxies were poor transmitters that actually blocked energy. For experimental purposes, powdered zinc selenide and zinc sulfide were mixed with a cyanoacrylate and a two-component epoxy to observe the transmittance quality (Samples 20-23). It was suggested that, if one could dissolve the powdered particles (approximately 3 microns in diameter), this possibly would raise the index of refraction. The mixed cement and epoxies did

transmit, but only a very low percentage. In addition to the mixing for cementing purposes, two 1-inch-diameter epoxy plugs were formed (epoxy of a known transmission): one with zinc selenide and Epo-Tek 301, and one with zinc sulfide and Epo-Tek 301 (Samples 24-25). The results were that the plugs acted as filters for energy; almost no energy was transmitted through the samples.

CONCLUSIONS

The information from this study should prove useful in the field of optical design and can provide reference data for designers employing adhesives where transmittance properties are needed.

TABLE 1. Laboratory Data.

Spectrum No.	Adhesive	Mix ratio	Cure rate		Date	Color characteristics
			Room temp.	Elevated		
1	Epon [illegible], Epon Curing Agent V-25	6 PBW[a] 4 PBW	24 hrs		11/1/72	transparent, yellow cast
2	Epo-Tek 301, Part A Epo-Tek 301, Part B	4 PBW 1 PBW	24 hrs		11/2/72	transparent, clear
3	Epo-Tek 360, Part A Epo-Tek 360, Part B	10 PBW 1 PBW		30 min 100°C	11/2/72	transparent, dark orange cast
4	Epo-Tek 360T, Part A Epo-Tek 360T, Part B	5 PBW 1 PBW		30 min 100°C	11/2/72	transparent, dark orange cast
5	Epo-Tek 360ST, Part A Epo-Tek 360ST, Part B	5 PBW 1 PBW		30 min 100°C	11/2/72	transparent, dark orange cast
6	Aron Alpha No. 201	monomer	15 sec		11/2/72	transparent, clear
7	Epo-Tek 305, Part A Epo-Tek 305, Part B	10 PBW 2.8 PBW	24 hr		11/2/72	transparent, clear
8	Opticon FMP-13, Part A Opticon FMP-13, Part B	10 PBW 7.5 PBW	24 hr		11/6/72	transparent, clear
9	Opticon UV-57, Part A C-12 catalyst	1 PBW 1 drop	5 min when expos to UV[b]		11/6/72	transparent, clear
10	Hysol, Part A, 4309 Hysol, Hardener H2-3404	100 PBW 9 PBW	4 hr		11/6/72	beige; with filler, opaque
11	3M-1648, Part A 3M-1648, Part B	40 PBW 60 PBW	8 hr		11/6/72	green; opaque filler
12	Opticon UVF-171 Opticon C-12 catalyst	1 PBW 1 drop	30 min under UV light		11/8/72	transparent, clear
13	Opticon SFA-23 Opticon SFA-23, activ.	contact cem	15 sec		11/8/72	transparent, clear
14	Zipbond	monomer	15 sec		11/9/72	transparent, clear

TABLE 1. (Contd.)

Spectrum No.	Adhesive	Mix ratio	Cure rate		Date	Color characteristics
			Room temp.	Elevated		
15	Lens Bond M-62	premixed[c]	24 hr		11/10/72	transparent, clear
16	Epo-Tek 201, Part A Epo-Tek 201, Part B	1 PBW 1 PBW	2 min		11/10/72	transparent, clear
17	Epo-Tek 310, Part A Epo-Tek 310, Part B	5 PBW 3 PBW	24 hr		11/10/72	transparent, clear
18	Canadian Balsam	solid		4 hr 150°C	11/11/72	amber, brown, transparent
19	Cellulose Caprate	solid		4 hr 150°C	11/11/72	dull yellow, transparent
20	Zinc selenide Zipbond contact cement	0.02 gram 10 drops	15 sec		11/14/72	brilliant yellow; opaque
21	Zinc sulfide Zipbond contact cement	0.02 gram 10 drops	15 sec		11/14/72	white, opaque
22	Epo-Tek 301, Part A Epo-Tek 301, Part B Zinc selenide	4 PBW 1PBW 0.02 gram	24 hr		11/14/72	yellow, opaque
23	Epo-Tek 301, Part A Epo-Tek 301, Part B Zinc sulfide	4 PBW 1 PBW 0.02 gram	24 hr		11/14/72	white, opaque
24	1-inch dia. epoxy plug with zinc selenide and Epo-Tek 301		24 hr		11/14/72	bright yellow, solid, opaque
25	1-inch dia. epoxy plug with zinc sulfide and Epo-Tek 301		24 hr		11/14/72	white, solid, opaque
26	D.C.[d] 3118 encap RTV D.C. 3118 catalyst	25 PBW 1 PBW	24 hr		11/22/72	beige, opaque
27	Adhesive/sealant Silastic RTV	premixed	24 hr		11/22/72	transparent, clear

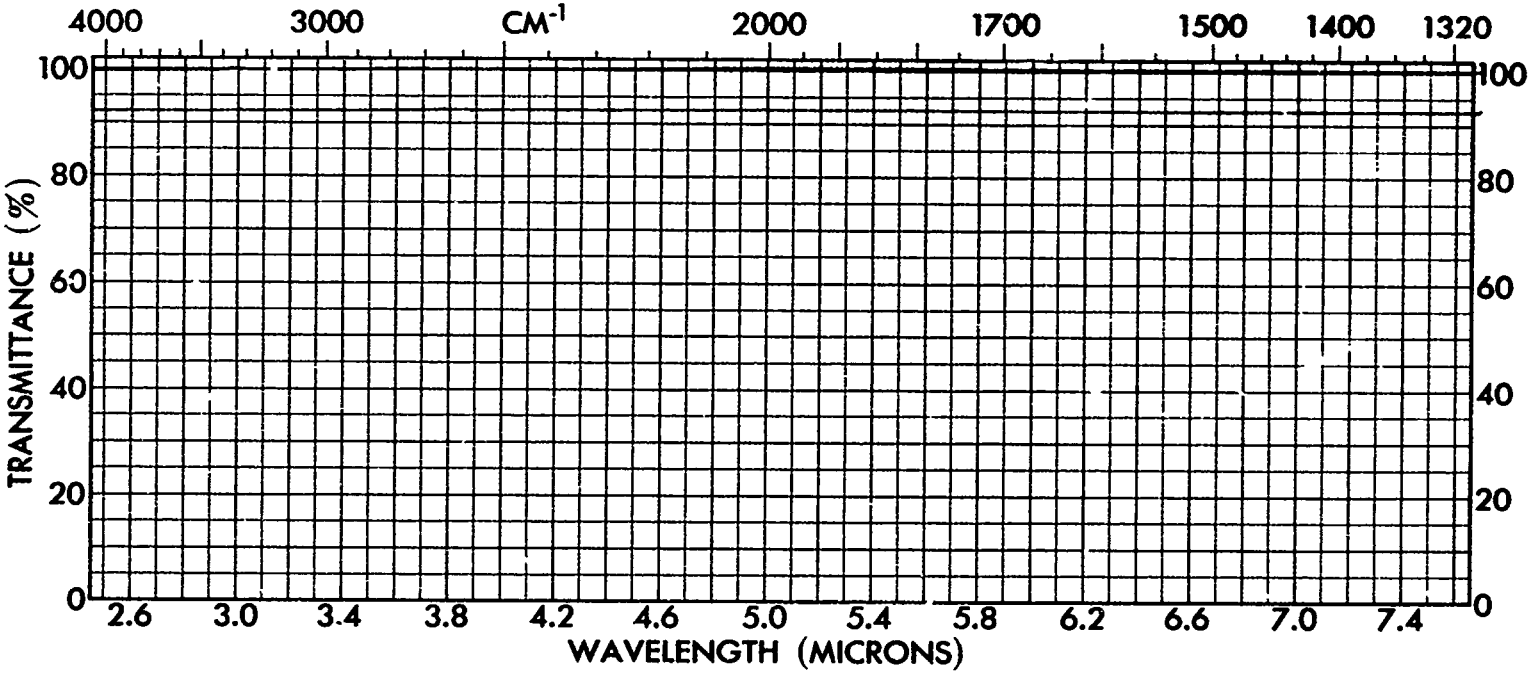
TABLE 1. (Contd.)

Spectrum No.	Adhesive	Mix ratio	Cure rate		Date	Color characteristics
			Room temp.	Elevated		
28	Adhesive/sealant RTV 108	premixed	24 hr		11/22/72	translucent, clear
29	Eastman 910	monomer	15 sec		11/28/72	transparent, clear
30	M-Bond 610 adhesive, A Catalyst, B	1 PBW 1 PBW		3 hr 325°F	11/29/72	transparent, yellow
31	Loctite 307 adhesive	premixed		1 hr 100°F	11/30/73	transparent, clear
32	Loctite Minute Bond 312 Primer N.F.	1 drop 1 drop	15 sec		11/30/73	transparent, clear
33	Loctite IS-12	monomer	15 sec		11/30/72	transparent, clear
34	Loctite IS-150	monomer	15 sec		11/30/72	transparent, clear
35	Loctite IS-03	monomer	15 sec		11/30/72	transparent, clear
36	Loctite IS-06	monomer	15 sec		11/30/72	transparent, clear
37	Loctite IS-04E	monomer	15 sec		11/30/72	transparent, clear
38	E.C.[e] Stycast 35D resin catalyst accelerator	50 grams 10 drops 5 drops	48 hr		12/11/72	transparent, clear
39	E.C. Stycast 1269-A, Part A E.C. Stycast 1269-A, Part B	1 PBW 1 PBW		16 hr 190°F	12/11/72	transparent, clear
40	Eastman Kodak HE-100B	premixed		16 hr 160°F	12/12/72	transparent, clear
41	Eastman Kodak HE-100X	premixed		16 hr 160°F	12/12/72	transparent, clear
42	Eastman Kodak HE-2	premixed		40 hr 160°F	12/18/72	transparent, clear
43	Eastman Kodak HE-63	premixed		40 hr 160°F	12/18/72	transparent, clear
44	Eastman Kodak HE-S-1	premixed		4 hr 160°F	12/18/72	transparent, clear
45	Eastman Kodak HE-F-4	premixed		40 hr 160°F	12/18/72	transparent, clear

TABLE 1. (Contd.)

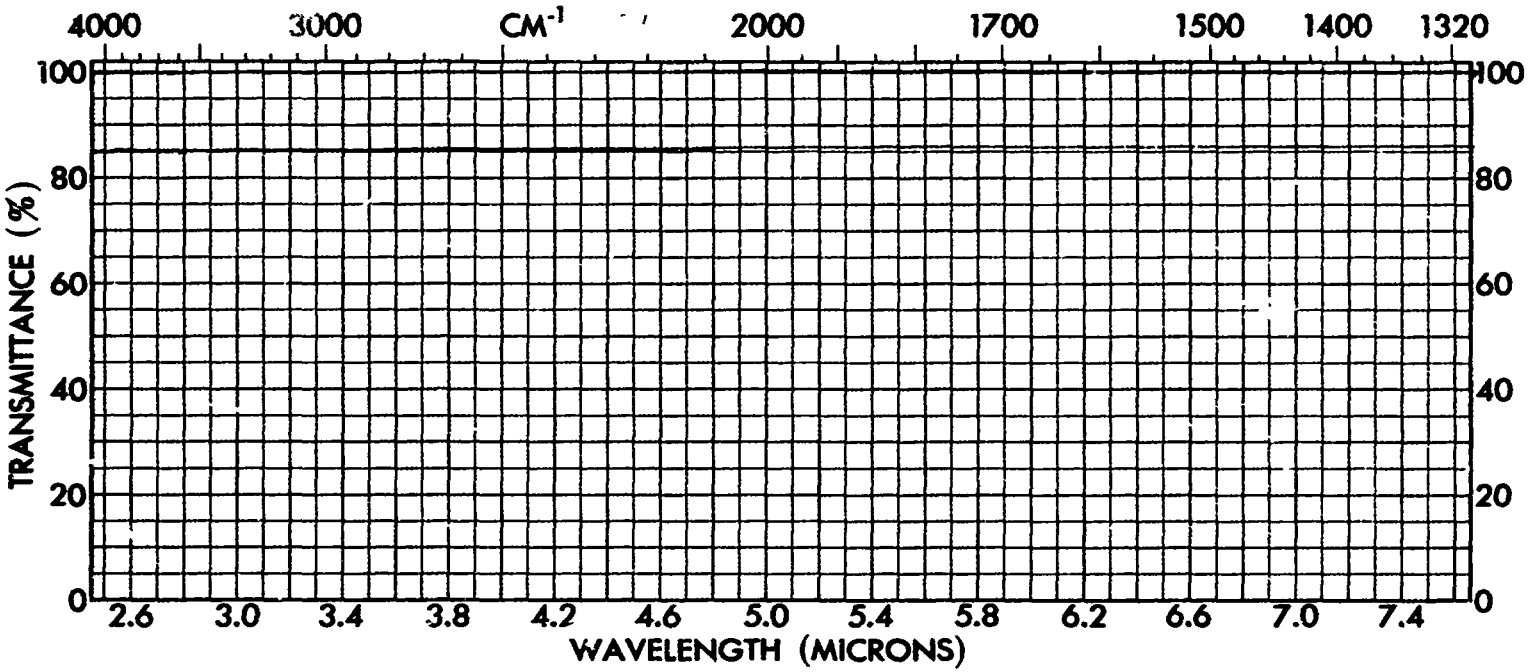
Spectrum No.	Adhesive	Mix ratio	Cure rate		Date	Color characteristics
			Room temp.	Elevated		
46	E.K.[f] HE-10 hardener E.K. HE-10 cement	7% by wt 10 gram		4 hr 160°F	1/2/73	transparent, clear
47	E.K. HE-79 resin E.K. HE-79 catalyst	100 PBW 2.5 PBW		4 hr 160°F	1/2/73	transparent, clear
48	E.C. Stycast 1217 resin E.C. Stycast 1217 catalyst 9	100 PBW 13 PBW		5 hr 150°F	1/2/73	transparent, clear
3	E.C. Stycast 1264, Part A E.C. Stycast 1264, Part B	100 PBW 45 PBW		5 hr 150°F	1/2/73	transparent, clear
50	E.C. Stycast 1266, Part A E.C. Stycast 1266, Part B	100 PBW 28 PBW		5 hr 150°F	1/2/73	transparent, clear
51	Aron Alpha No. 101	monomer	15 sec		2/20/73	transparent, clear
52	Aron Alpha No. 102	monomer	15 sec		2/20/73	transparent, clear
53	Aron Alpha No. 202	monomer	15 sec		2/20/73	transparent, clear

[a] PBW = parts by weight.
[b] UV = ultraviolet.
[c] 3 cc resin to 2 drops catalyst.
[d] D.C. = Dow-Corning.
[e] E.C. = Emerson & Cuming.
[f] E.K. = Eastman Kodak.



SPECTRUM NO.	ORIGIN	LEGEND	REMARKS
SAMPLE		1.	SINGLE SODIUM CHLORIDE
OPTICAL ADHESIVE STUDY	PURITY	2.	WINDOW WITH 100% CONTROL
	PHASE	DATE 11/21/72	LINE
	THICKNESS .210	OPERATOR M.D.WILLIAMS	

FIG. 3.



SPECTRUM NO.	ORIGIN	LEGEND	REMARKS
SAMPLE		1.	DOUBLE SODIUM CHLORIDE
OPTICAL ADHESIVE STUDY	PURITY	2.	WINDOW WITH 100%
	PHASE	DATE 11/21/72	CONTROL LINE
	THICKNESS .420	OPERATOR M.D.WILLIAMS	

TABLE 2. Transmission Average 0.90 to 1.1 Microns.

Adhesive	Transmission value, % Transmission range, μm					Highest % pt. at X μm	Lowest % pt. at X μm	Trans. avg. 0.90-1.1 μm, %
	0.90	0.95	1.00	1.05	1.1			
Epon 828 with V-25	80	82	83	84	84	84	80	82.42
Epo-Tek 301	89	90	91	91	91	91	89	90.28
Epo-Tek 360	85	87	88	88	88	88	85	87.00
Epo-Tek 360T	83	85	86	86	87	87	83	85.28
Epo-Tek 360ST	85	87	87	88	88	88	85	86.85
Aron Alpha No. 201	89	89	90	90	90	90	89	89.57
Epo-Tek 305	89	91	92	92	92	92	89	91.00
Opticon FMP-13	87	88	90	90	90	90	87	88.85
Opticon UV-57	88	90	91	91	91	91	88	90.00
Hysol	43	43	44	44	45	45	43	43.85
3M	22	22	23	24	27	27	22	23.85
Opticon UVF-171	87	90	90	90	90	90	87	89.14
Opticon SFA-23	83	85	85	85	85	85	83	84.42
Zipbond contact cement	92	92	92	92	92	92	92	92.00
Lens Bond M-62	87	88	90	91	91	91	87	89.42
Epo-Tek 201	90	90	91	91	91	91	90	90.57
Epo-Tek 310	87	89	90	90	90	90	87	88.85
Canadian Balsam	88	90	90	91	91	91	88	89.85
Cellulose Caprate	85	86	87	88	88	88	85	86.71
Zinc selenide with zipbcnd contact cement	27	26	26	26	26	26	25	26.00
Zinc sulfide with zipbond contact cement	4	1	1	1	1	4	1	1.857
Zinc selenide with Epo-Tek 301	57	57	58	58	58	58	57	57.57
Zinc sulfide with Epo-Tek 301	4	4	4	4	4	4	4	4.00
1-inch-diameter epoxy plug with Epo-Tek 301 and zinc selenide	2	0	0	0	0	2	0	0.57
1-inch-diameter epoxy plug with Epo-Tek 301 and zinc sulfide	1	0	0	0	0	1	0	0.28
Dow-Corning 3118	9	8	8	8	8	9	8	8.38
Silastic 140 (RTV)	83	85	86	86	87	87	83	85.28
RTV No. 108	88	88	89	89	89	89	88	88.57

TABLE 2. (Contd.)

Adhesive	Transmission value, % Transmission range, µm					Highest % pt. at X µm	Lowest % pt. at X µm	Trans. avg. 0.90-1.1 µm, %
	0.90	0.95	1.00	1.05	1.1			
Eastman 910	90	91	92	92	92	92	90	91.28
M-Bond 610	85	85	86	87	87	87	85	86.00
Loctite 307 adhesive	91	91	92	92	92	92	91	91.57
Loctite Minute Bond 312	87	88	90	90	90	90	87	88.85
Loctite IS-12	90	92	93	93	93	93	91	92.00
Loctite IS-150	91	92	93	93	93	93	91	91.57
Loctite IS-03	91	91	92	92	92	92	91	91.57
Loctite IS-06	91	91	91	91	91	91	91	91.00
Loctite IS-04E	90	91	92	92	92	92	90	91.28
Stycast 35D	91	92	92	92	92	92	90	91.6
Stycast 1269-A	88	89	91	91	91	91	88	89.9
Eastman Kodak HE-100B	88	90	90	90	90	90	88	89.4
Eastman Kodak HE-100X	92	92	92	93	93	93	92	92.4
Eastman Kodak HE-2	91	91	92	92	92	92	91	91.5
Eastman Kodak HE-63	91	91	92	92	92	92	91	91.5
Eastman Kodak HE-S-1	91	92	93	93	93	93	91	92.2
Eastman Kodak HE-F-4	91	91	92	92	92	92	91	91.5
Eastman Kodak HE-10	88	90	91	91	91	91	88	90.00
Eastman Kodak HE-79	91	91	92	93	93	93	91	92.00
Stycast 1217	90	90	91	92	92	92	90	91.00
Stycast 1264	90	91	92	92	92	92	90	91.20
Stycast 1266	90	92	92	93	92	93	90	91.7
Aron Alpha No. 101	88	90	90	92	92	92	88	90.3
Aron Alpha No. 102	87	88	90	90	91	91	87	89.1
Aron Alpha No. 202	87	88	88	90	90	90	87	88.64

TABLE 3. Transmission Average 3.0 to 5.0 Microns.

Adhesive	Transmission value, % Transmission range, μm			Highest % pt. at X μm	Lowest % pt. at X μm	Trans. avg. 3.0 to 5.0 μm, %
	3.0	4.0	5.0			
Epon 828 with V-25	38	72	79	4	81	54.8
Epo-Tek 301	41	82	87	25	87	64.4
Epo-Tek 360	43	71	78	12	80	56.8
Epo-Tek 360T	32	71	76	4	80	52.6
Epo-Tek 360ST	35	70	76	4	79	52.8
Aron Alpha No. 201	91	91	91	86	92	90.2
Epo-Tek 305	14	67	81	4	81	49.4
Opticon FMP-13	5	52	71	0	72	40.0
Opticon UV-57	53	68	68	3	76	53.6
Hysol	4	25	40	0	41	22.0
3M	4	40	48	0	54	29.2
Opticon UVF-171	45	70	67	4	76	52.4
Opticon SFA-23	71	77	73	3	78	60.4
Zipbond contact cement	88	88	89	68	89	84.4
Lens Bond M-62	56	76	78	6	80	59.2
Epo-Tek 201	35	56	68	8	70	47.4
Epo-Tek 310	35	82	83	5	85	58.0
Canadian Balsam	38	56	77	3	78	50.4
Cellulose Caprate	45	62	56	1	63	45.4
Zinc selenide with zipbond contact cement	16	14	15	7	16	13.6
Zinc sulfide with zipbond contact cement	9	32	51	7	51	30.0
Zinc selenide with Epo-Tek 301	3	27	31	3	33	19.4
Zinc sulfide with Epo-Tek 301	1	14	26	1	26	13.6
1-inch-dia. epoxy plug with zinc selenide and Epo-Tek 301	1	1	1	1	1	1.0
1-inch-dia. epoxy plug with zinc sulfide and Epo-Tek 301	1	1	1	1	2	1.2
Dow-Corning 3118	37	55	61	9	61	44.6
Silastic 140 (RTV)	54	80	64	3	87	57.6
RTV No. 108	68	70	52	3	85	55.6

TABLE 3. (Contd.)

Adhesive	Transmission value, % Transmission range, µm			Highest % pt. at X µm	Lowest % pt. at X µm	Trans. avg. 3.0 to 5.0 µm, %
	3.0	4.0	5.0			
Eastman 910	90	90	90	63	90	84.6
4-Bond 610	87	89	89	86	89	88.0
Loctite 307 adhesive	87	91	91	86	91	89.2
Loctite Minute Bond 312	3	43	62	0	67	35.0
Loctite IS-12	90	90	90	73	91	86.8
Loctite IS-150	90	90	90	63	90	84.6
Loctite IS-03	89	88	87	58	89	82.2
Loctite IS-06	90	90	90	71	91	86.4
Loctite IS-04E	89	87	89	42	89	79.2
Stycast 35D	89	87	89	13	90	73.6
Stycast 1269-A	72	77	81	8	83	64.2
Eastman Kodak HE-100B	75	78	77	6	80	63.2
Eastman Kodak HE-100X	88	90	89	18	90	75.0
Eastman Kodak HE-2	88	89	88	8	89	72.4
Eastman Kodak HE-63	77	85	87	39	88	75.2
Eastman Kodak HE-S-1	87	89	89	14	90	73.8
Eastman Kodak HE-F-4	85	87	88	4	88	70.4
Eastman Kodak HE-10	27	70	80	6	82	53.0
Eastman Kodak HE-79	85	89	89	60	89	82.4
Stycast 1217	52	81	86	32	87	67.6
Stycast 1264	55	87	88	37	90	71.4
Stycast 1266	51	86	87	36	89	69.8
Aron Alpha No. 101	90	90	90	81	91	88.4
Aron Alpha No. 102	90	90	90	66	90	85.2
Aron Alpha No. 202	89	90	90	49	90	81.6

TABLE 4. Transmission Average 5.0 to 7.0 Microns.

Adhesive	Transmission value, % Transmission range, μm			Highest % pt. at X μm	Lowest % pt. at X μm	Trans. avg. 5.0 to 7.0 μm, %
	5.0	6.0	7.0			
Epon 828 with V-25	79	32	29	3	80	44.6
Epo-Tek 301	87	83	60	16	87	66.6
Epo-Tek 360	78	63	35	4	78	51.6
Epo-Tek 360T	76	57	25	3	77	47.6
Epo-Tek 360ST	76	58	27	3	77	48.2
Aron Alpha No. 201	91	90	89	58	91	83.8
Epo-Tek 305	81	75	30	16	83	57.0
Opticon FMP-13	71	5	5	3	19	20.6
Opticon UV-57	68	20	4	1	68	32.2
Hysol	40	28	4	0	41	22.6
3M	48	3	3	0	48	20.4
Opticon UVF-171	67	35	10	0	67	35.8
Opticon SFA-23	73	39	17	0	73	40.4
Zipbond contact cement	89	87	71	15	89	70.2
Lens Bond M-62	78	50	37	2	78	49.0
Epo-Tek 201	68	17	3	3	68	31.8
Epo-Tek 310	83	81	40	14	86	60.8
Canadian Balsam	77	26	30	3	77	42.6
Cellulose Caprate	56	30	1	1	60	29.6
Zinc selenide with zipbond contact cement	15	13	5	0	15	9.6
Zinc sulfide with zipbond contact cement	51	57	30	3	63	40.8
Zinc seleride with Epo-Tek 301	31	21	4	3	31	18.0
Zinc sulfide with Epo-Tek 301	26	25	4	2	32	17.8
1-inch-diameter epoxy plug with zinc selenide and Epo-Tek 301	1	2	3	1	3	2.0
1-inch-diameter epoxy plug with zinc sulfide and Epo-Tek 301	1	1	2	1	2	1.4
Dow-Corning 3118	61	57	40	38	63	51.8
Silastic 140 (RTV)	64	40	13	11	64	38.4
RTV No. 108	52	25	5	5	52	27.8

TABLE 4. (Contd.)

Adhesive	Transmission value, % Transmission range, μm			Highest % pt. at X μm	Lowest % pt. at X μm	Trans. avg 5.0 to 7.0 μm, %
	5.0	6.0	7.0			
Eastman 910	90	85	21	3	90	57.8
M-Bond 610	89	88	87	84	89	87.4
Loctite 307	91	89	87	77	91	87.0
Loctite Minute Bond 312	62	5	2	2	62	26.6
Loctite IS-12	90	86	34	8	90	61.6
Loctite IS-150	90	84	17	3	90	56.8
Loctite IS-03	87	82	15	3	87	54.8
Loctite IS-06	90	86	35	4	90	61.0
Loctite IS-04E	89	81	30	3	89	58.4
Stycast 35D	89	88	50	12	89	65.6
Stycast 1269-A	81	67	50	3	81	56.4
Eastman Kodak HE-100B	77	45	12	4	77	43.0
Eastman Kodak HE-100X	89	84	64	3	89	65.8
Eastman Kodak HE-2	88	81	52	3	88	62.4
Eastman Kodak HE-63	87	76	35	6	87	58.2
Eastman Kodak HE-S-1	89	80	60	3	89	64.2
Eastman Kodak HE-F-4	88	77	45	3	88	60.2
Eastman Kodak HE-10	80	73	30	3	81	53.4
Eastman Kodak HE-79	89	83	67	9	89	67.4
Stycast 1217	86	80	52	5	86	61.8
Stycast 1264	88	87	65	12	88	68.0
Stycast 1266	87	85	55	6	87	64.0
Aron Alpha No. 101	90	88	60	25	90	70.6
Aron Alpha No. 102	90	84	25	3	90	58.4
Aron Alpha No. 202	90	81	32	4	90	59.4

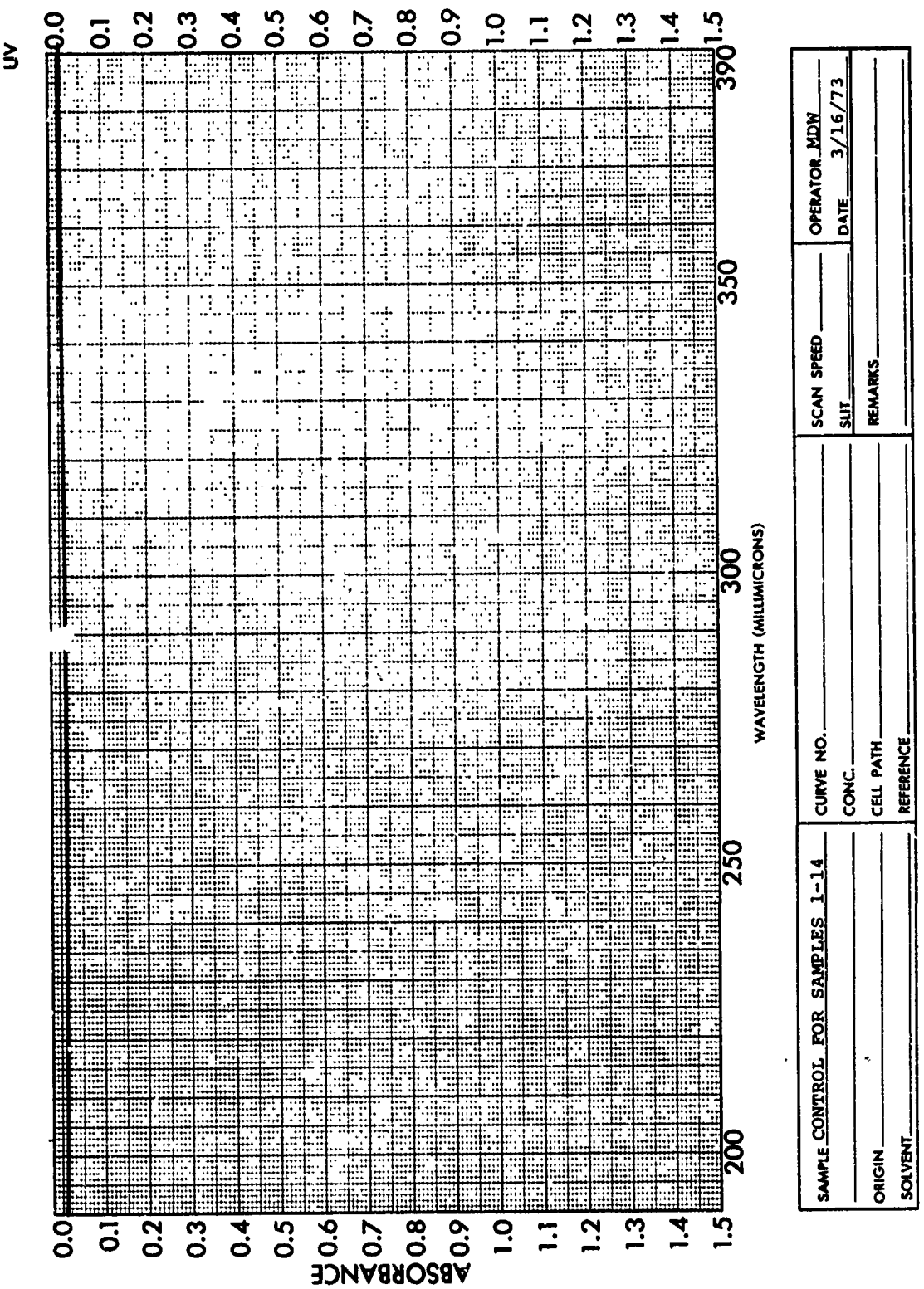
TABLE 5. Transmission Average 8.0 to 15.0 Microns.

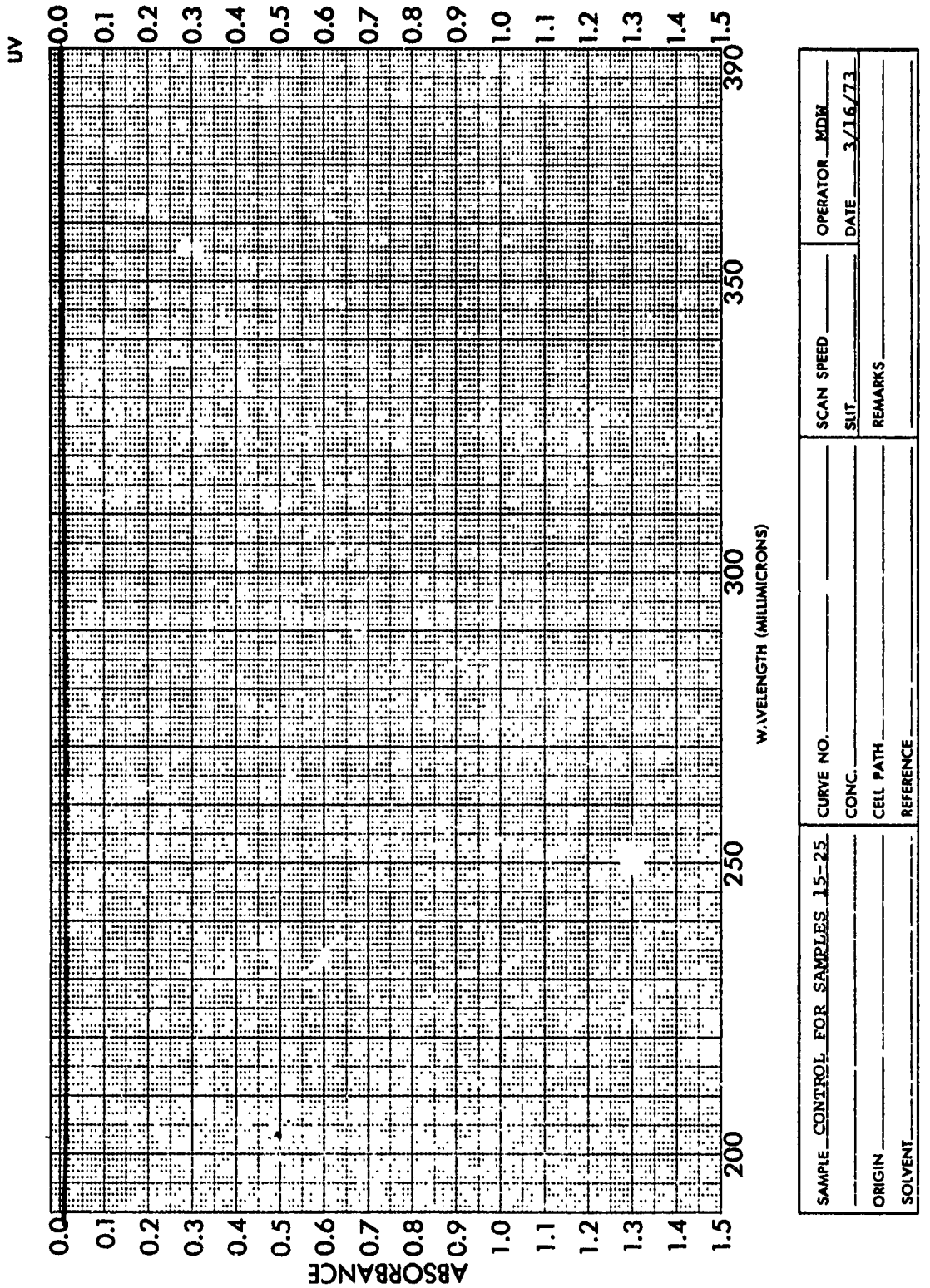
Adhesive	Transmission value, % Transmission range, µm								Highest % pt. at X µm	Lowest % pt. at X µm	Trans. avg. 8.0-15.0 µm, %
	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0			
Epon 828 with V-25	3	18	42	40	4	45	60	54	3	61	33.0
Epo-Tek 301	18	31	67	72	36	72	72	63	18	76	52.5
Epo-Tek 360	4	4	39	55	12	56	64	54	4	65	35.7
Epo-Tek 360T	3	3	0	27	4	43	51	38	0	55	22.4
Epo-Tek 360ST	3	3	3	42	4	47	56	43	1	59	26.1
Aron Alpha No. 201	63	85	88	91	90	88	84	76	63	91	81.9
Epo-Tek 305	30	3	33	45	53	56	52	43	3	62	38.0
Opticon FMP-13	2	2	20	24	3	24	29	29	1	31	16.2
Opticon UV-57	0	0	9	20	24	15	30	44	0	45	18.7
Hysol	0	0	0	4	0	8	16	14	0	16	5.8
3M	0	0	0	0	0	4	4	5	0	6	1.9
Opticon UVF-171	0	0	11	23	26	13	22	43	0	43	18.1
Opticon SFA-23	0	3	14	0	4	23	30	42	0	47	16.3
Zipbond contact cem	20	63	72	88	86	83	81	73	20	88	67.4
Lens Bond M-62	1	3	7	20	37	33	23	43	1	55	22.3
Epo-Tek 201	3	4	20	23	5	22	52	45	1	52	22.7
Epo-Tek 310	7	3	32	40	26	68	63	54	3	74	37.0
Canadian Balsam	15	28	35	30	42	60	53	52	15	62	39.2
Cellulose Caprate	0	0	0	4	27	11	8	8	0	32	9.0
Zinc selenide with zipbond contact cem	1	6	11	23	28	32	37	37	1	37	21.3
Zinc sulfide with zipbond contact cem	1	22	35	76	70	68	71	61	1	77	48.2
Zinc selenide with Epo-Tek 301	2	3	7	10	3	15	20	15	2	22	9.9
Zinc sulfide with Epo-Tek 301	1	1	10	17	2	25	30	22	1	36	14.5
1-inch-dia. epoxy plug w/Epo-Tek 301 and zinc selenide	3	3	3	3	4	4	4	4	3	4	3.5
1-inch-dia. epoxy plug w/Epo-Tek 301 and zinc sulfide	3	3	3	3	4	4	4	4	3	4	3.5
Dow-Corning 3118	4	3	4	7	7	7	19	16	3	22	9.2
Silastic 140 (RTV)	0	0	0	3	0	0	3	4	0	4	1.4
RTV No. 108	3	3	3	3	3	3	3	3	3	3	3.0

TABLE 5. (Contd.)

Adhesive	Transmission value, % Transmission range, μm								Highest % pt. at X μm	Lowest % pt. at X μm	Trans. avg. 8.0-15.0 μm, %
	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0			
Eastman 910	6	54	74	85	80	82	80	74	6	85	63.6
M-Bond 610	82	85	88	89	88	87	82	75	75	89	84.0
Loctite 307	85	84	89	90	90	87	85	76	76	90	85.2
Loctite Minute Bond 312	0	0	4	11	14	9	28	22	0	31	11.9
Loctite IS-12	17	73	80	86	82	85	81	74	17	88	68.3
Loctite IS-150	6	64	69	81	80	81	77	73	6	86	62.3
Loctite IS-03	3	57	62	80	79	78	76	73	3	83	59.4
Loctite IS-06	12	71	77	86	83	83	80	74	12	87	66.5
Loctite IS-04E	3	35	40	83	78	75	77	73	3	86	55.3
Stycast 35D	77	79	72	57	78	25	57	62	3	85	59.5
Stycast 1269-A	3	12	44	31	14	53	67	62	4	67	35.7
Eastman Kodak HE-100B	6	7	20	37	26	41	49	62	5	62	31.5
Eastman Kodak HE-100X	35	42	70	82	80	74	80	75	9	83	63.0
Eastman Kodak HE-2	22	30	57	77	75	78	78	74	4	82	57.7
Eastman Kodak HE-63	5	27	4	51	41	63	35	58	4	63	35.1
Eastman Kodak HE-S-1	32	38	70	80	78	81	76	74	9	83	62.1
Eastman Kodak HE-F-4	17	25	60	75	72	77	72	73	3	79	55.3
Eastman Kodah HE-10	3	3	16	40	7	46	58	49	3	58	28.3
Eastman Kodak HE-79	42	46	68	74	78	67	70	69	28	81	62.3
Stycast 1217	3	32	60	63	20	55	62	60	3	72	43.0
Stycast 1264	15	26	61	71	35	76	76	64	13	80	51.7
Stycast 1266	20	26	60	67	25	71	75	63	7	80	49.4
Aron Alpha No. 101	41	81	83	89	88	87	82	75	41	89	75.6
Aron Alpna No. 102	7	64	71	83	80	83	77	74	7	86	63.2
Aron Alpha No. 202	4	47	38	86	81	79	80	73	4	87	57.9

Appendix A
ULTRAVIOLET RANGE

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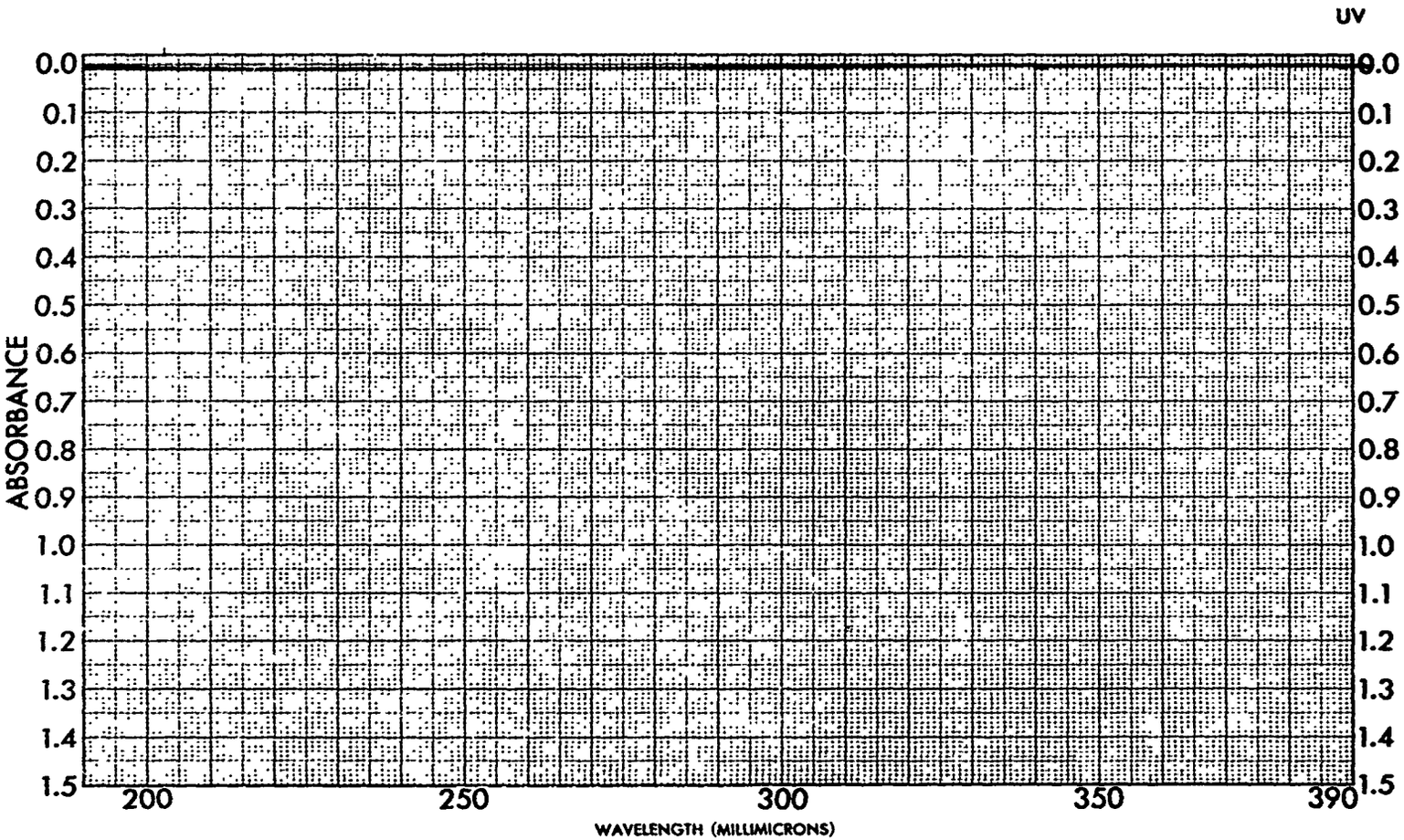
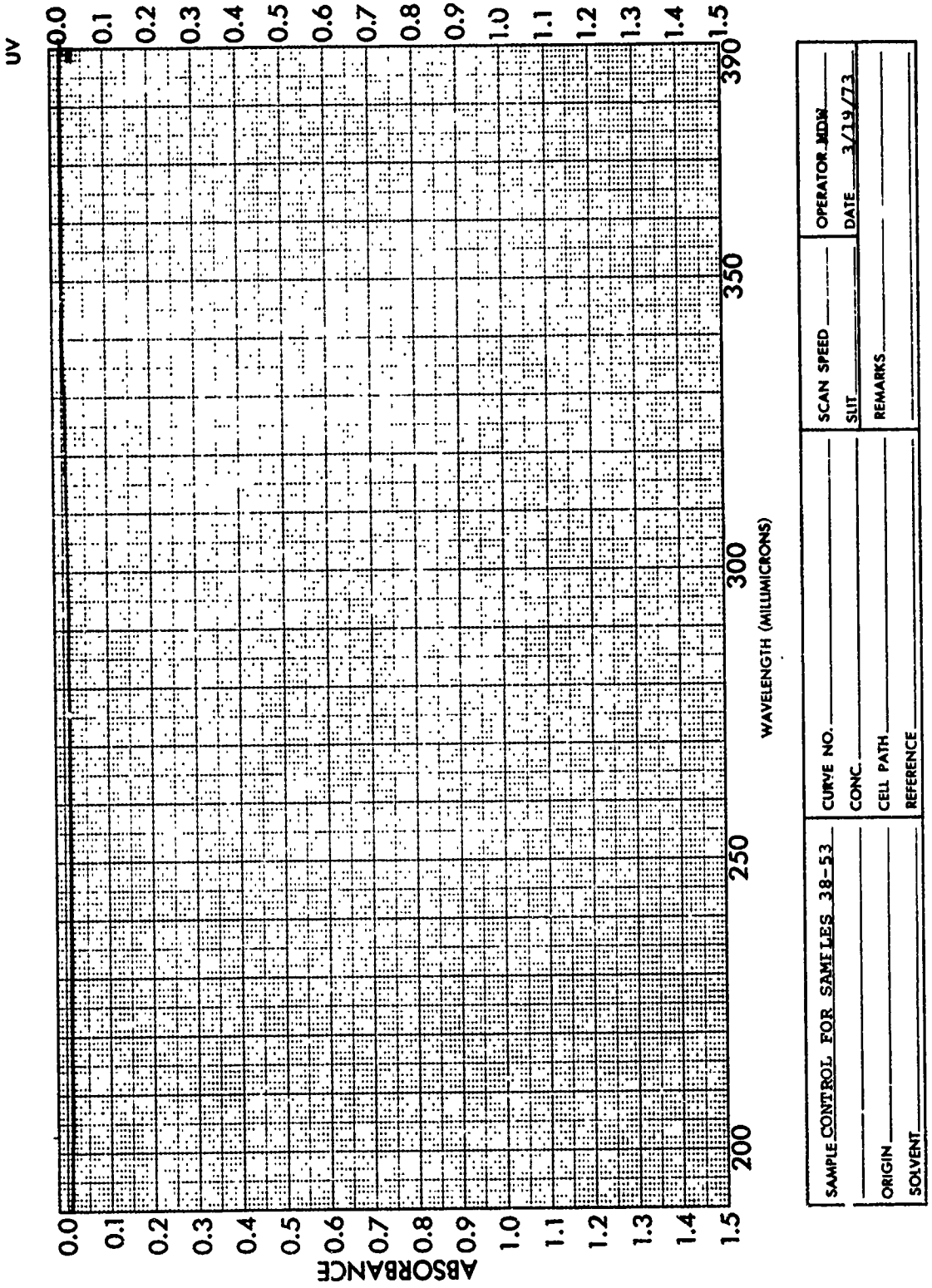
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
200
250
300
350
390
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE CONTROL FOR SAMPLES 15-25
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73



SAMPLE CONTROL FOR SAMPLES 26-37	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE		

NWC TP 5583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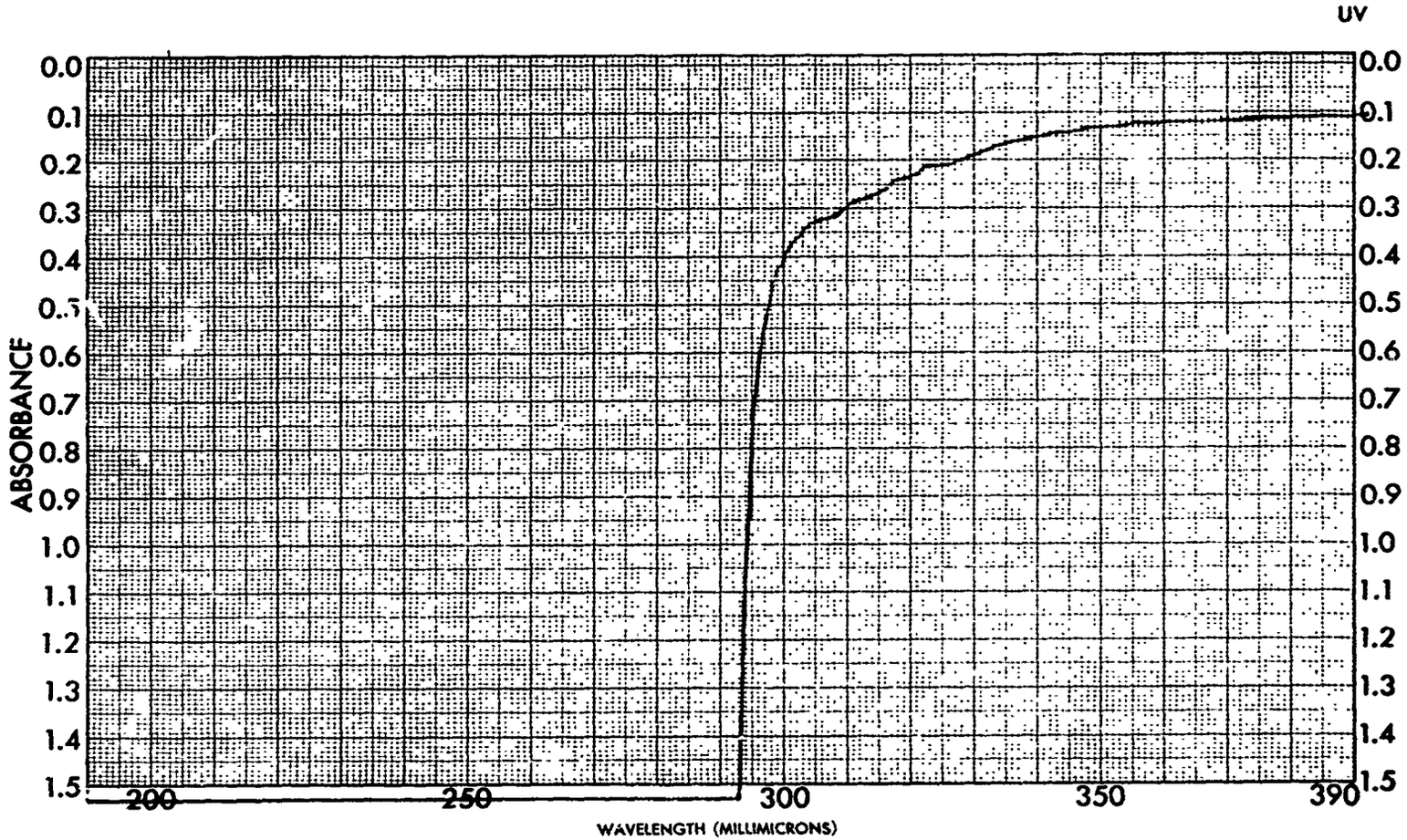
390 350 300 250 200
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE CONTROL FOR SAMPLES 38-53
CURVE NO.
CONC.
CELL PATH
REFERENCE
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73



SAMPLE 1: EPON 828 & V-25	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0005"		

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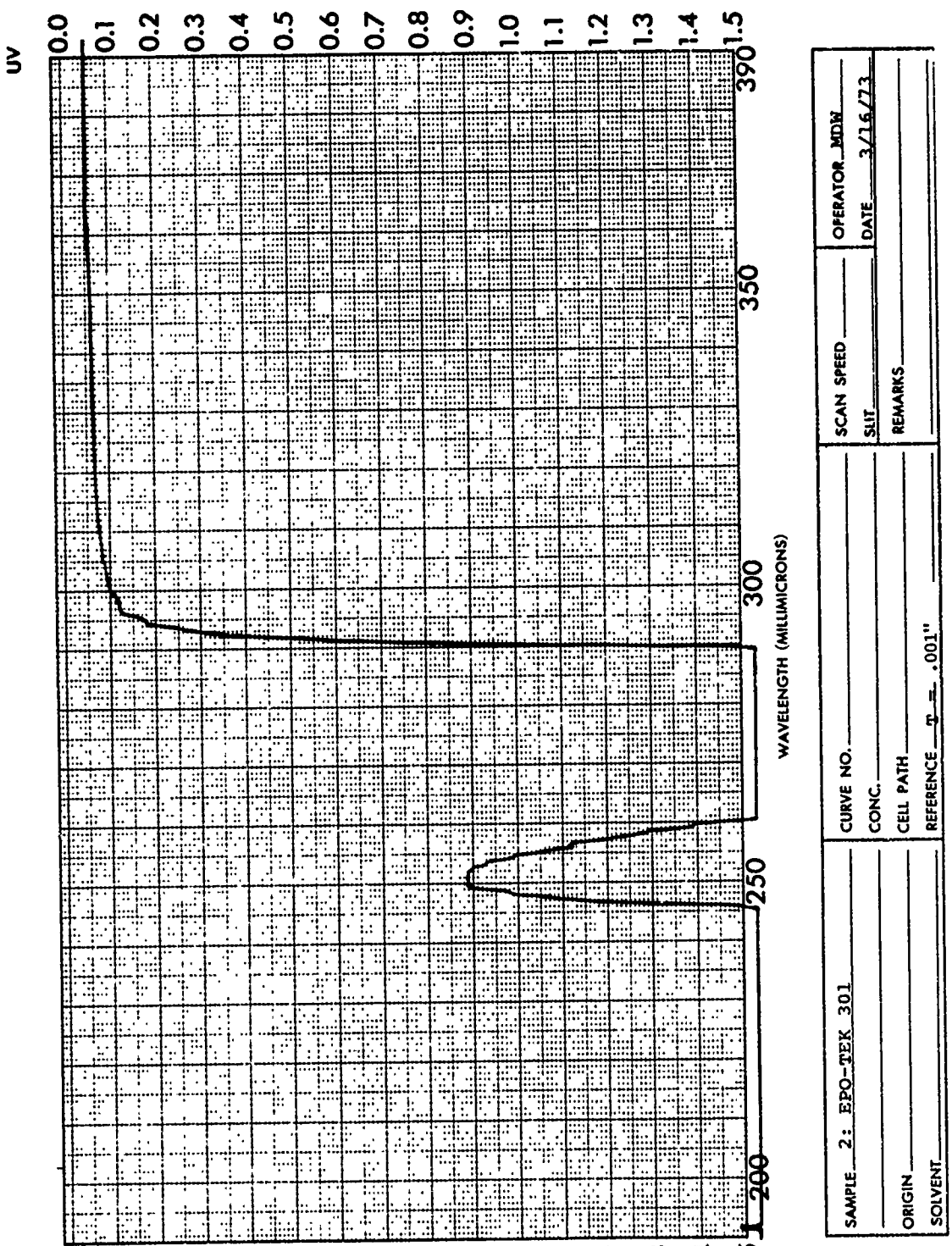
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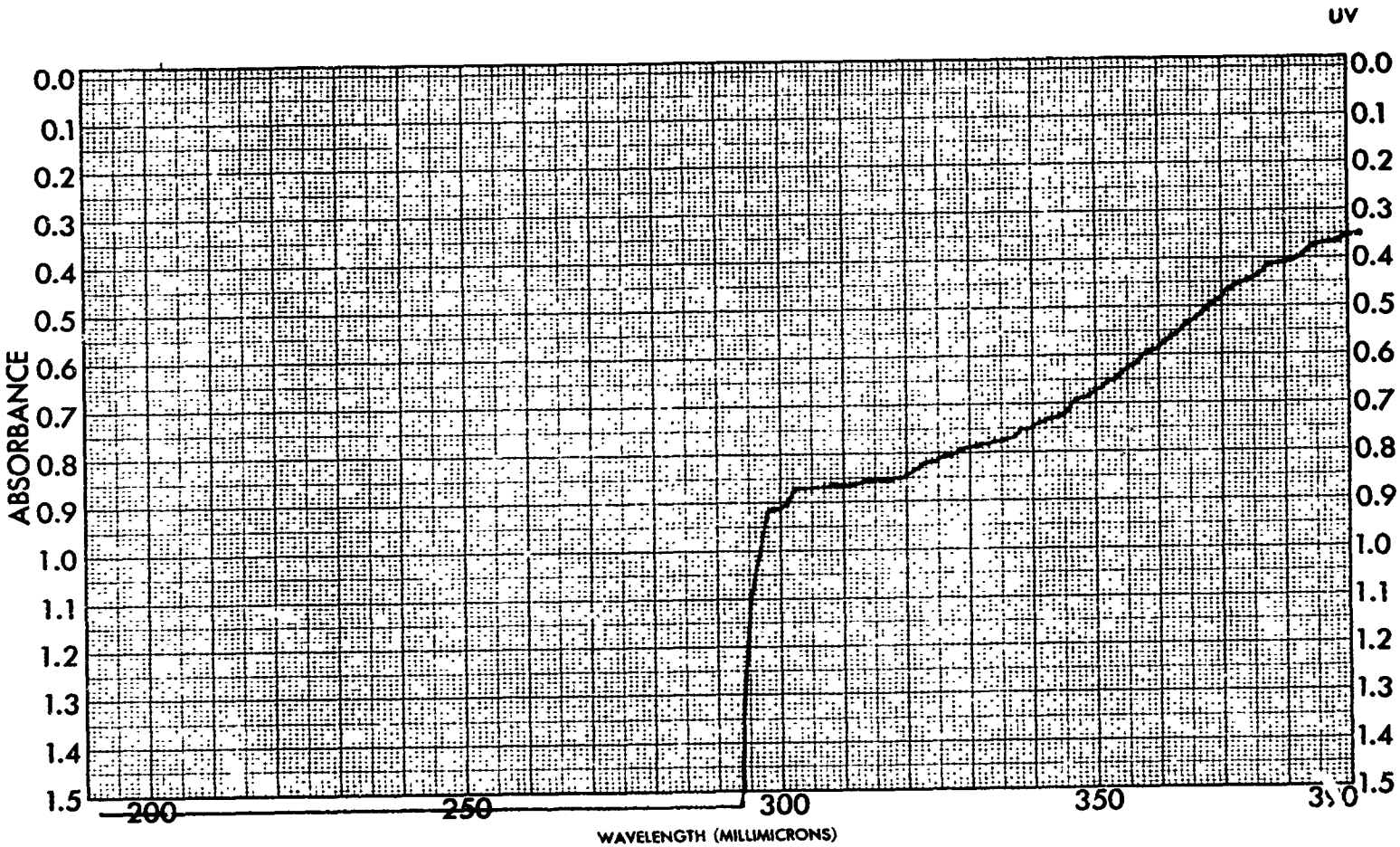
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
200
250
300
350
390
WAVELENGTH (MILLIMICRONS)
SAMPLE 2: EPO-TEK 301
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .001"
ORIGIN
SOLVENT
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73



SAMPLE 3: EPO-TEK 360	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0015"		

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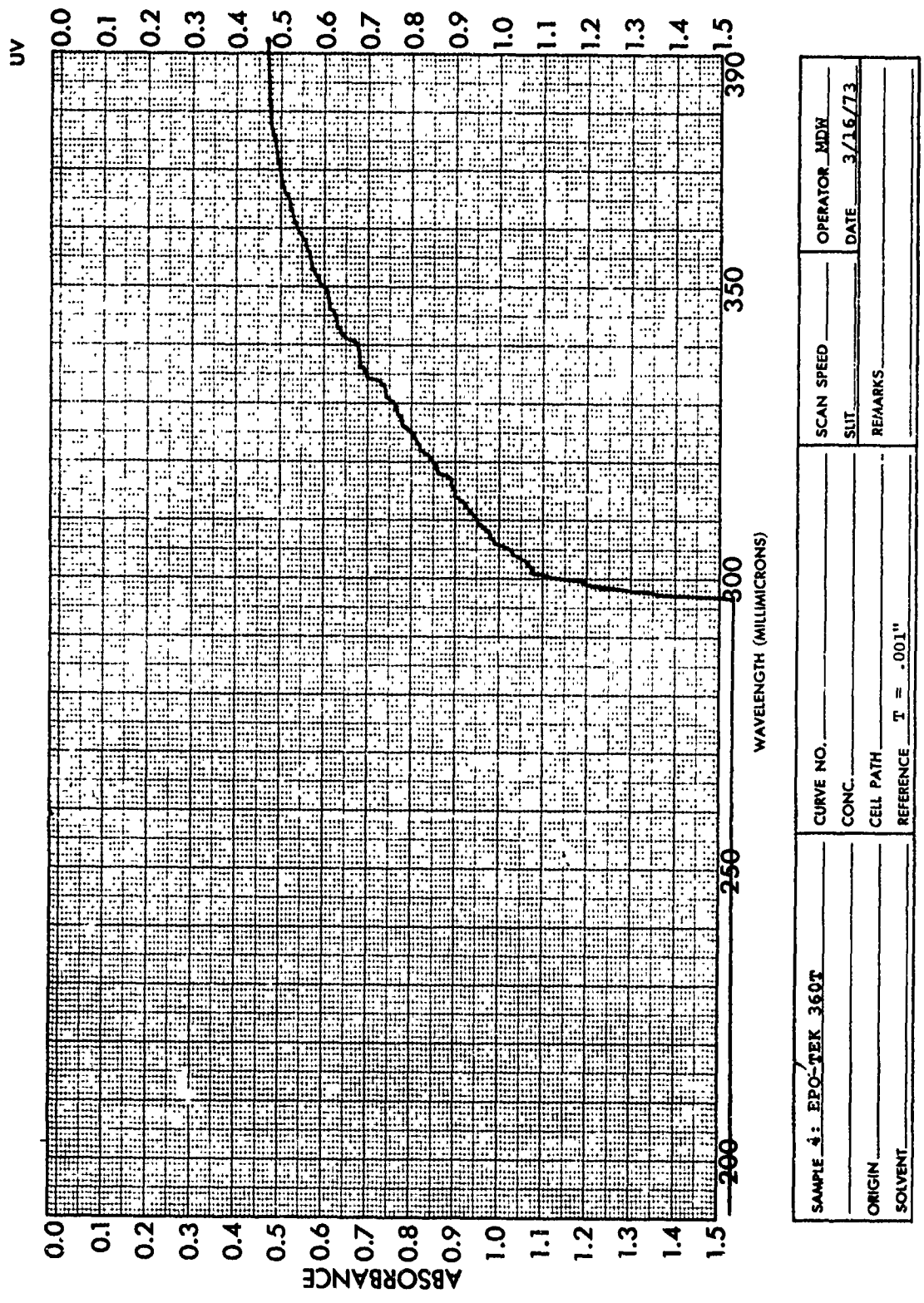
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0.4
0.5
0.6
0.7
0.8
0.9
1.0
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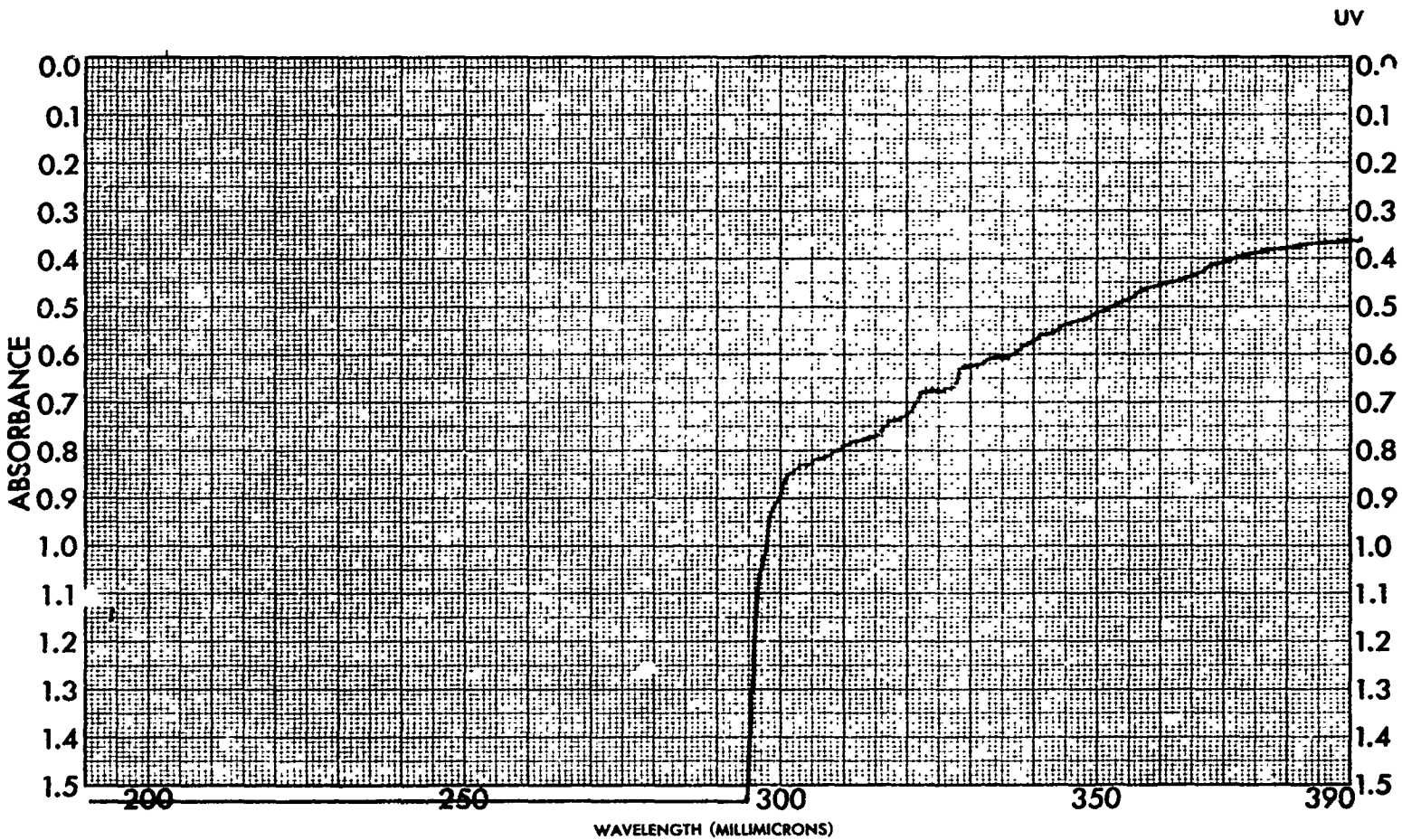
1.2
1.3
1.4
1.5
ABSORBANCE
200
250
300
350
390
WAVELENGTH (MILLIMICRONS)
SAMPLE 4: EPO-TEK 360T
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .001"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73



SAMPLE 5: EPO-TEK 360ST	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .001"		

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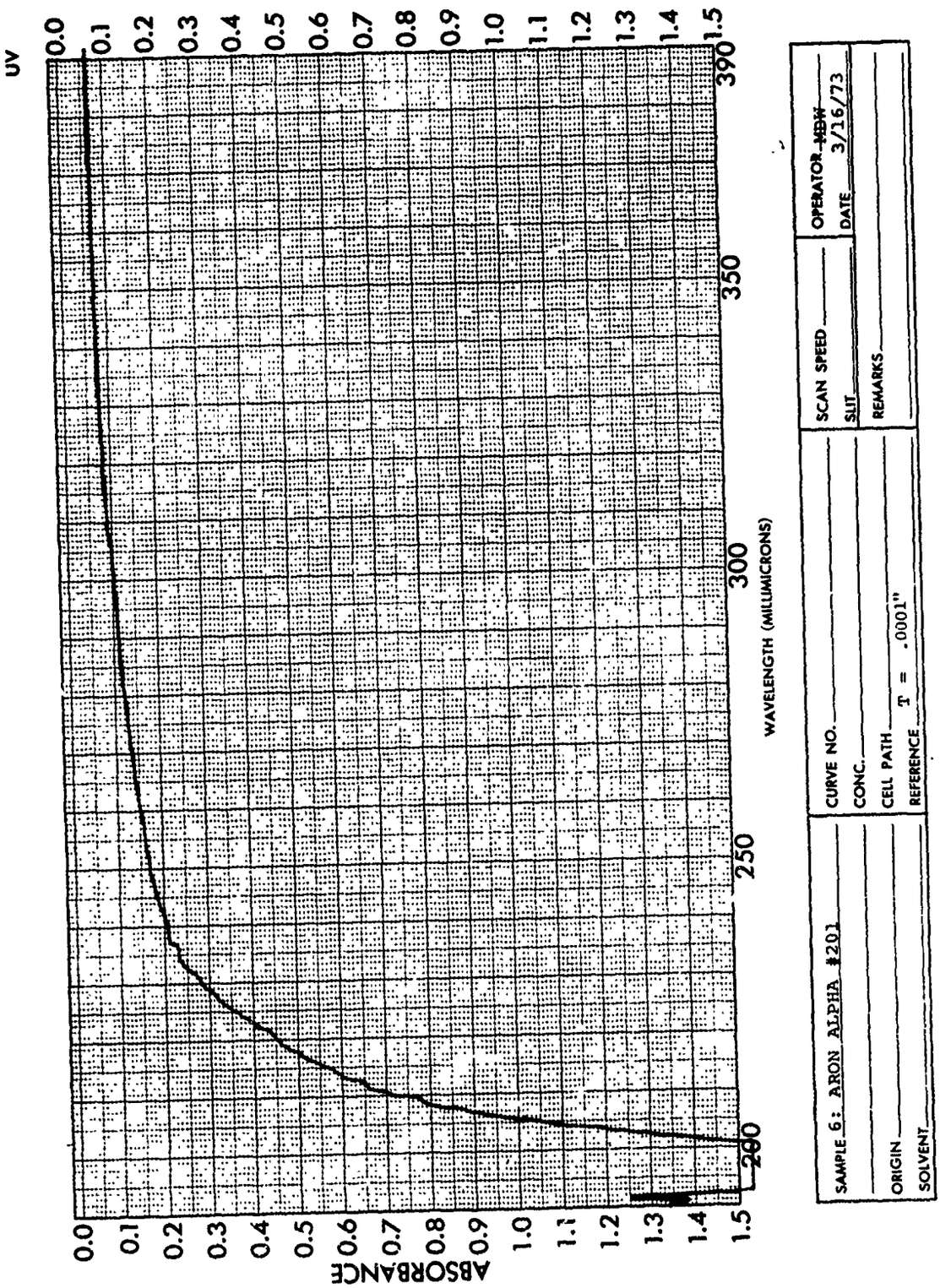
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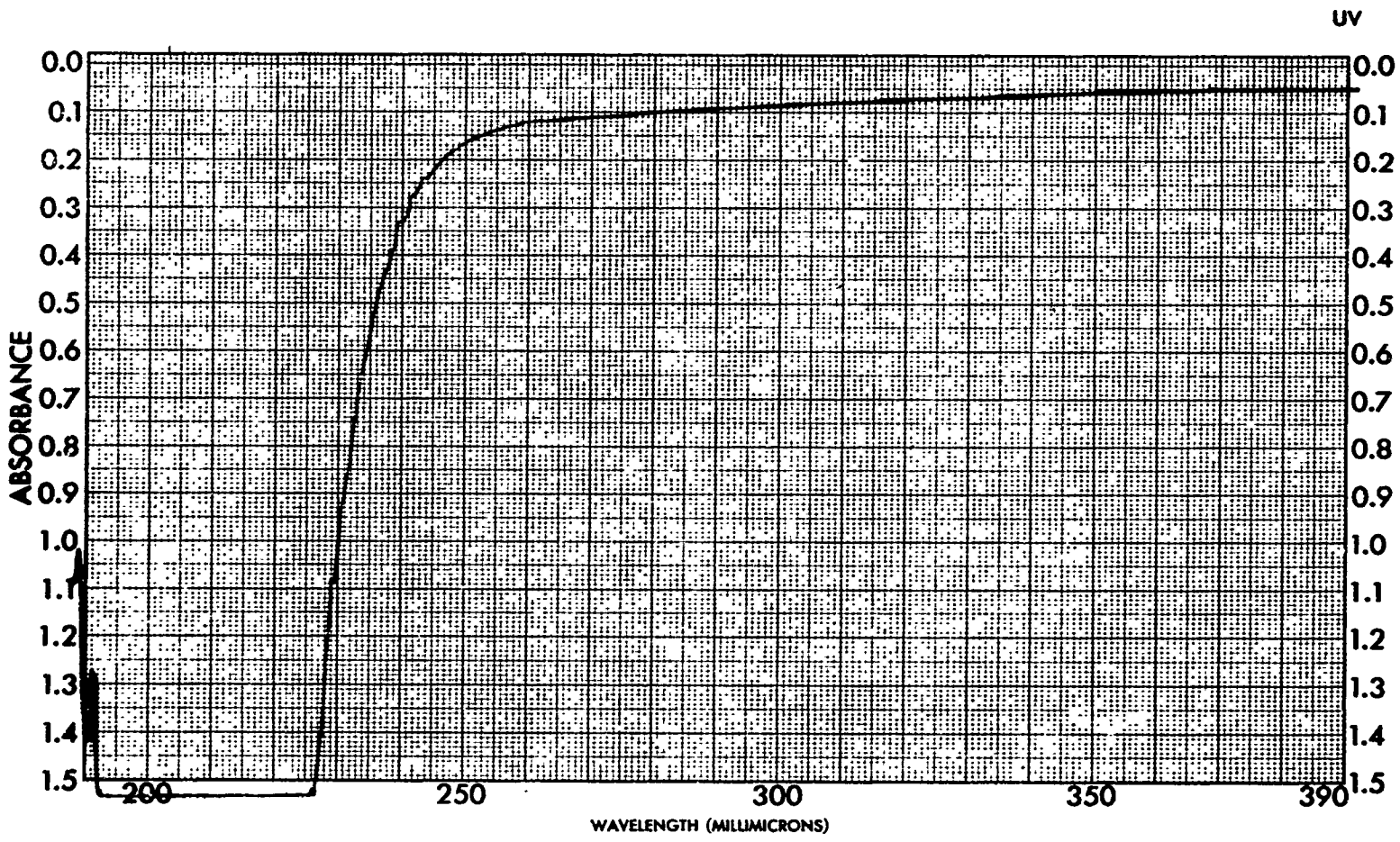
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
200
250
300
350
390
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 6: ARON ALPHA #201
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0001"
SCAN SPEED
SLIT
REMARKS
OPERATOR MBW
DATE 3/16/73



SAMPLE 7: EPO-TEK 305	CURVE NO.	SCAN SPEED	OPERATOR MDK
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .001"		

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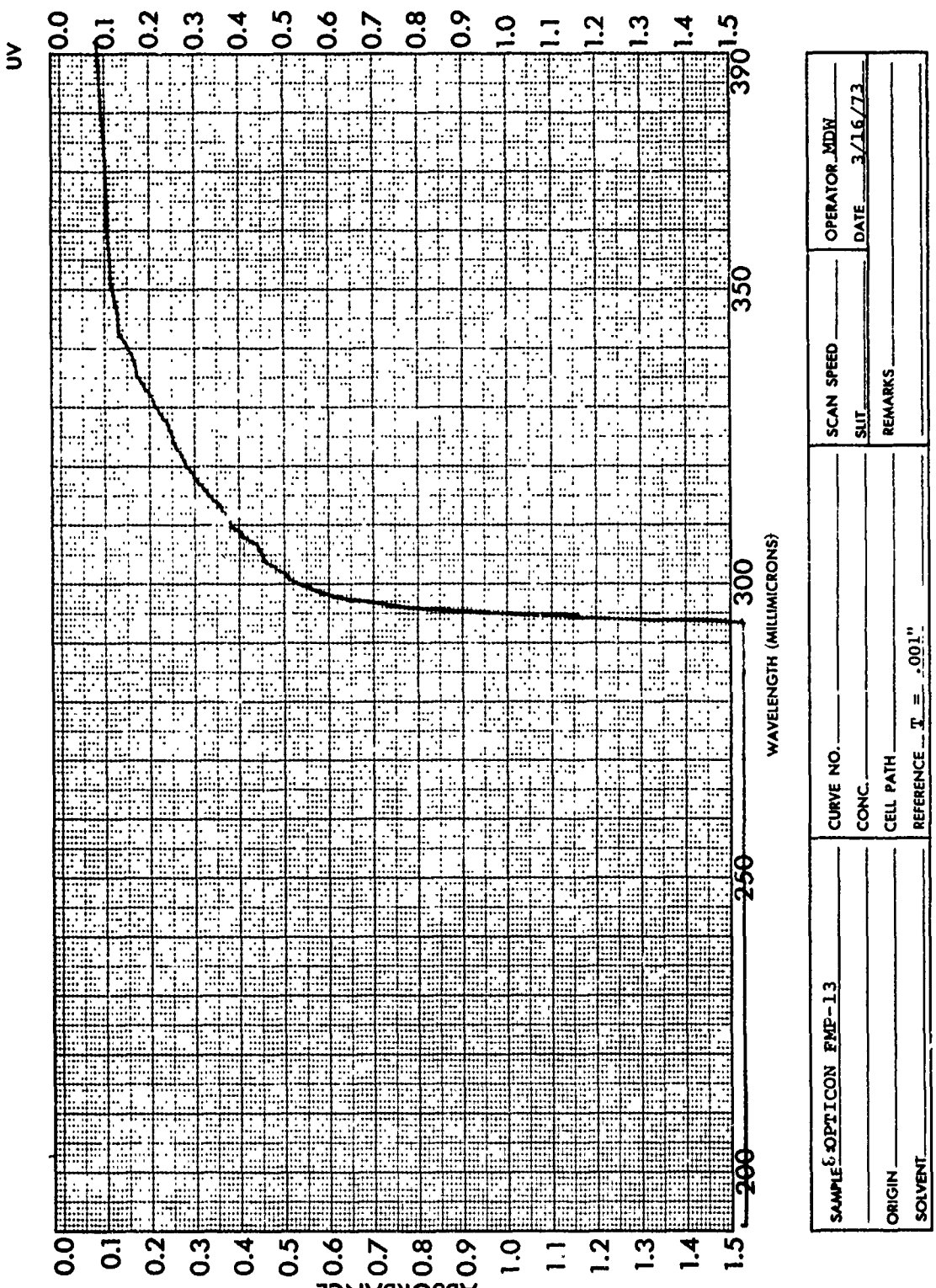
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ABSORBANCE
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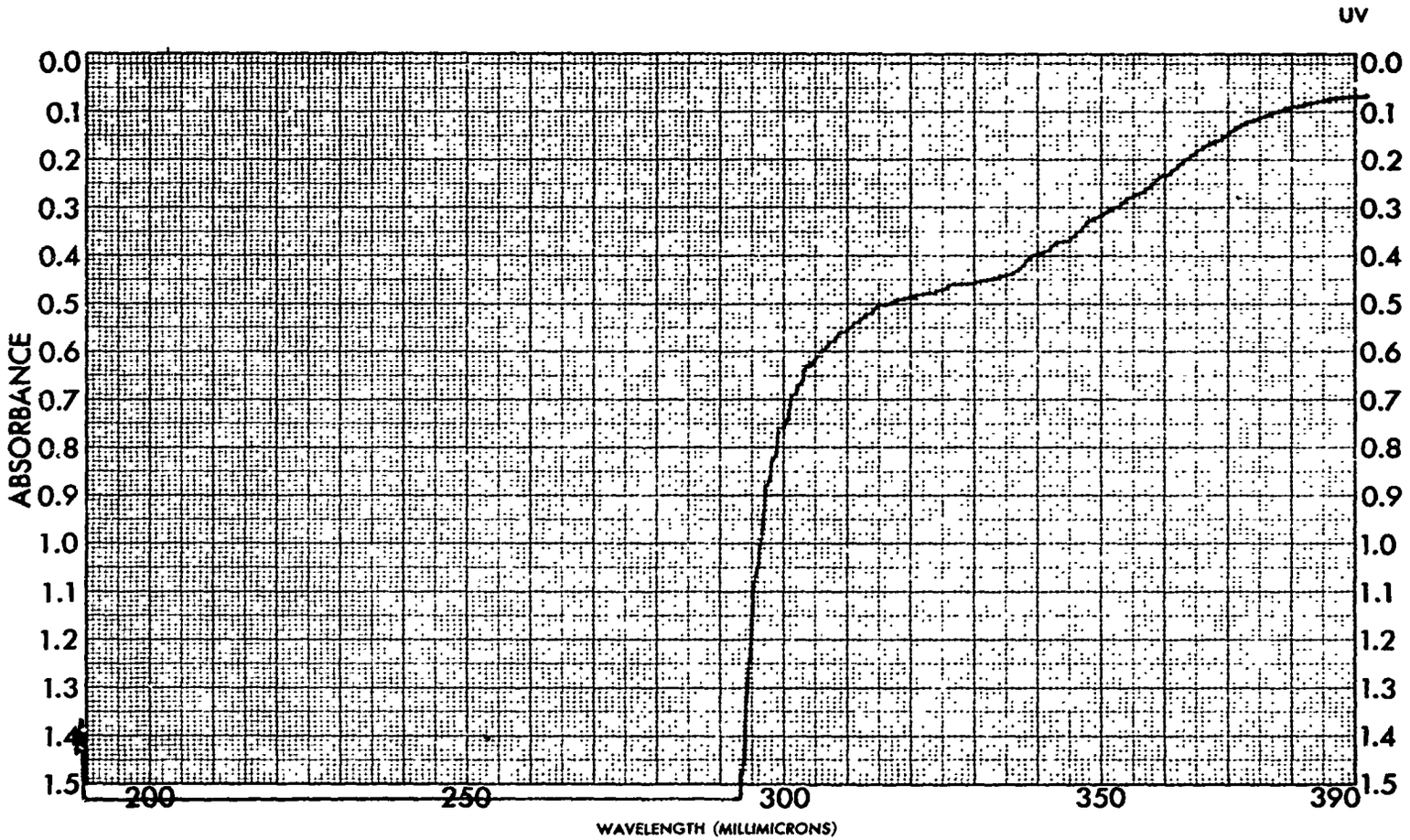
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
200
250
300
350
390
WAVELENGTH (MILLIMICRONS)
SAMPLE & OPTICON FMP-13
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .001"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73



SAMPLE 9: OPTICON UV-57	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .002"		

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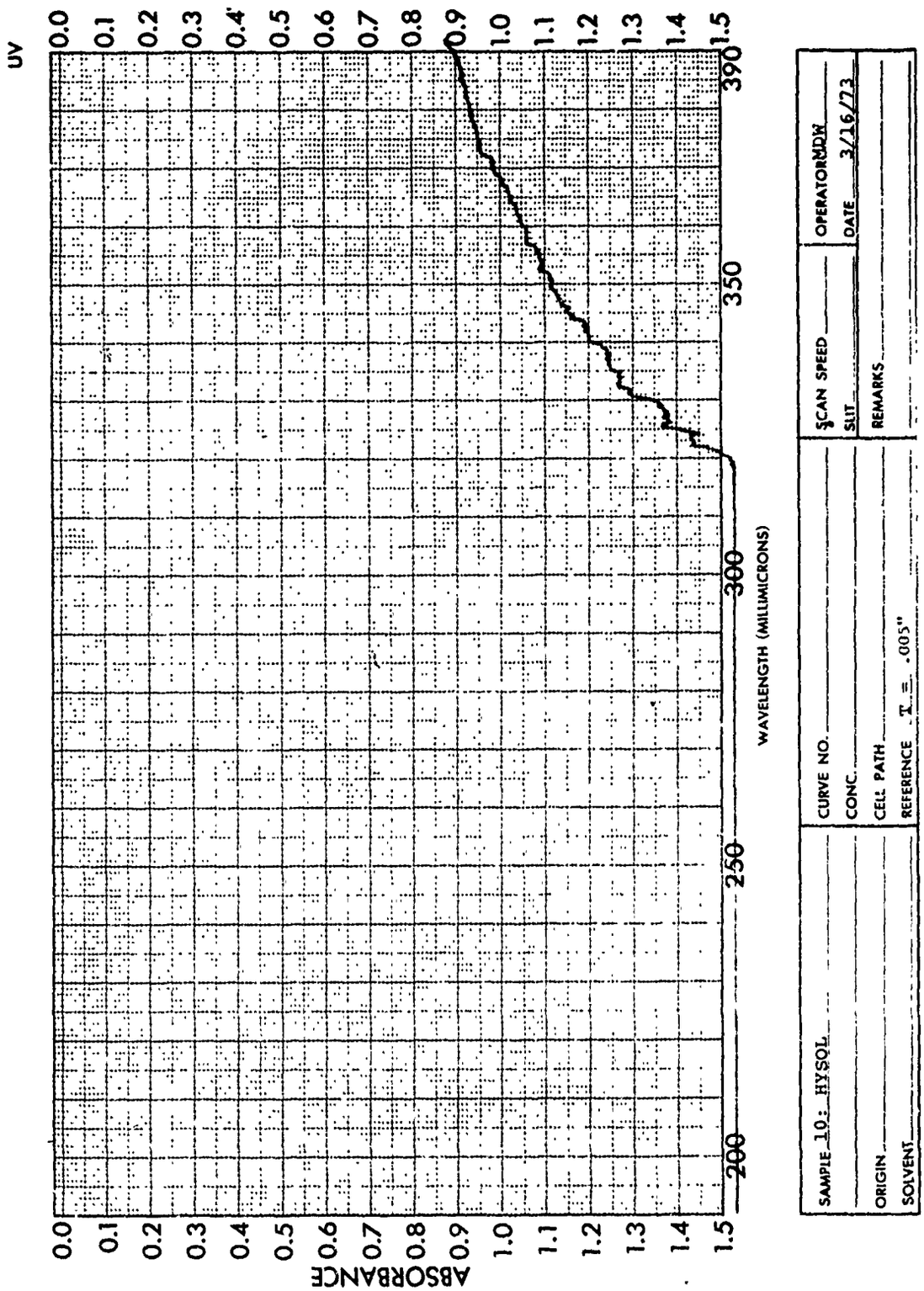
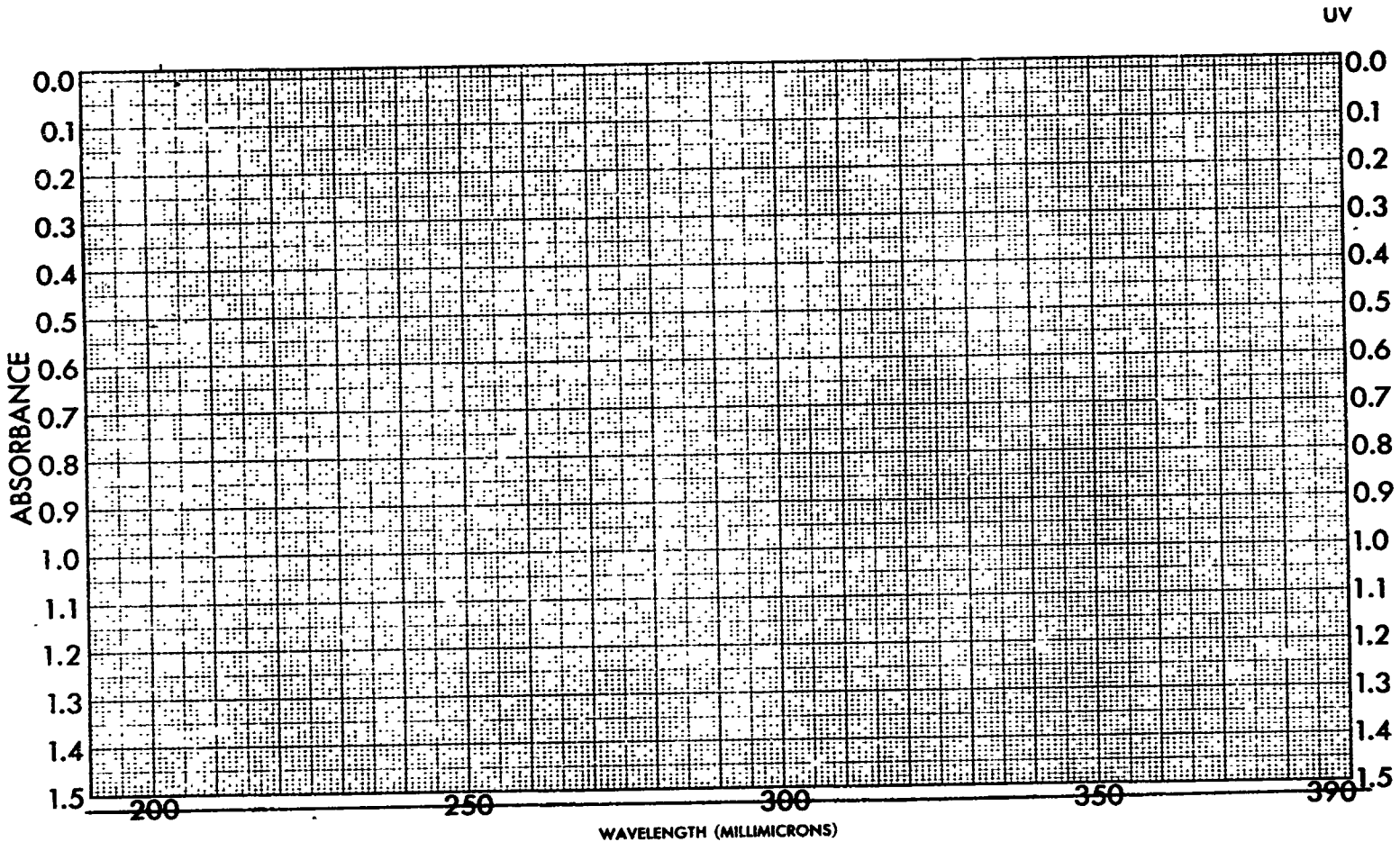
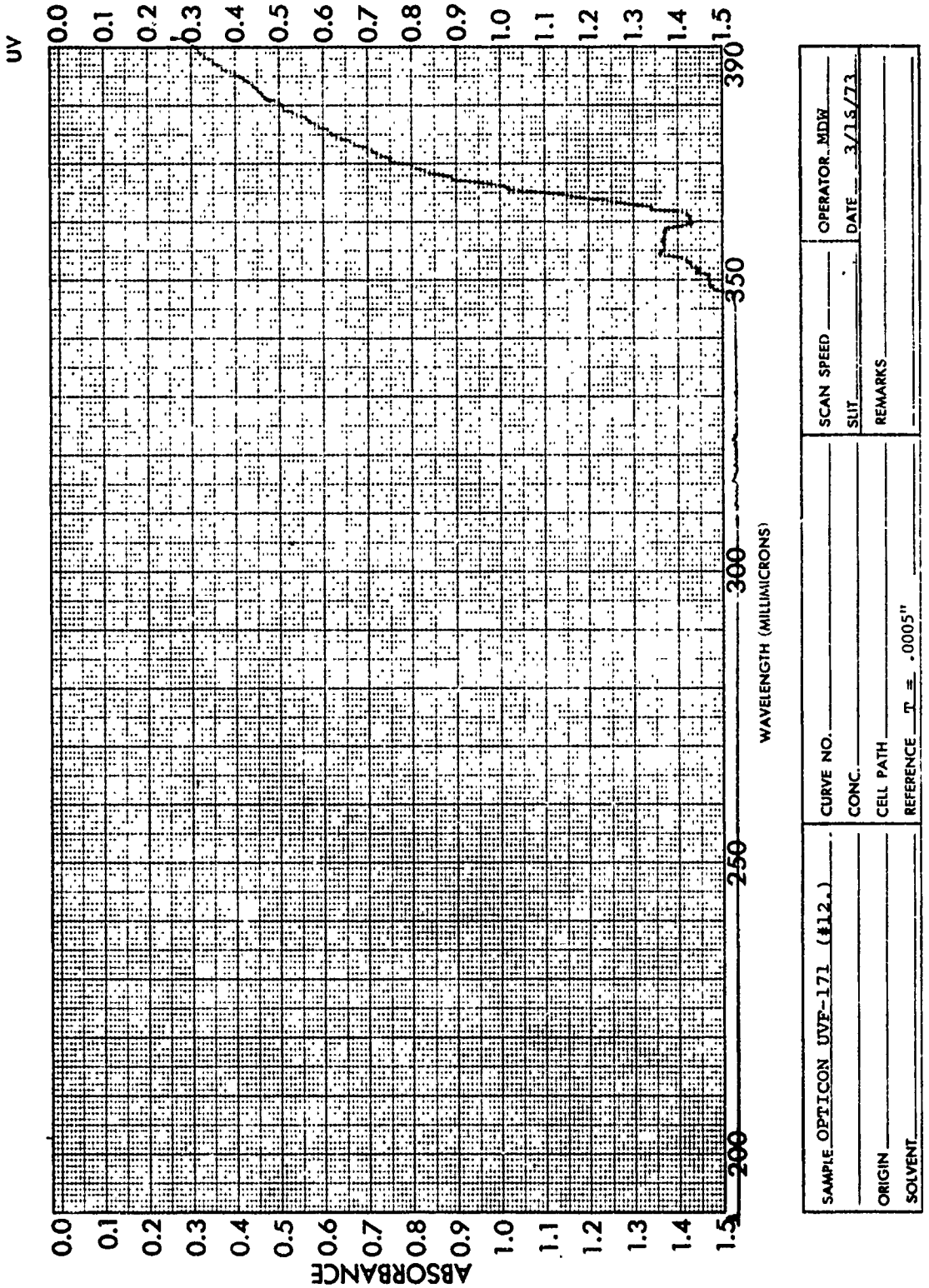
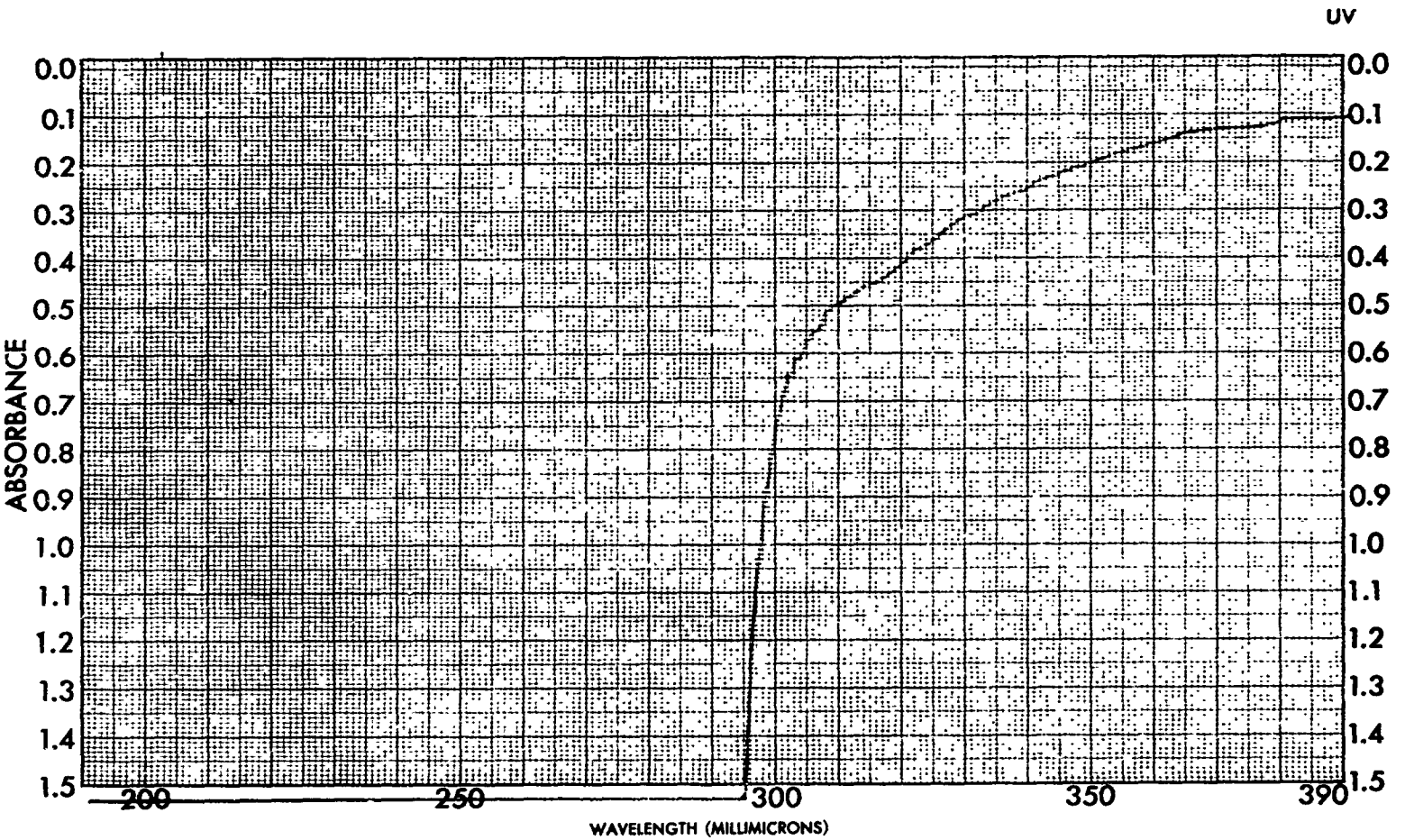

UV
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 10: HYSOL
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73



SAMPLE 11: 3M	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0035"		

NWC TP 5583


UV
ABSORBANCE
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
200
250
300
350
390
WAVELENGTH (MILLIMICRONS)
SAMPLE OPTICON UVF-171 (#12.)
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/15/73



SAMPLE 13: OPTICON SFA-23	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .001"		

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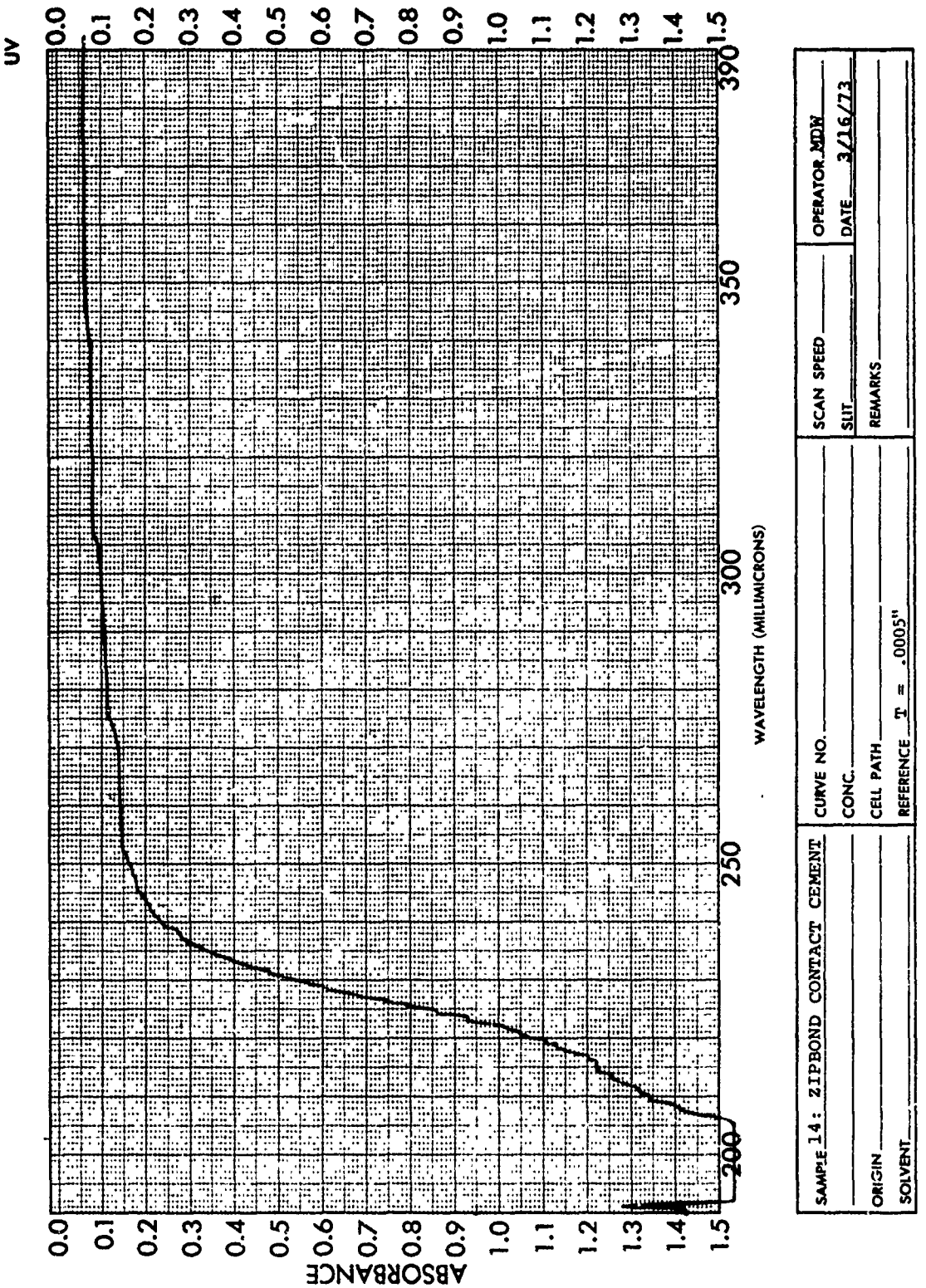
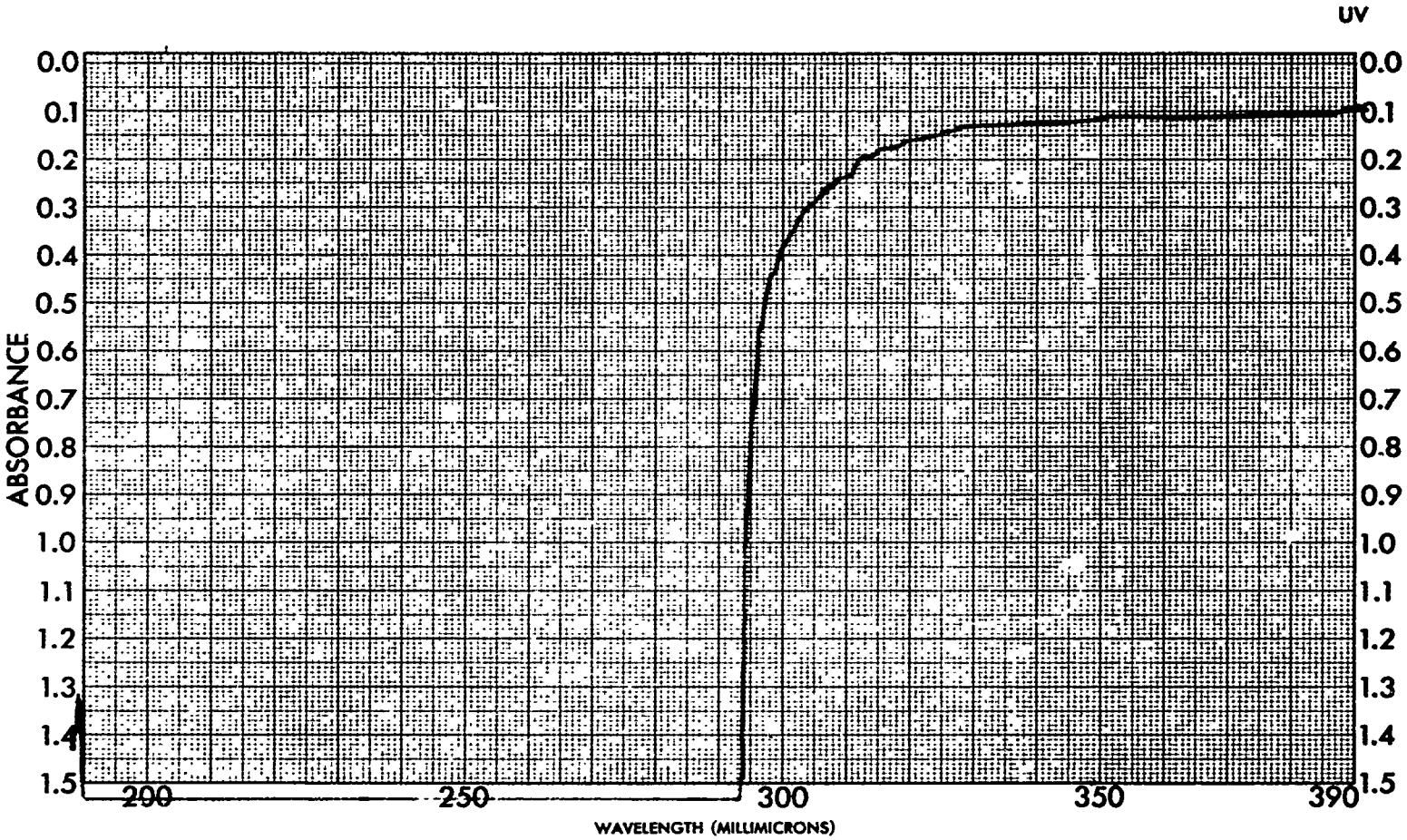

UV
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
390
350
300
250
200
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 14: ZIPBOND CONTACT CEMENT
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73



SAMPLE 15: LENS BOND M-62	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .001"		

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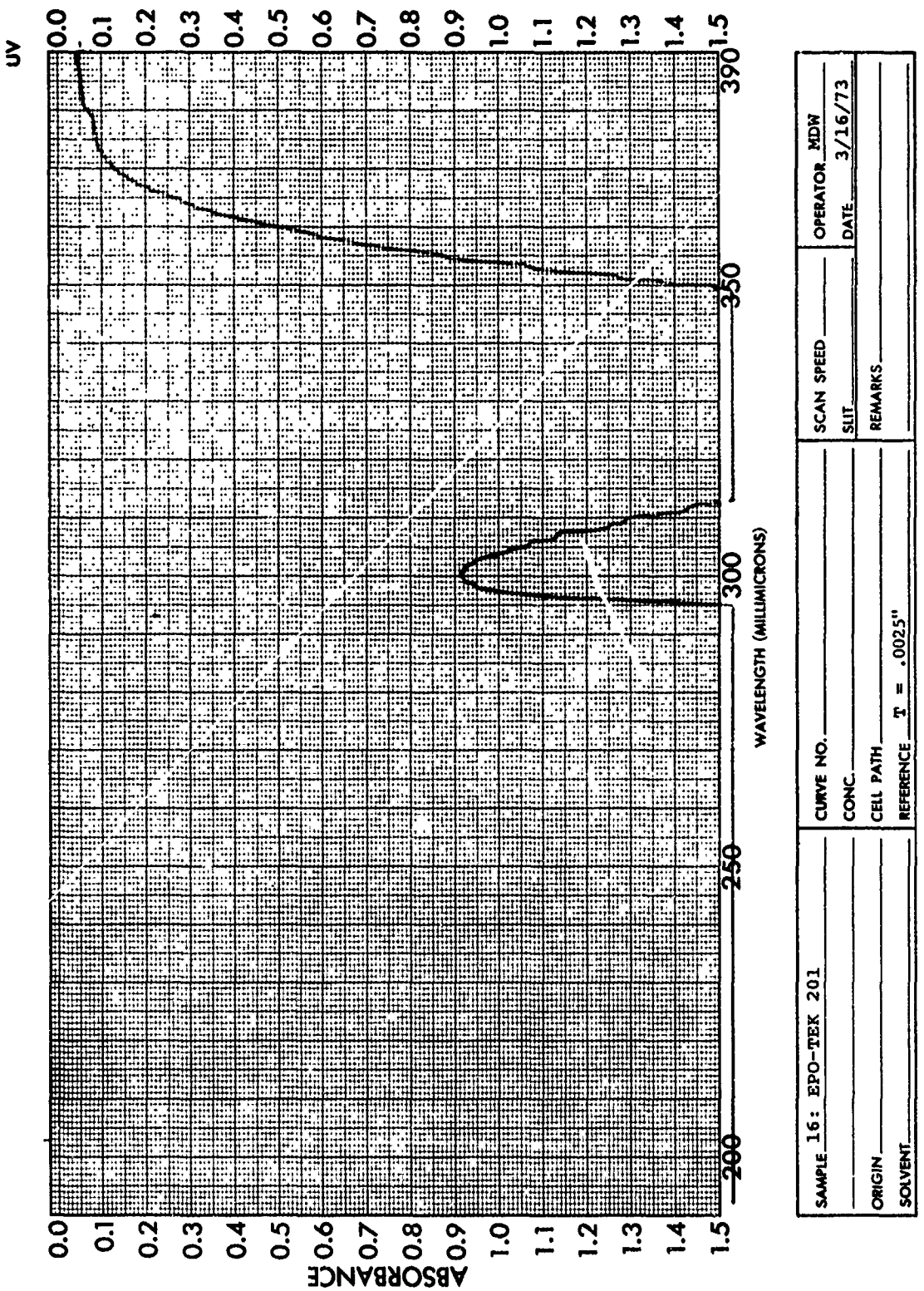
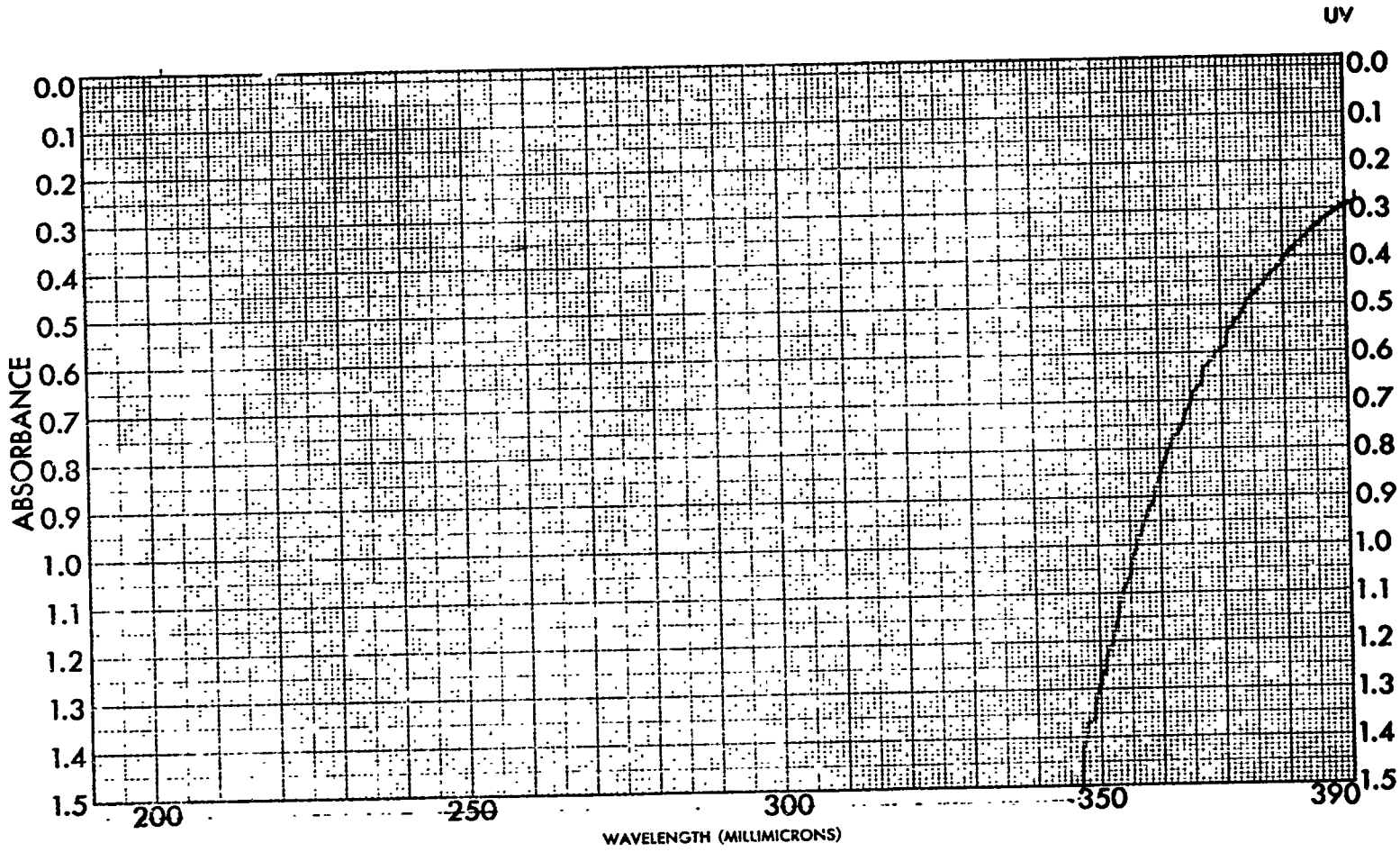

UV
ABSORBANCE
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
200
250
300
350
390
WAVELENGTH (MILLIMICRONS)
SAMPLE 16: EPO-TEK 201
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0025"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73



SAMPLE 18 : CANADIAN BALSAM	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0015"		

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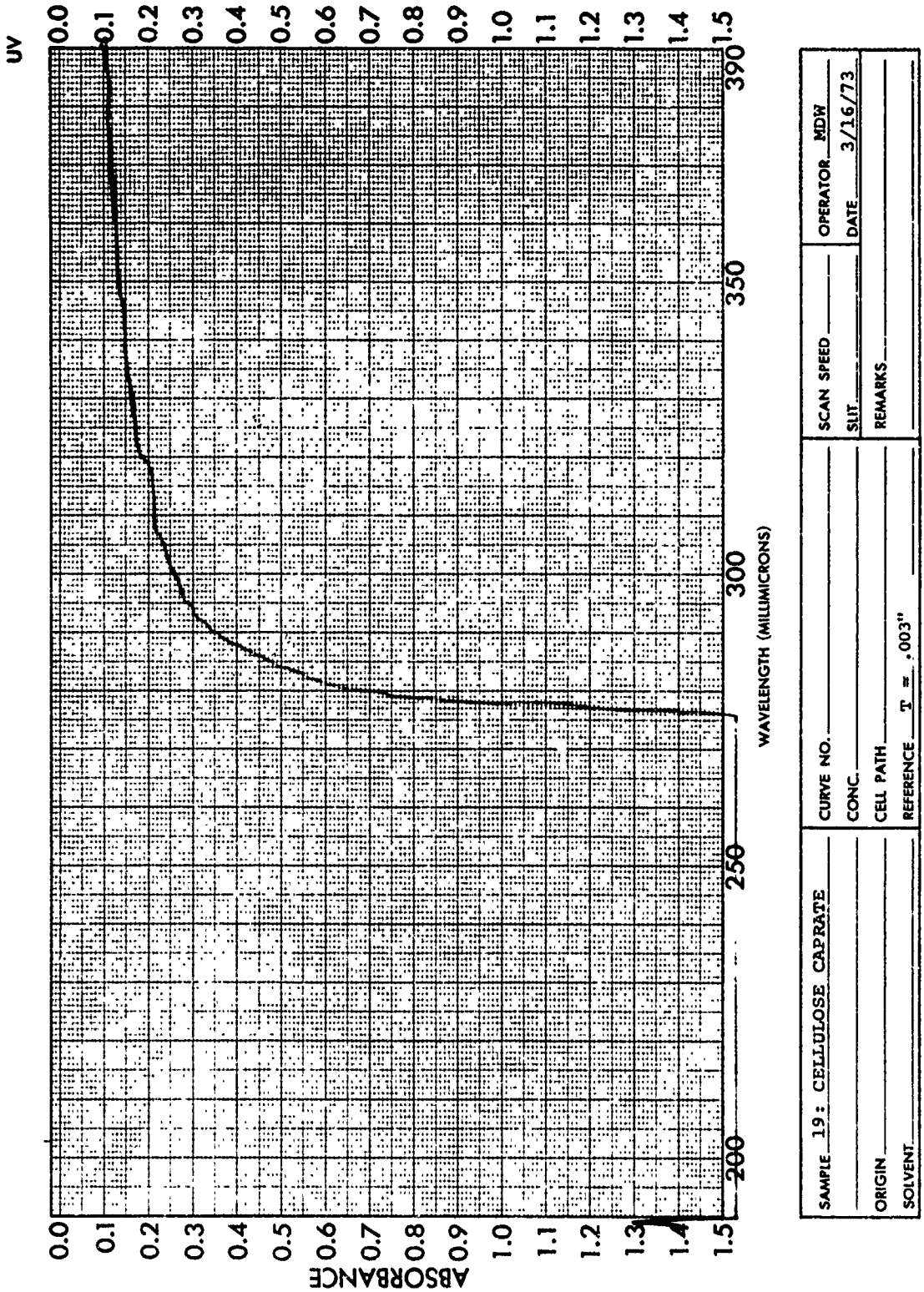
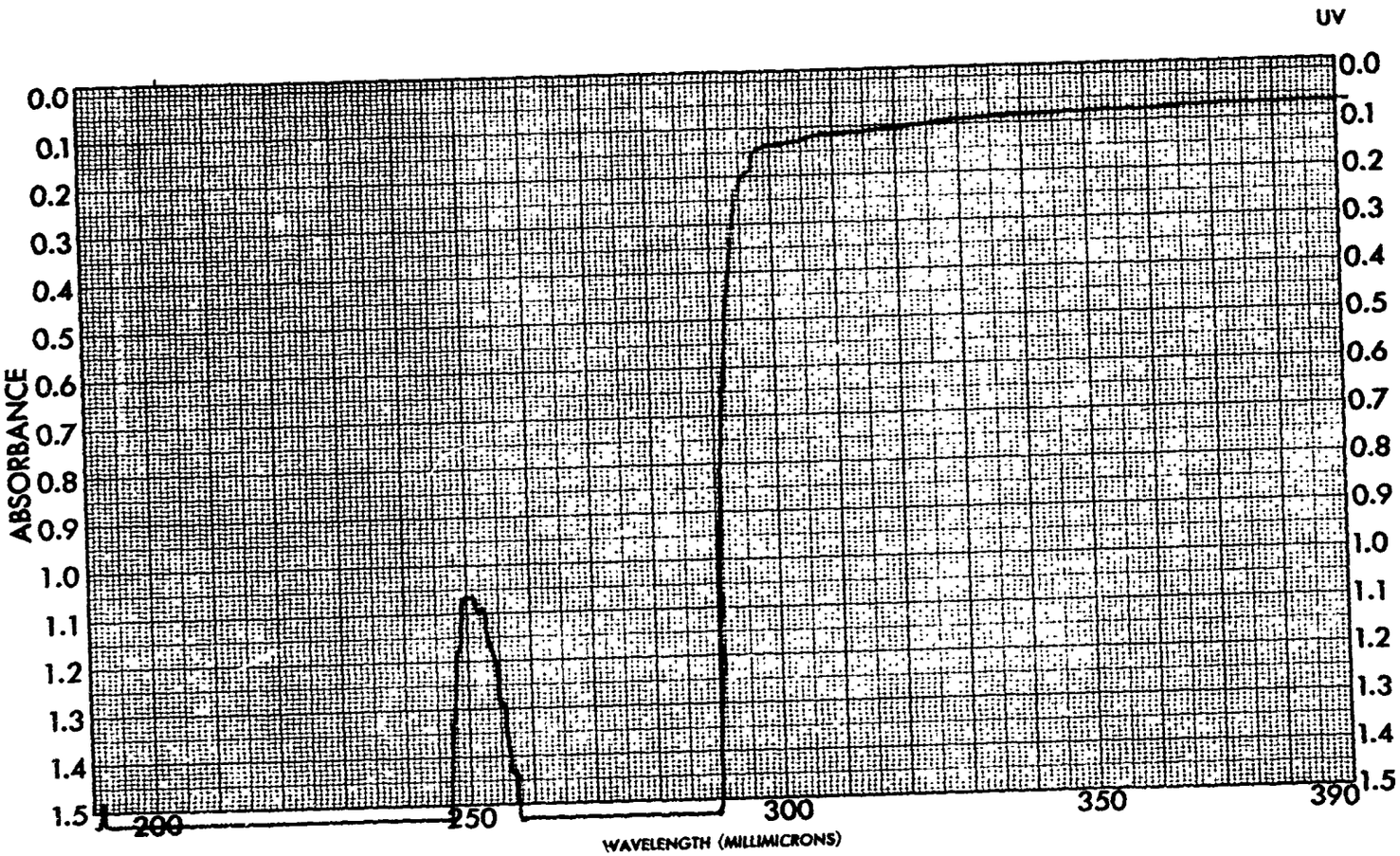

UV
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 19: CELLULOSE CAPRATE
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .003"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73



SAMPLE 17: EPO-TEK 310	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .003"		

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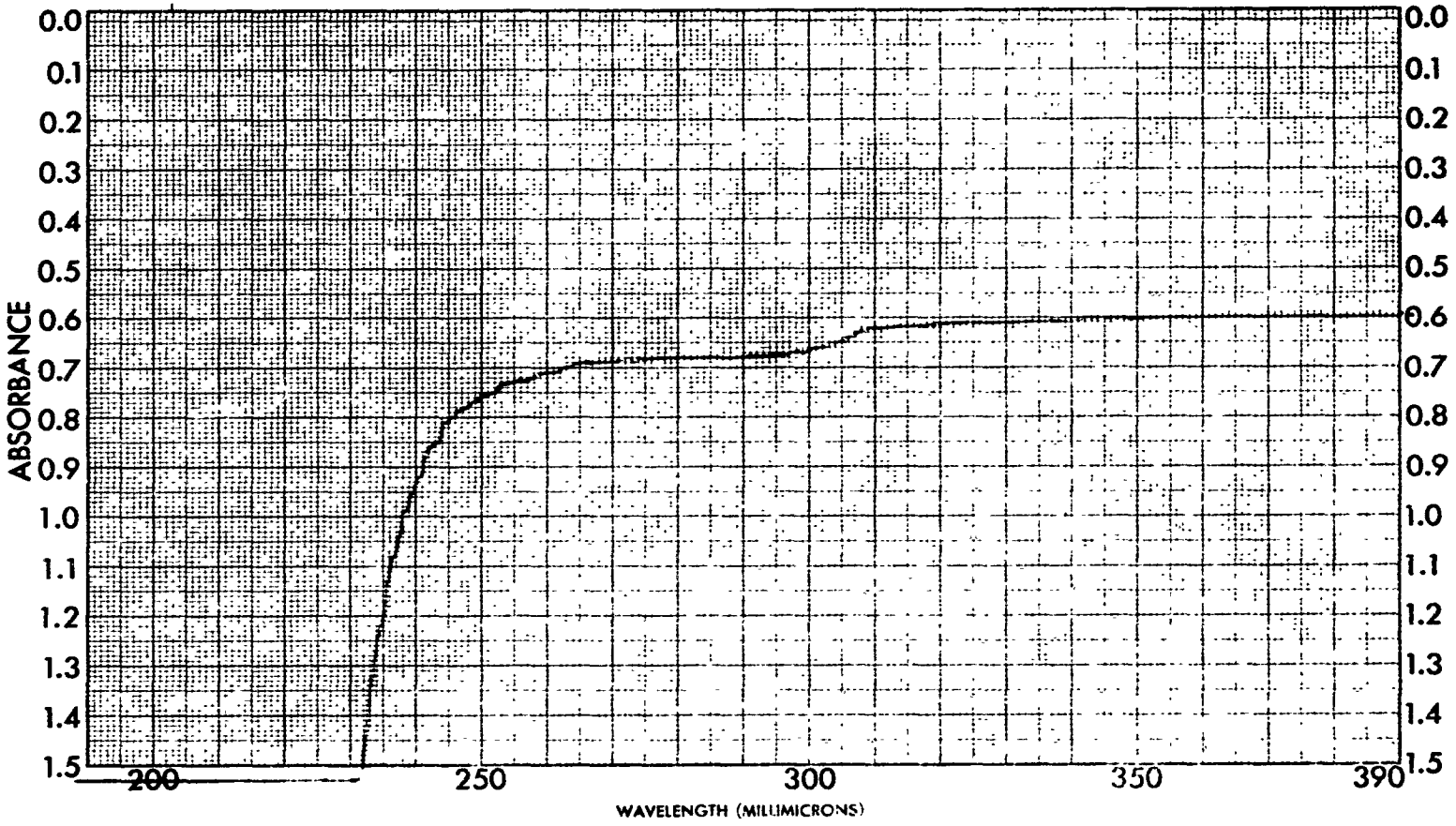
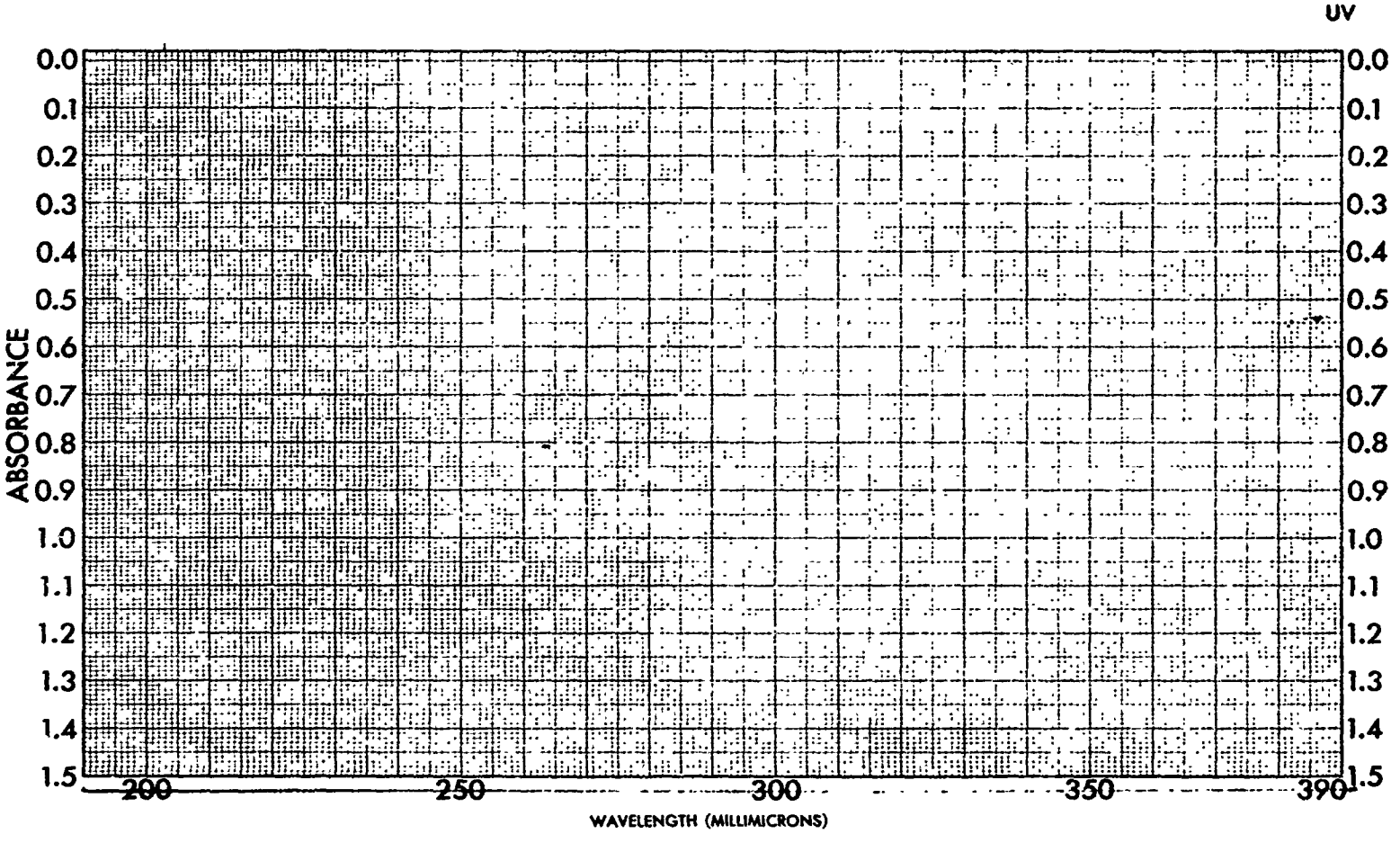
UV



SAMPLE 20: Zinc selenide with ZIPBOND CONTACT CEMENT	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .003"		



SAMPLE 21: zinc sulfide w. ZIPBOND CONTACT CEMENT	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .001"		

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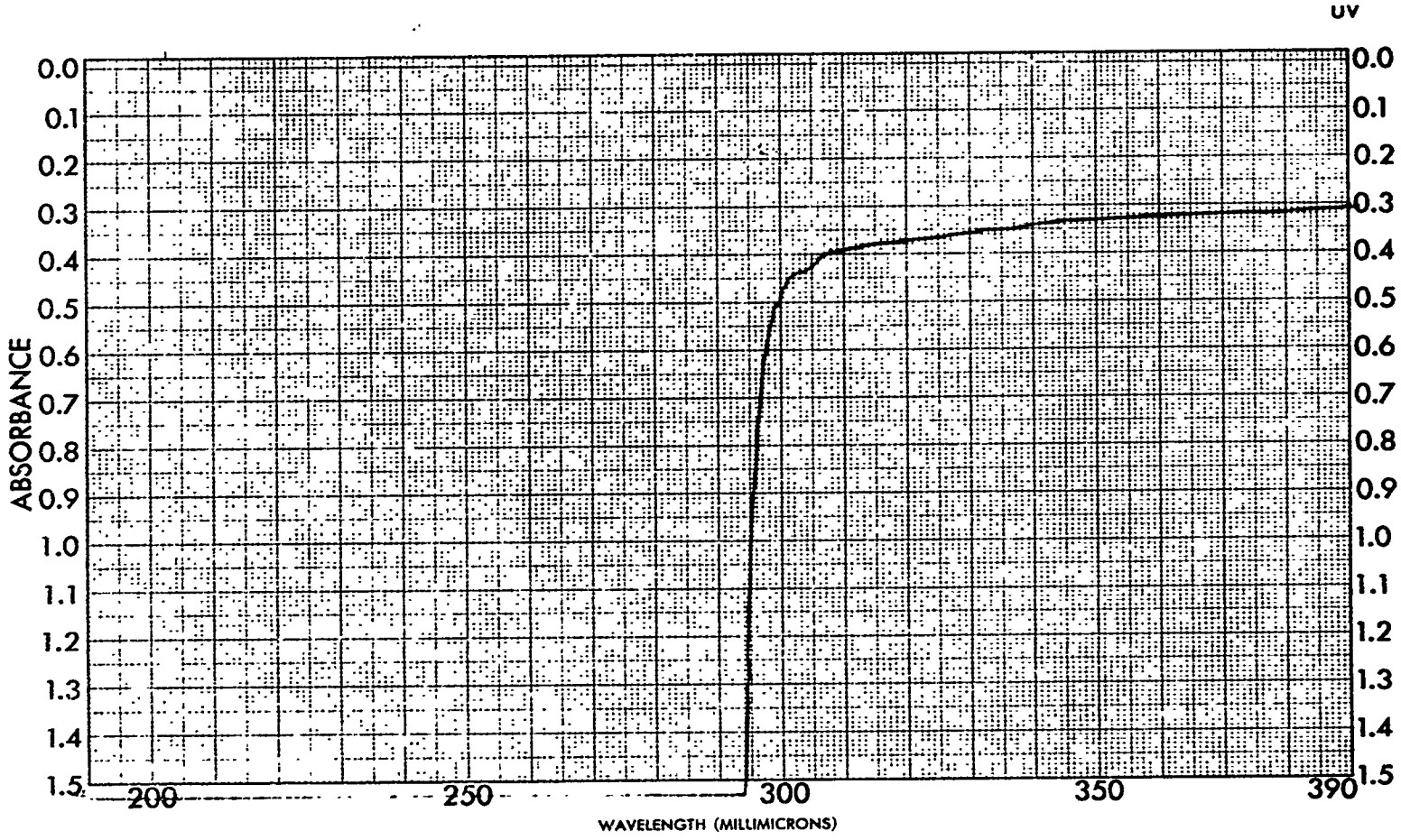
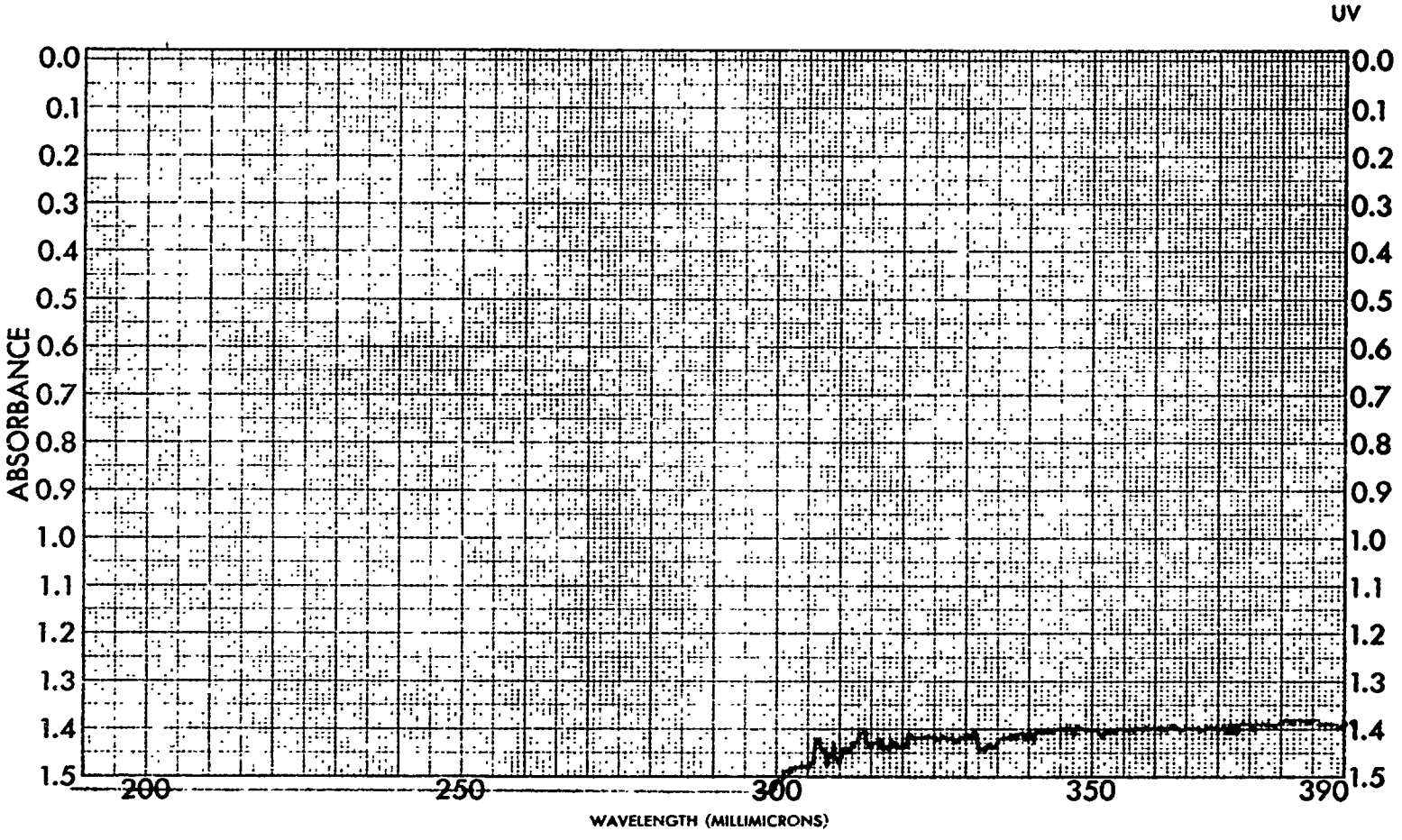
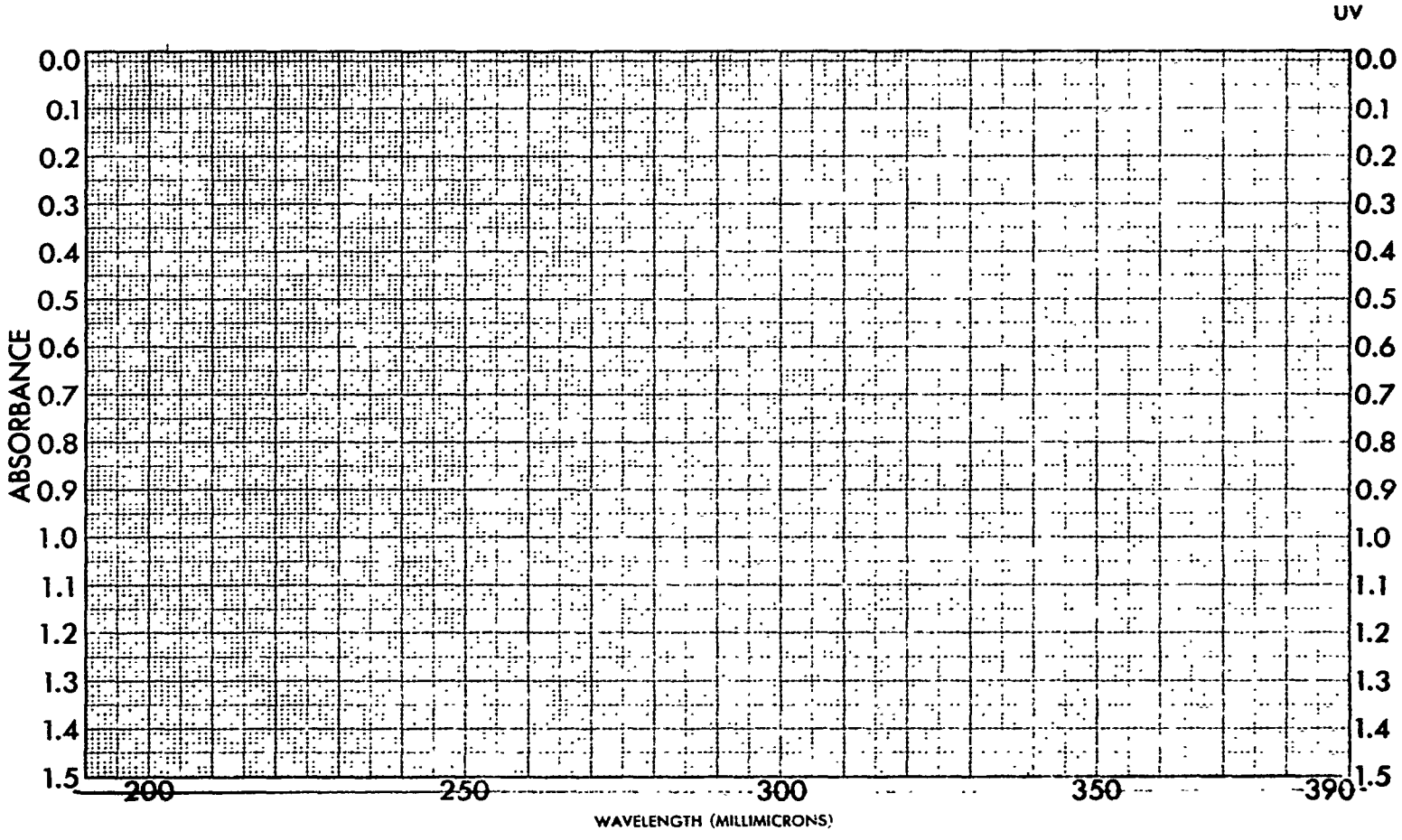


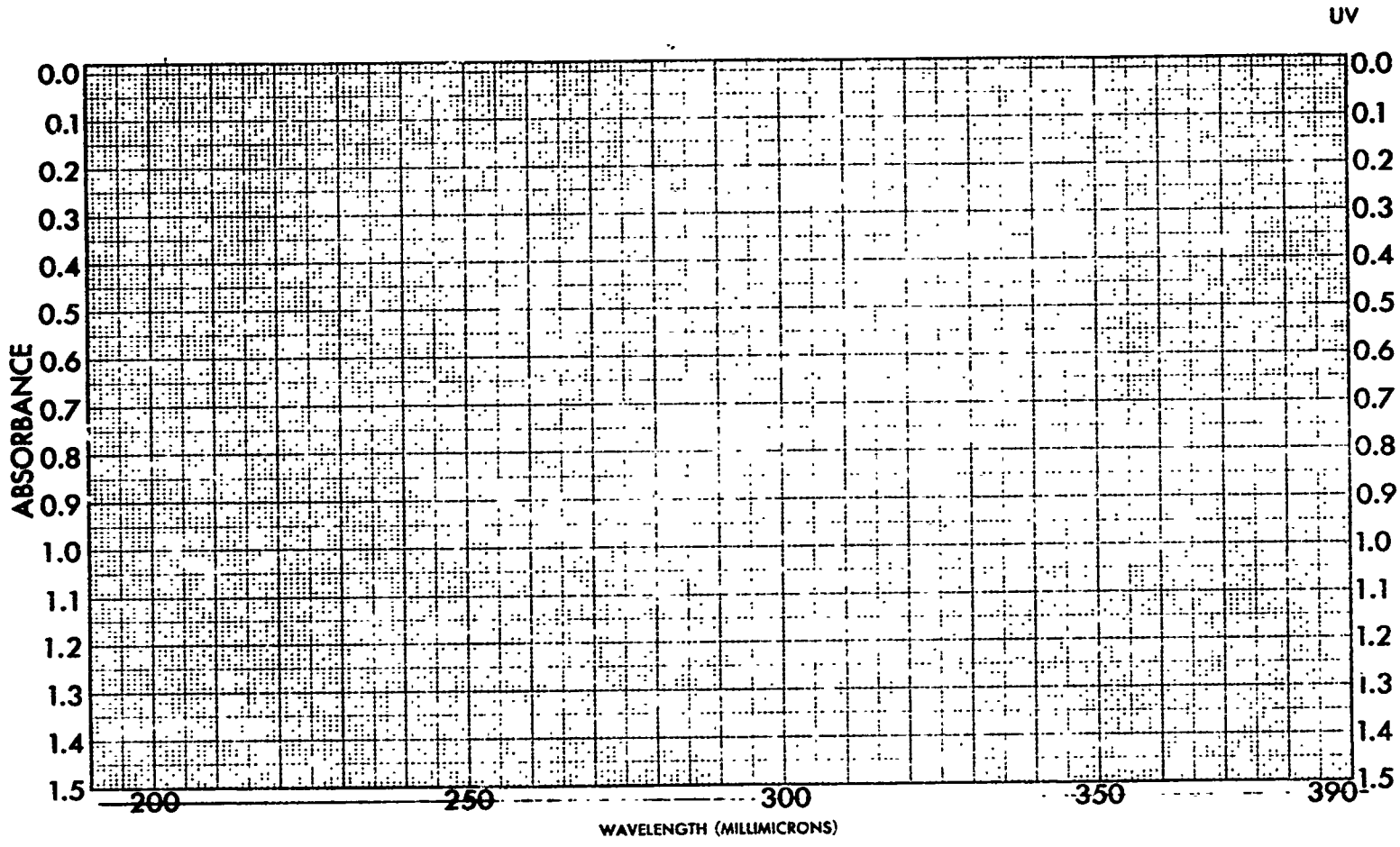
SAMPLE 22: zinc selenide w. EPO-TEK 301	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T= .002"		



SAMPLE 23: zinc sulfide w. EPO-TEK 301	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0025"		



SAMPLE 24: 1" dia. epoxy plug w. zinc selenide & EPO-TEK 301	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .040"		



SAMPLE 25: 1" dia. epoxy plug w. zinc sulfide & EPO-TEK 301	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .049"		

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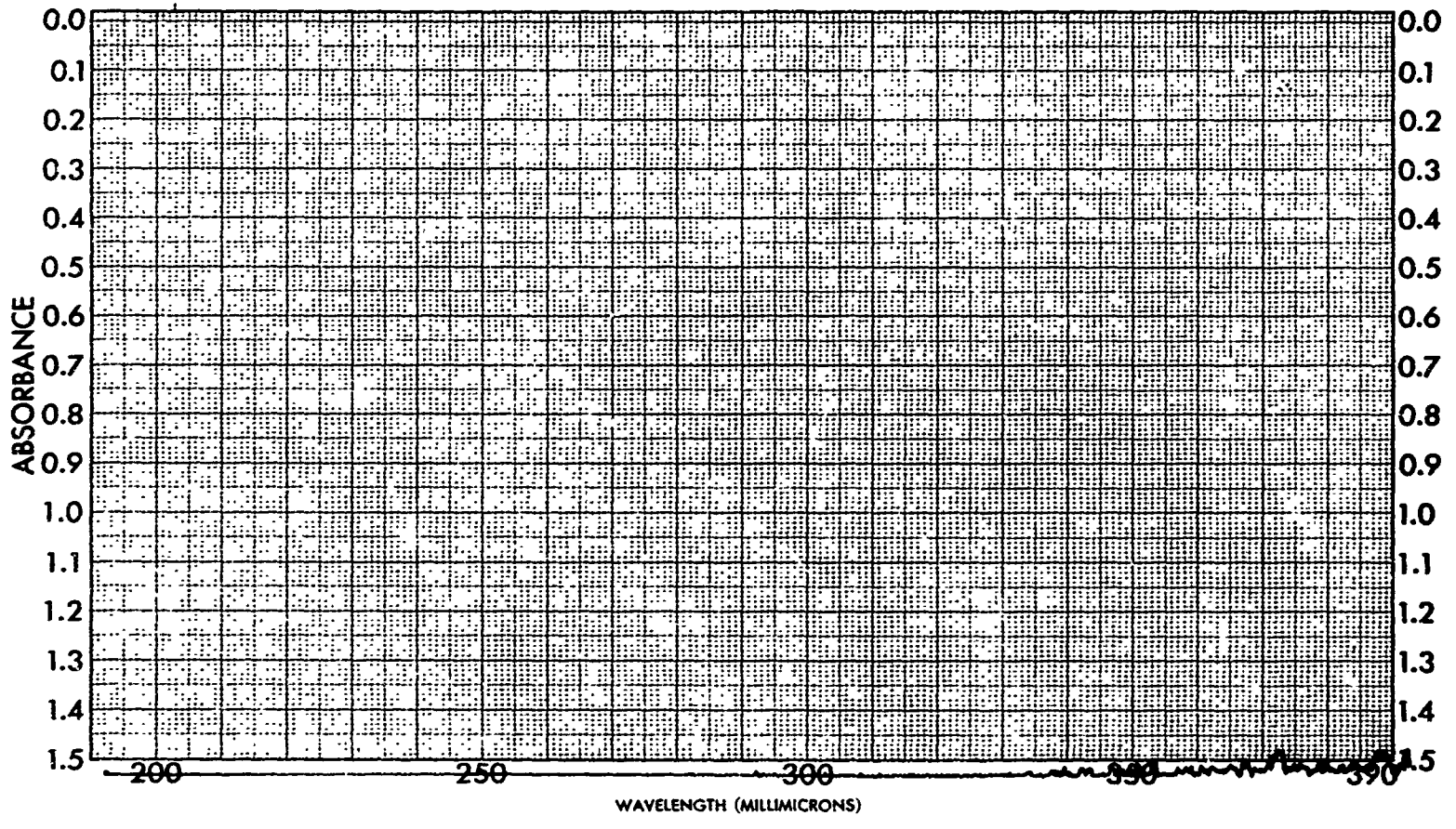
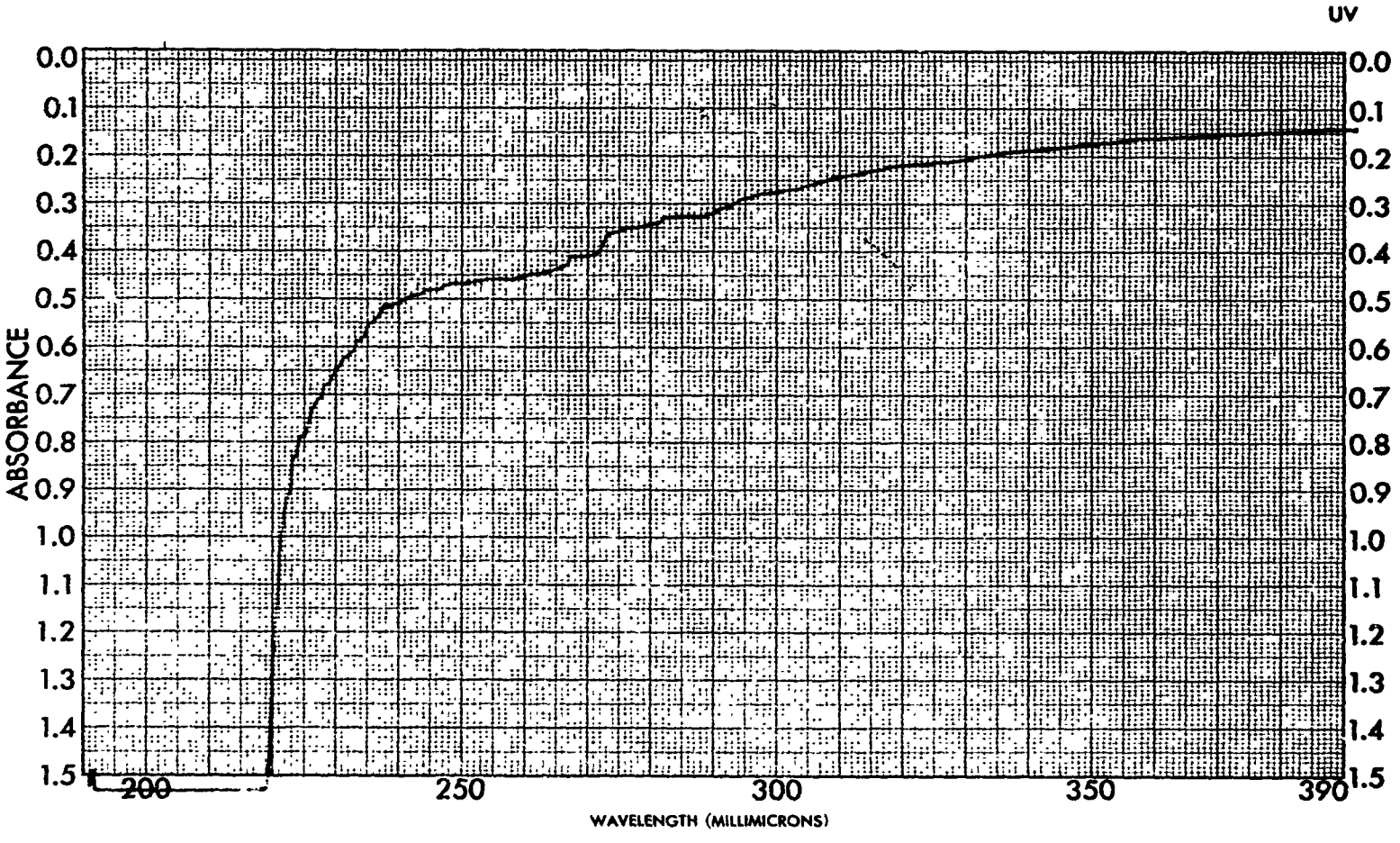
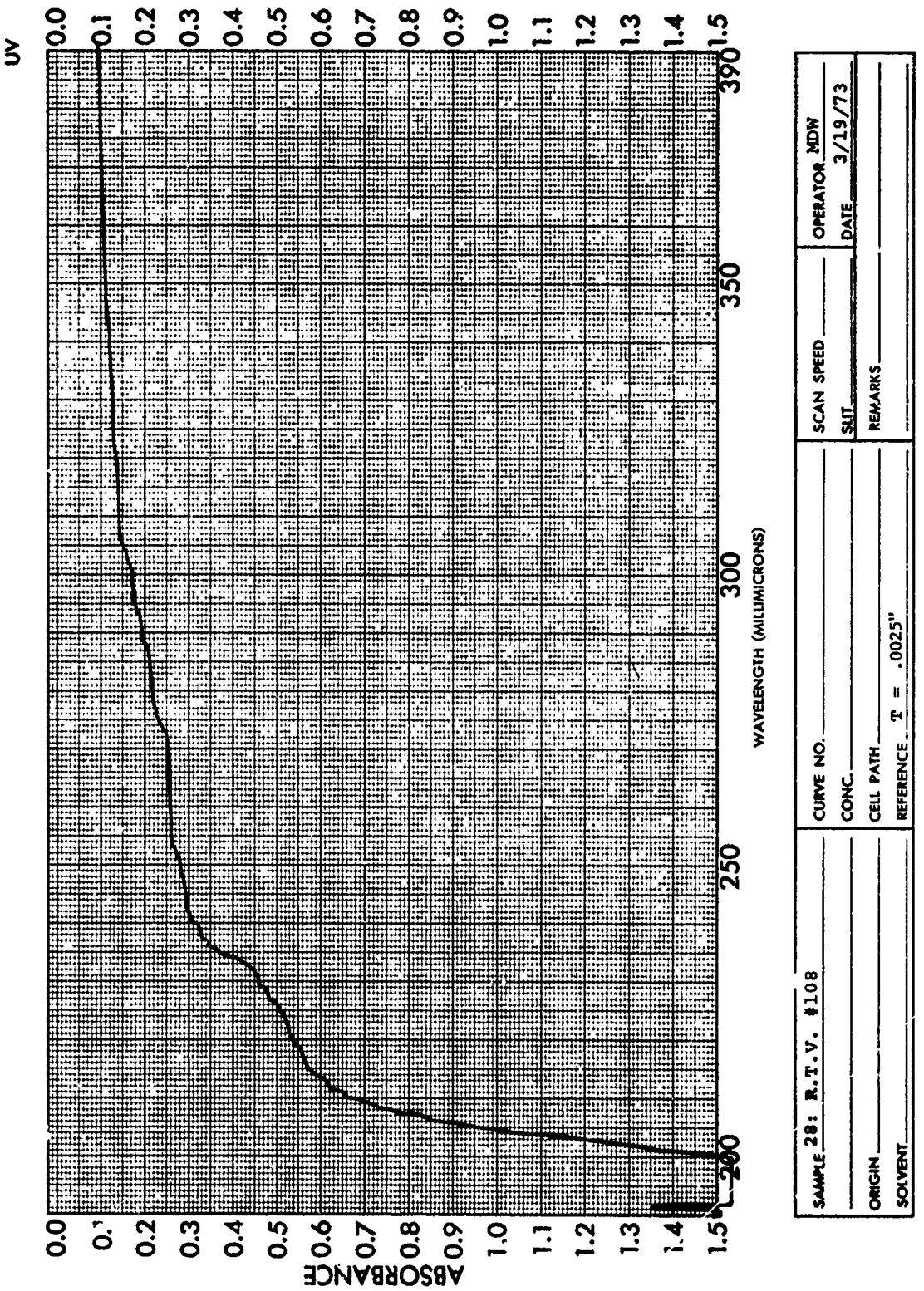
UV

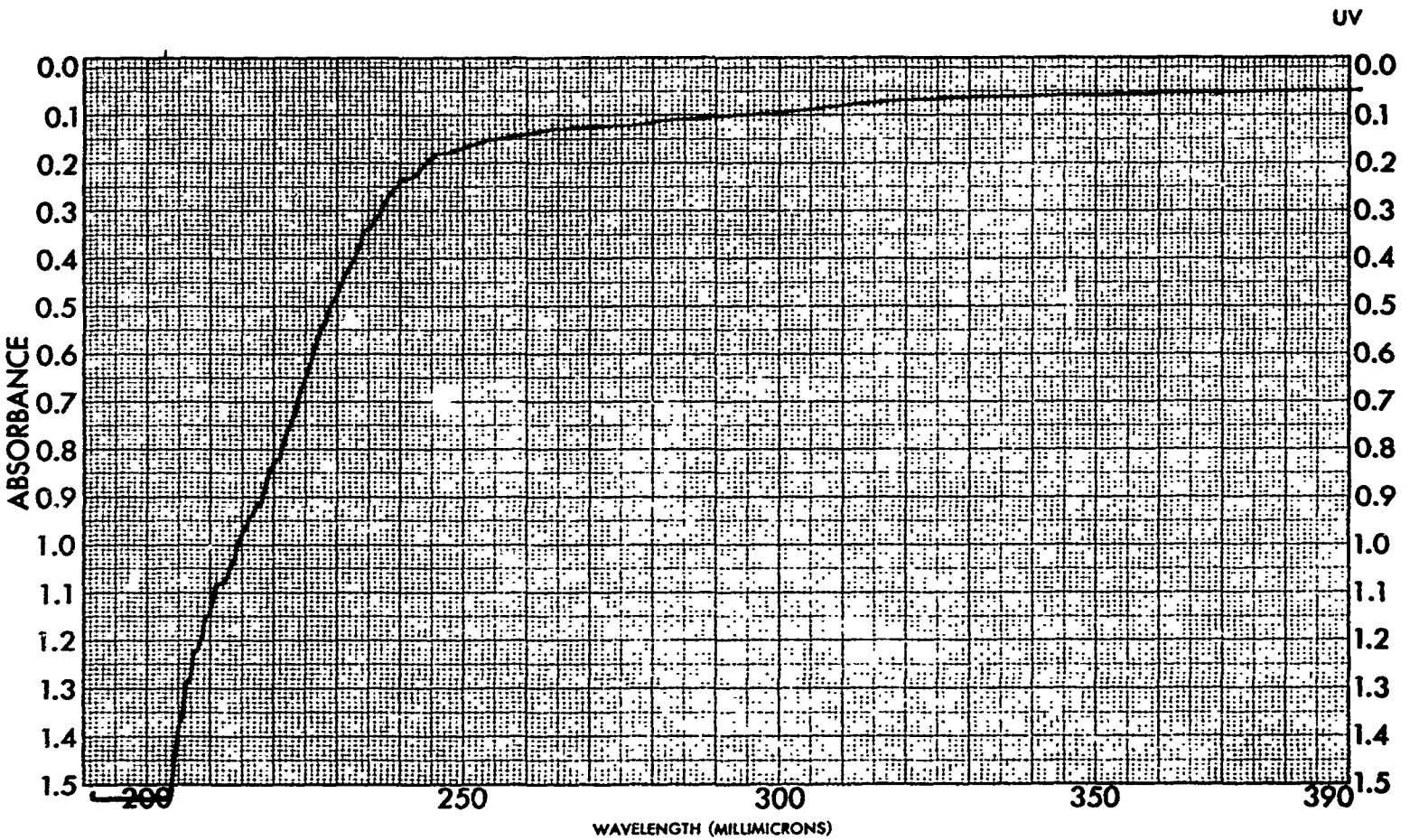


SAMPLE 26: DOW CORNING 3118	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0005"		



SAMPLE 27: SILASTIC 140 R.T.V.	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0015"		


UV
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
ABSORBANCE
200
250
300
350
390
WAVELENGTH (MILLIMICRONS)
SAMPLE 28: R.T.V. #108
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0025"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73



SAMPLE 29: EASTMAN 910	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0001"		

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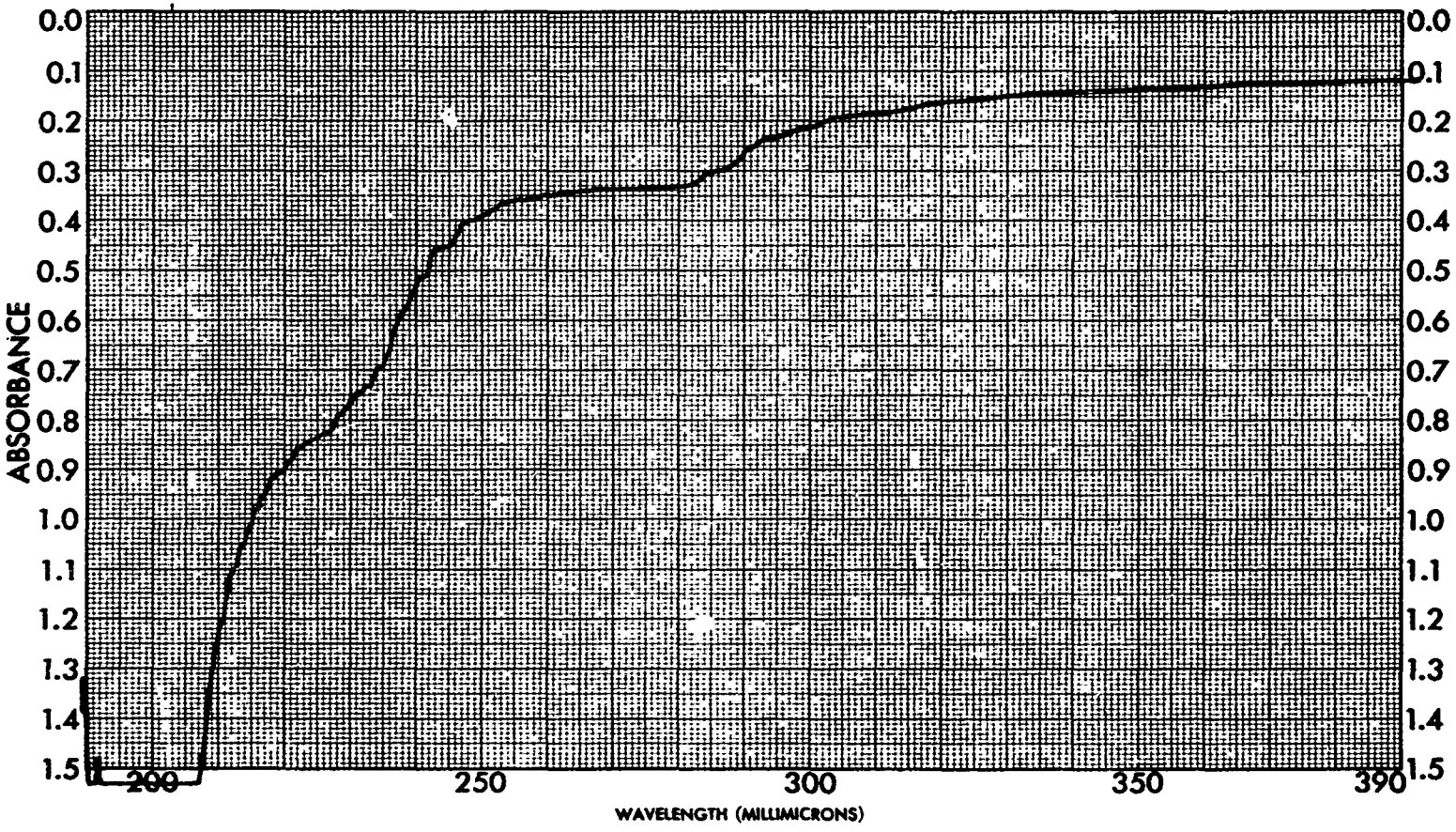
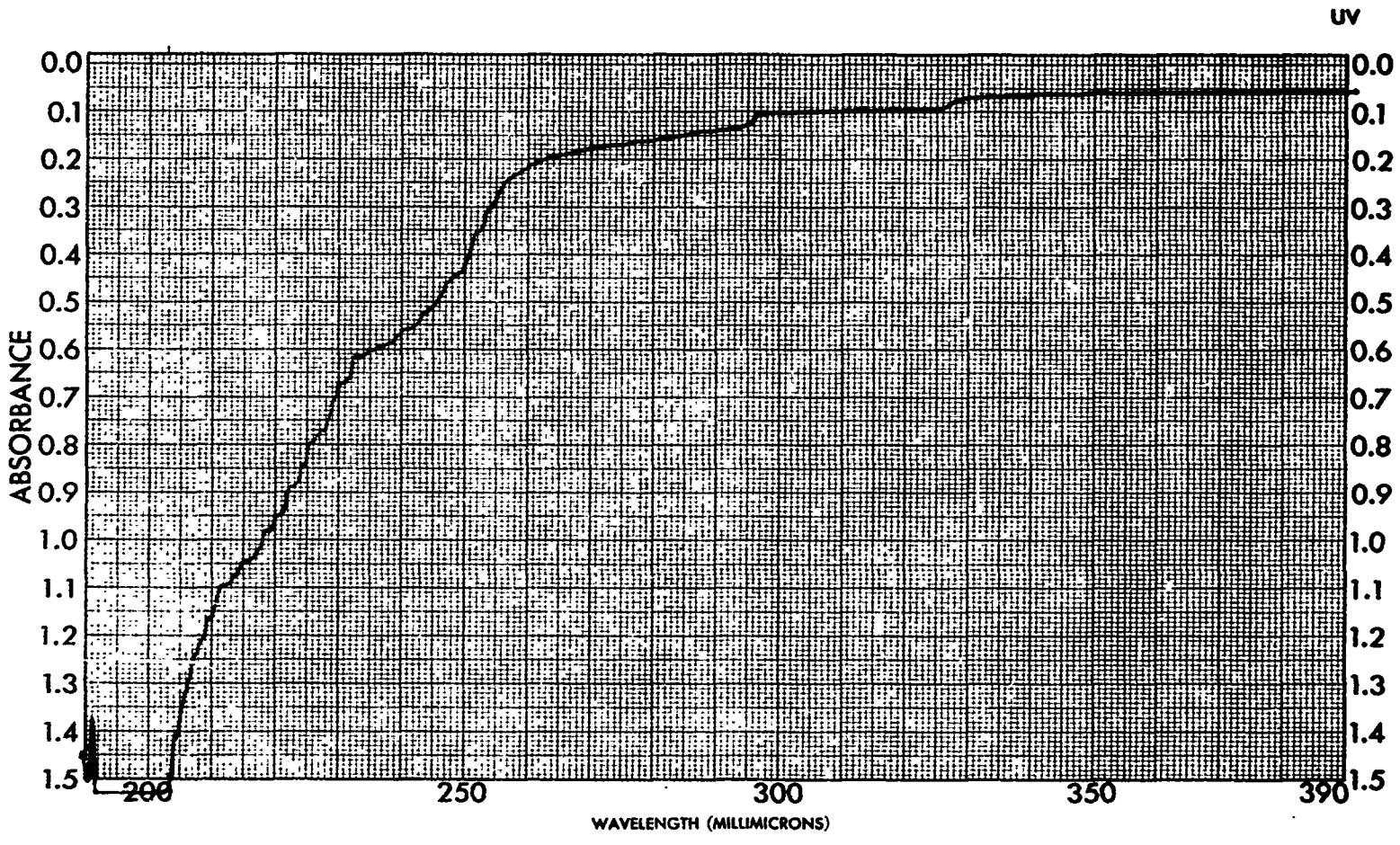
UV



SAMPLE 30: M-BOND 610	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0001"		



SAMPLE 31: LOCTITE 307 ADHESIVE	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .001"		

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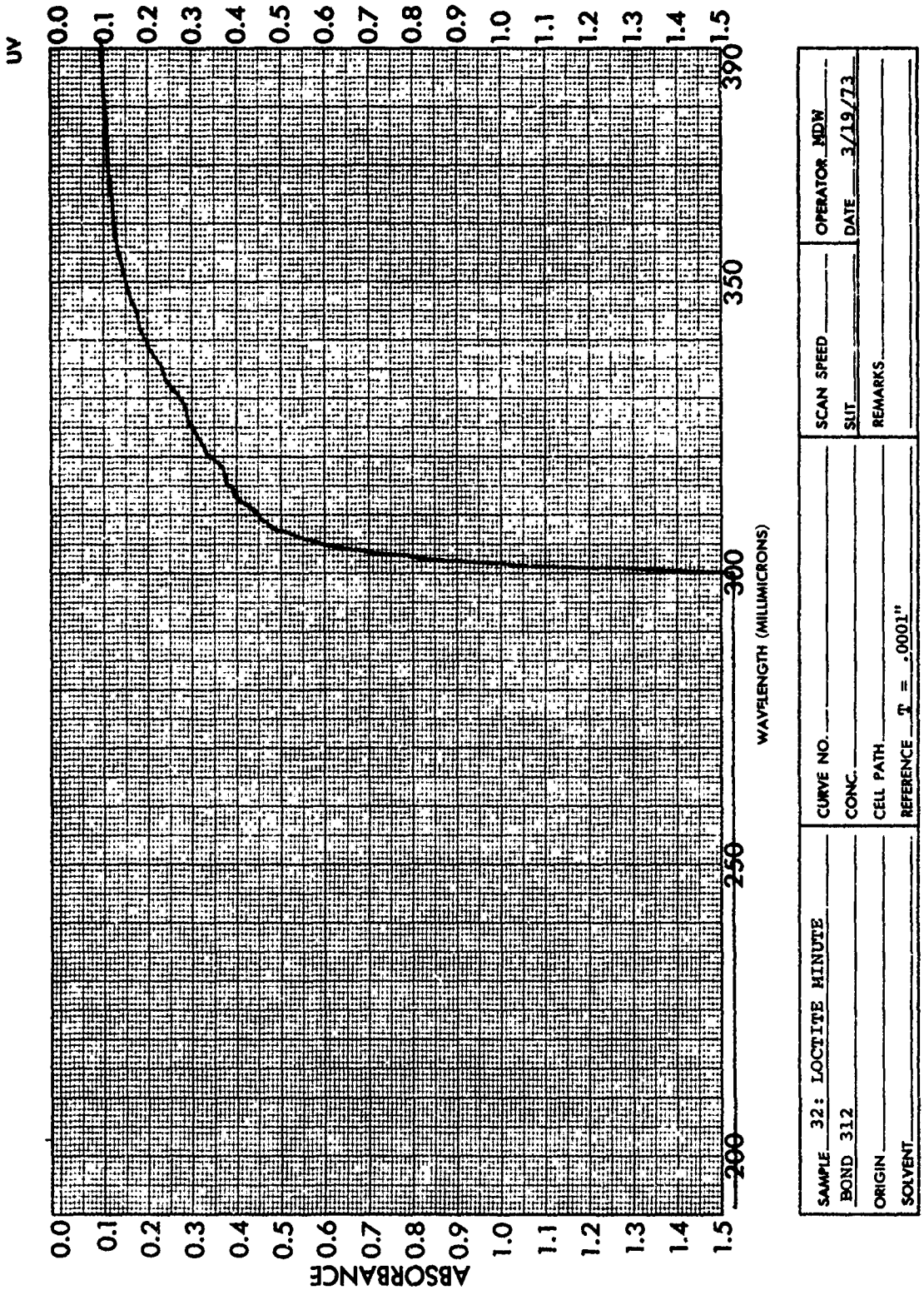
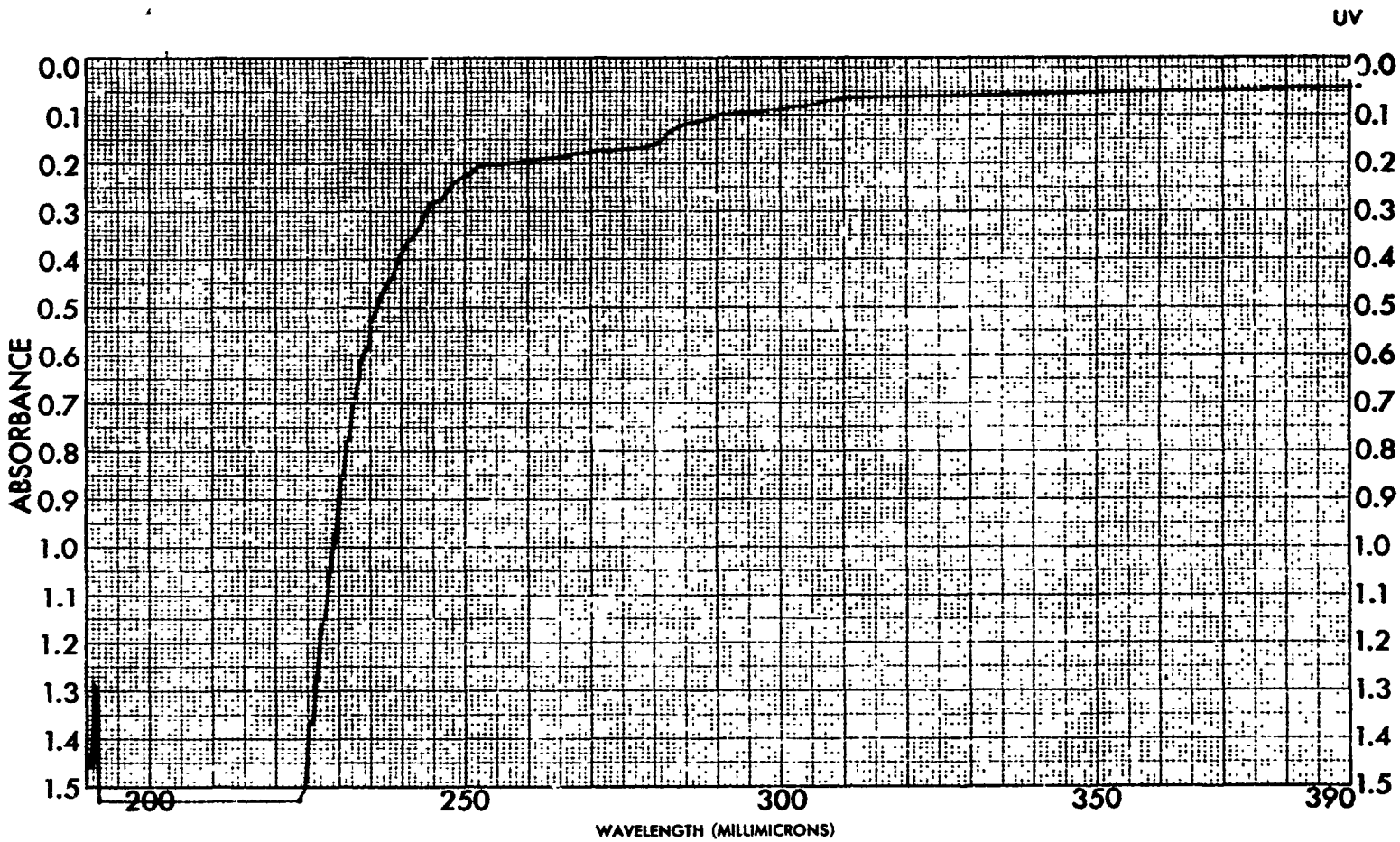

UV
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5
390 350 300 250 200
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 32: LOCTITE HINUTE
BOND 312
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0001"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73



SAMPLE 33: LOCTITE IS-12	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0004"		

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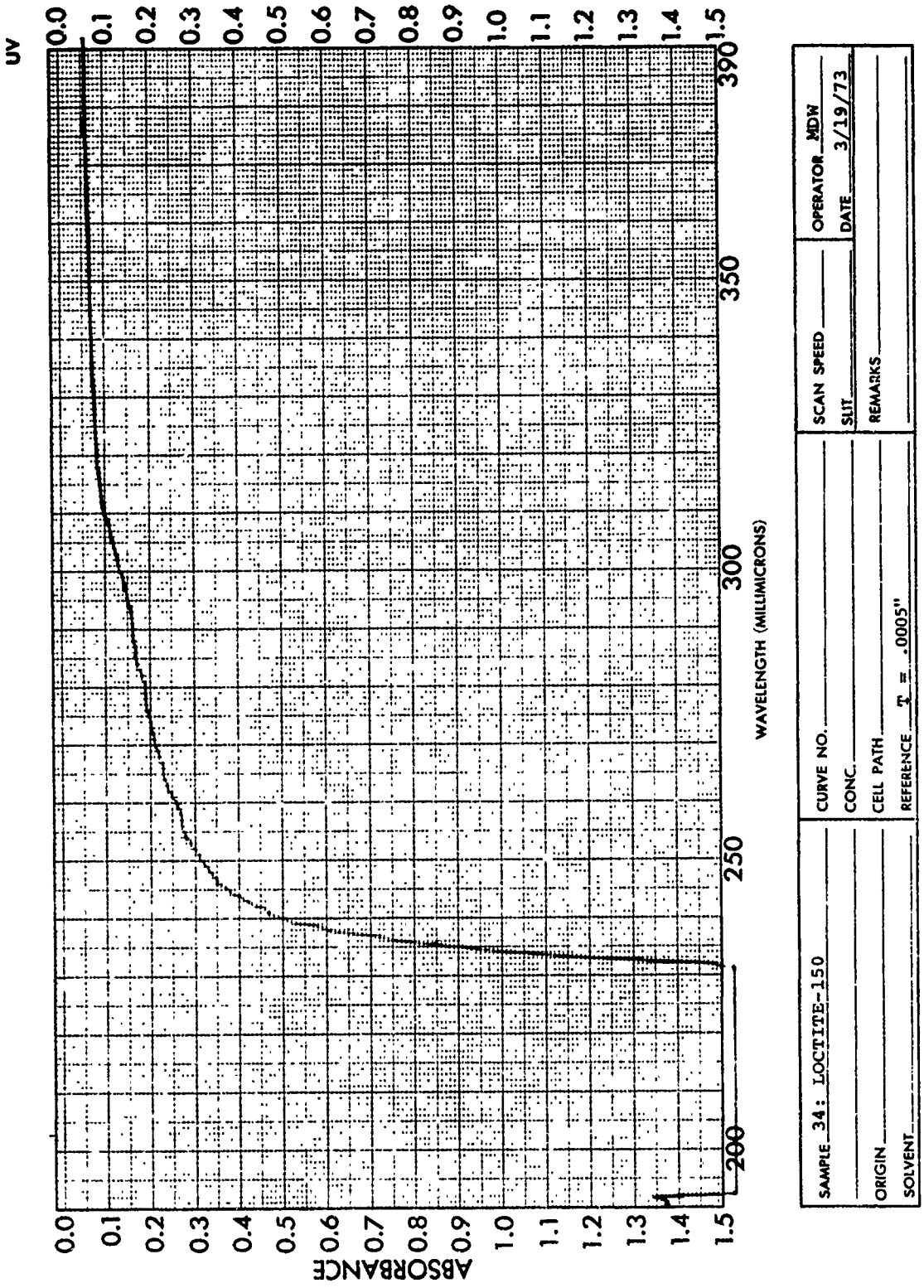
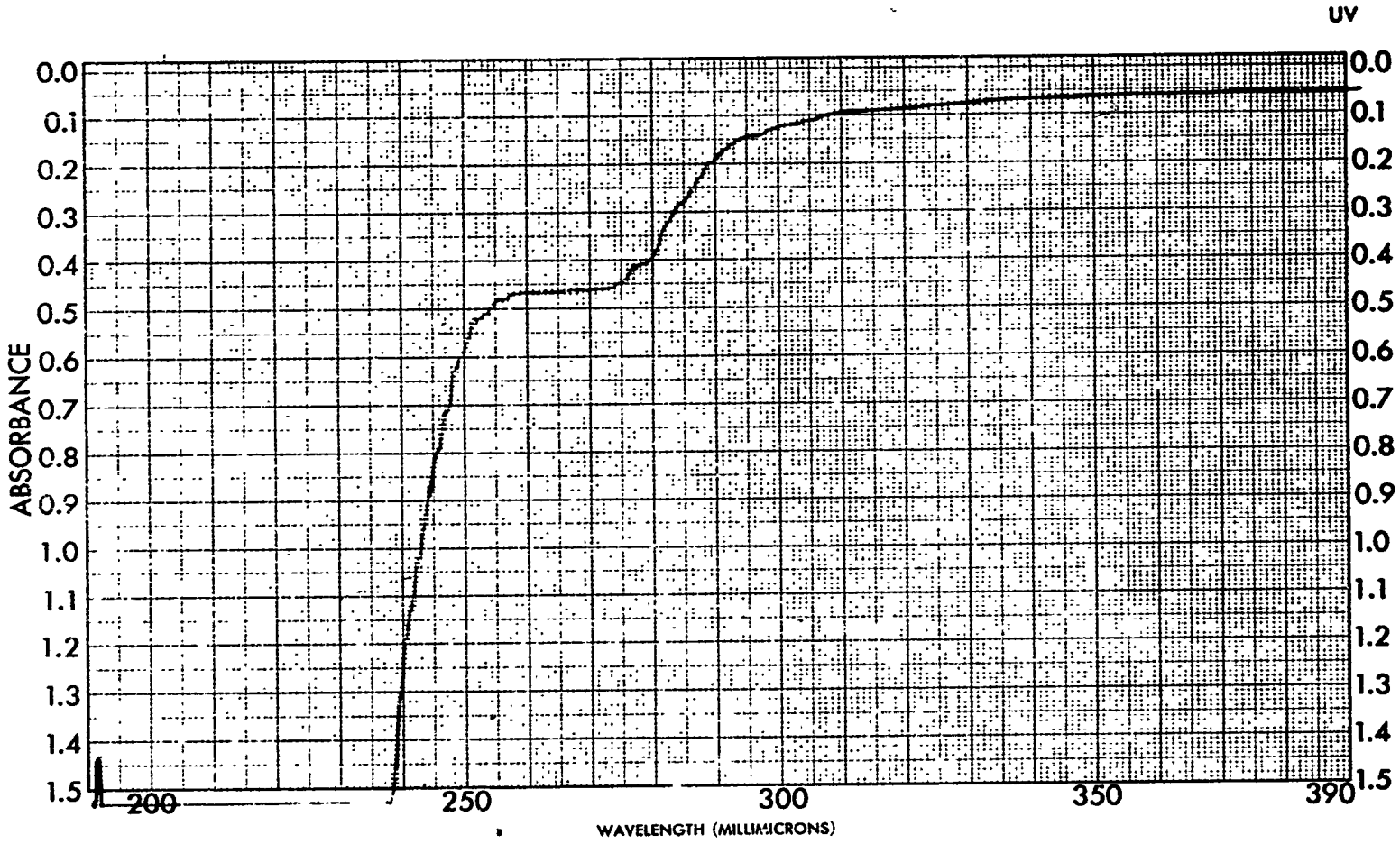

UV
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
390
350
300
250
200
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 34: LOCTITE-150
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73



SAMPLE 35: LOCTITE IS-03	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0004"		

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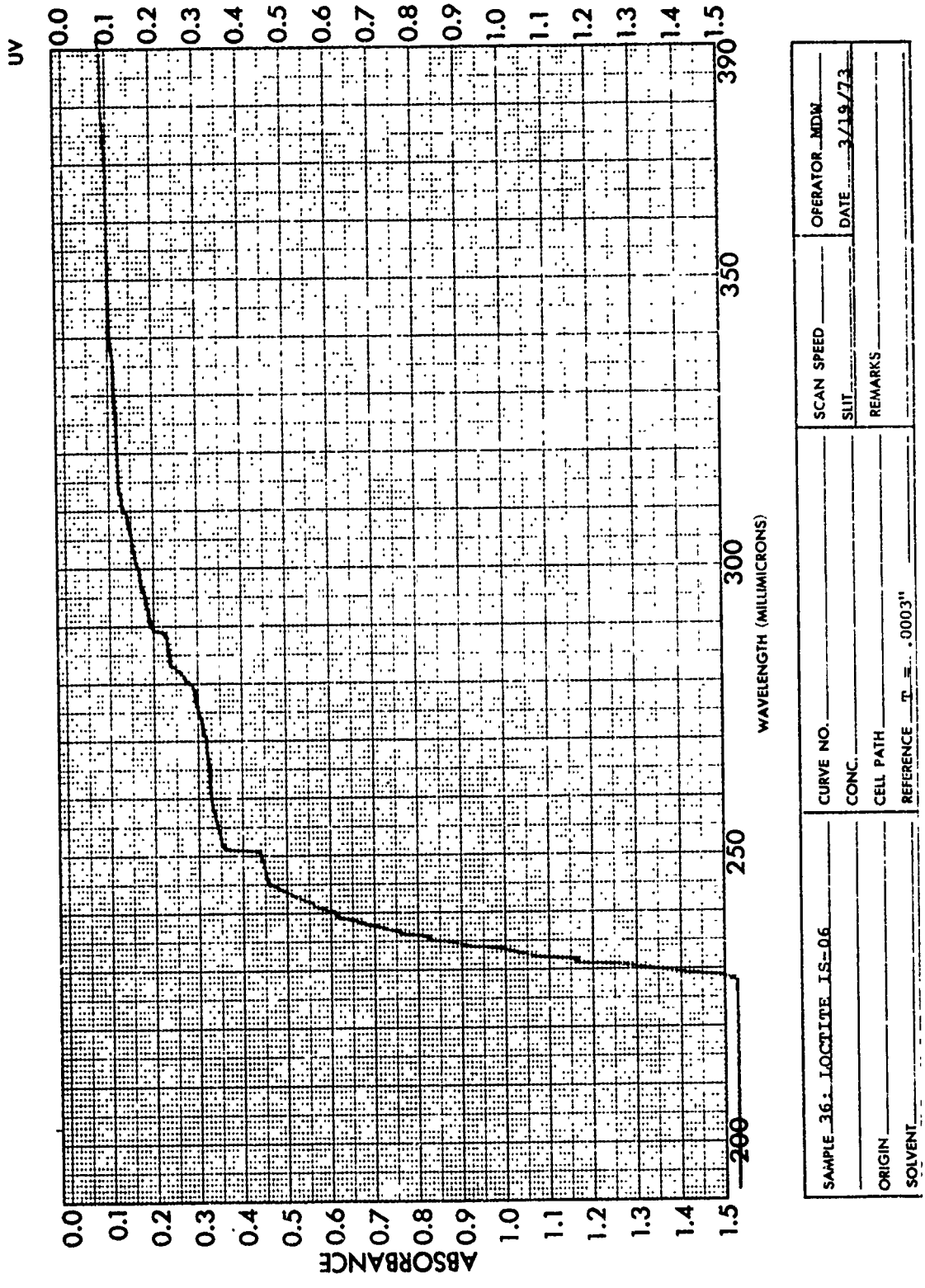
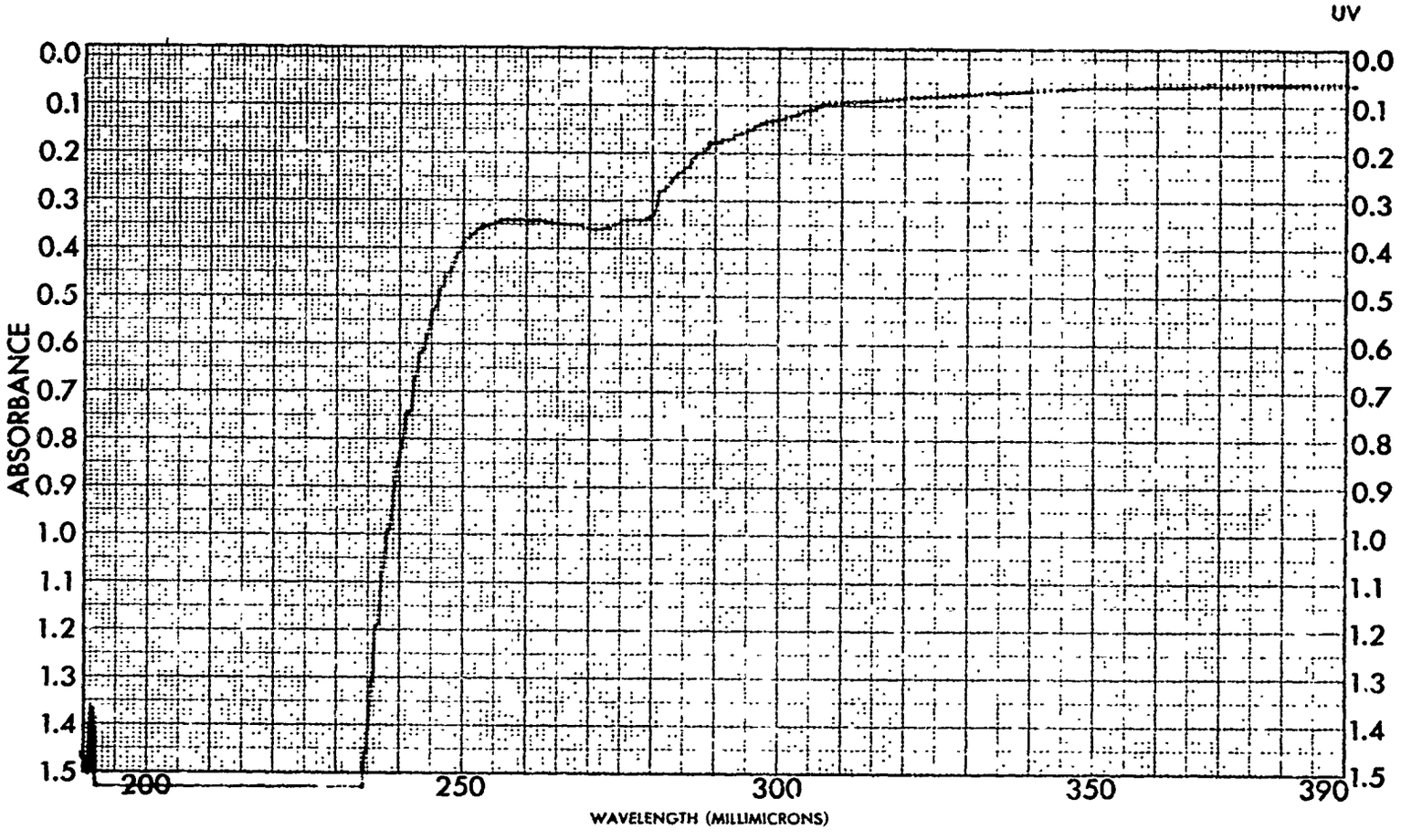

UV
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 36: LOCTITE IS-06
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0003"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73



SAMPLE 37: LOCTITE IS-04E	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0003"		

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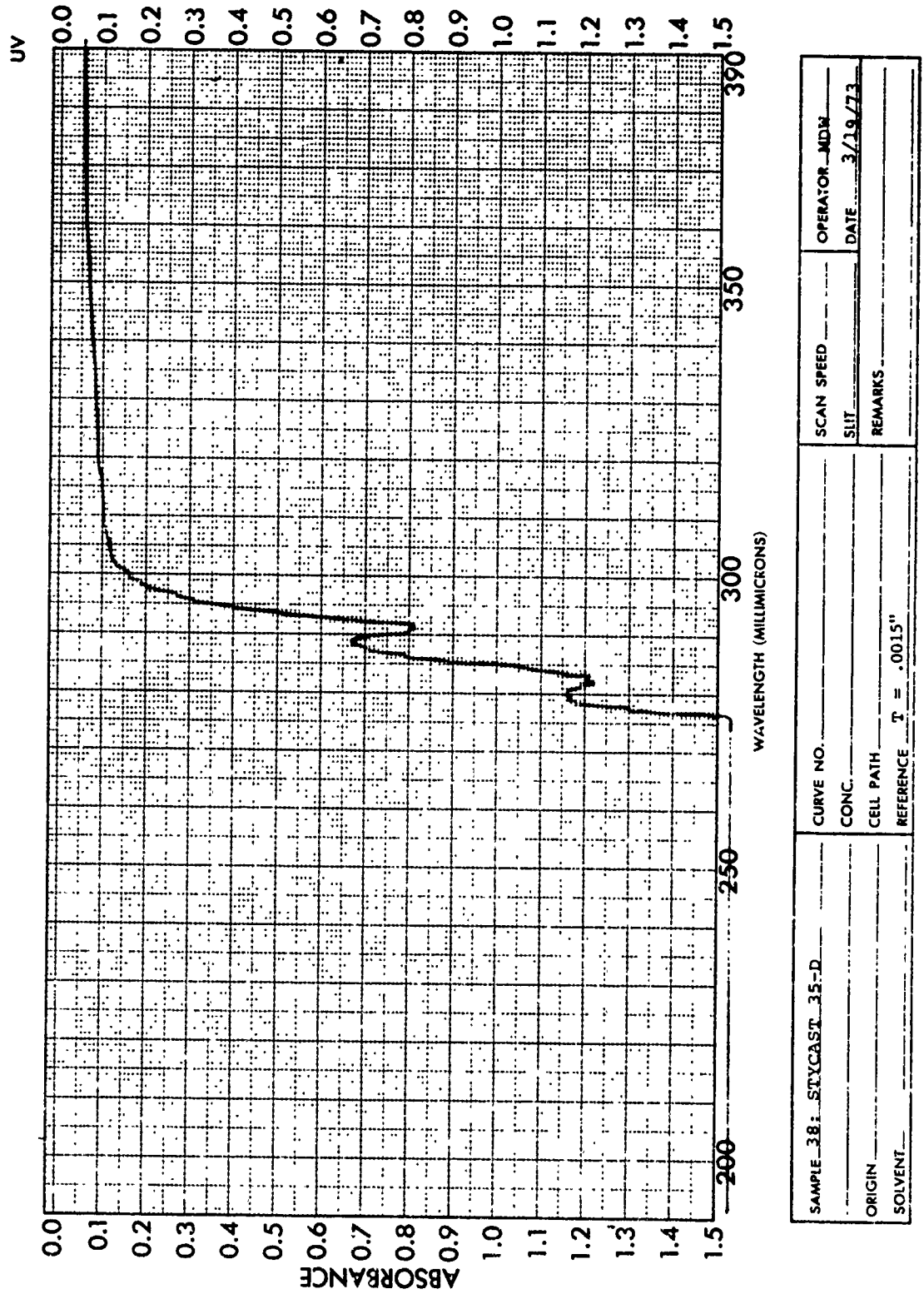
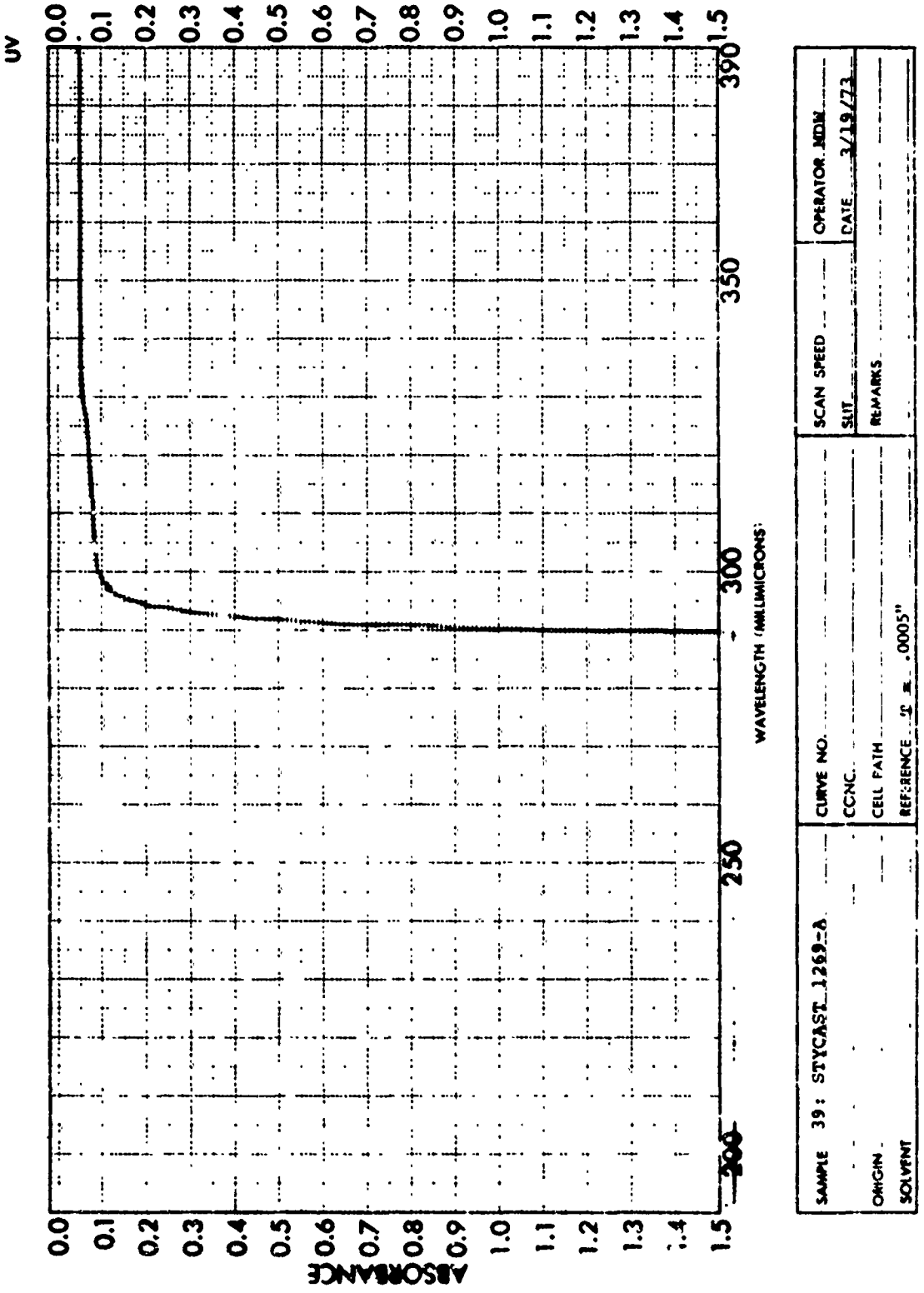
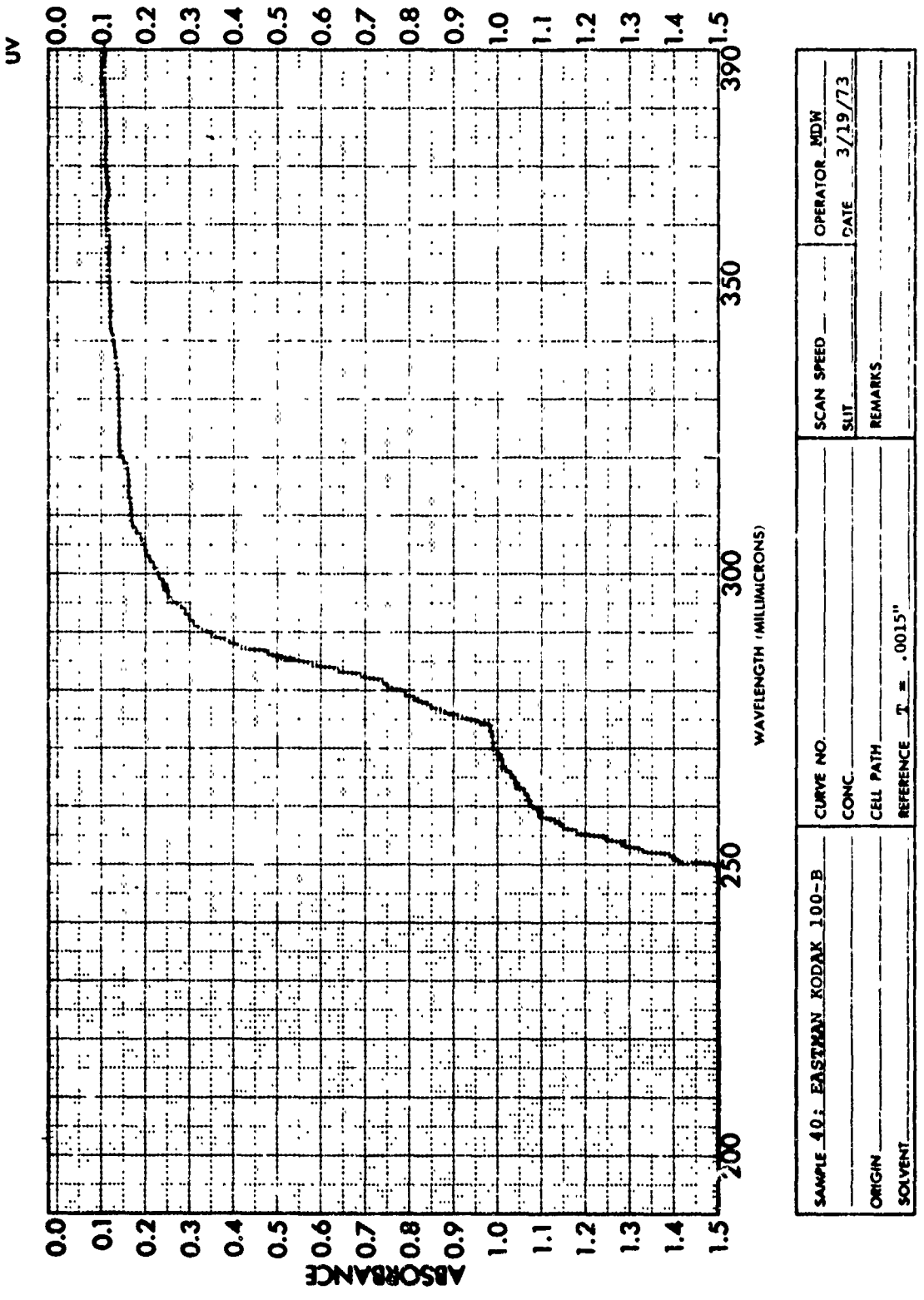
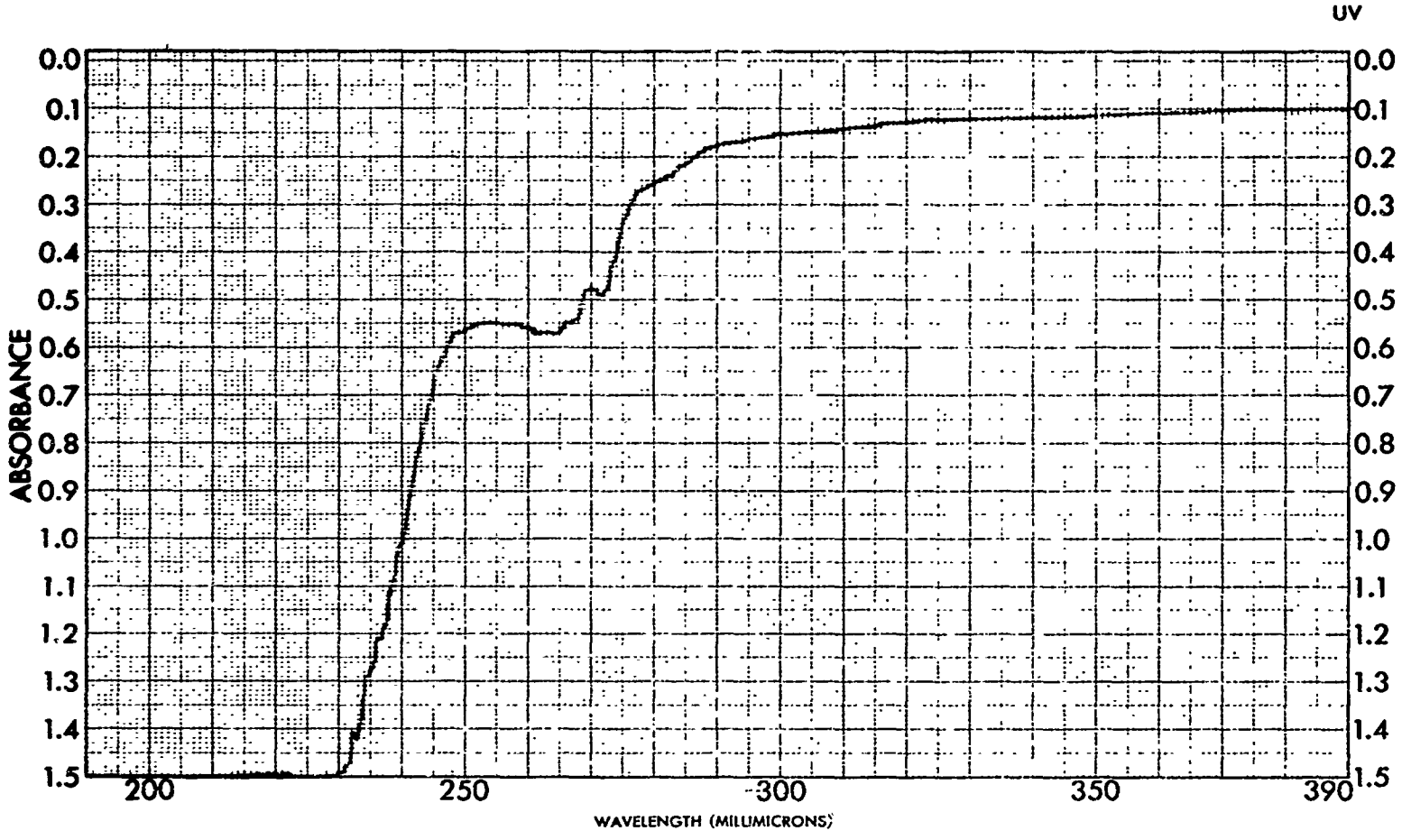
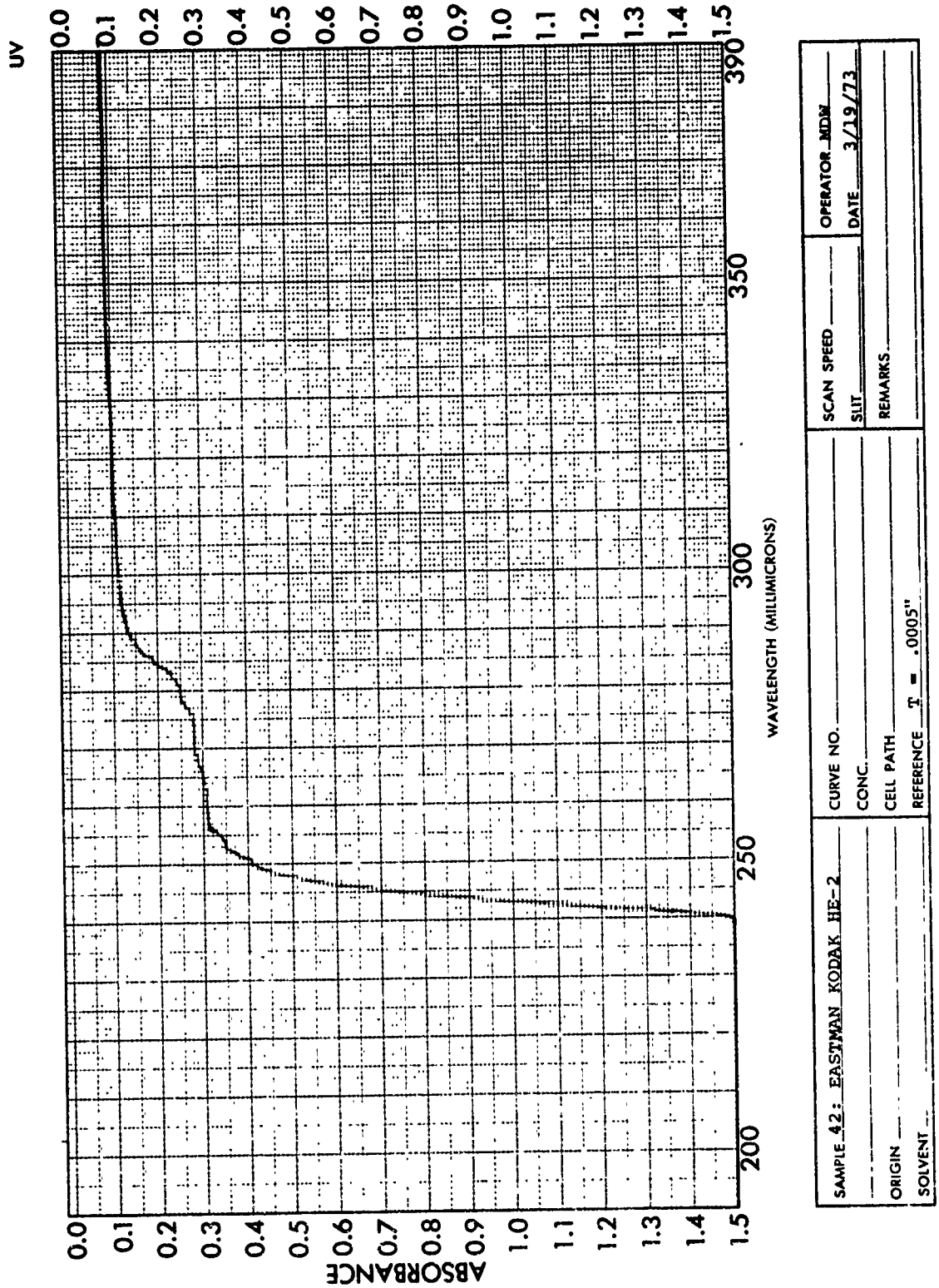

UV
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 38: STYCAST 35-D
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0015"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDM
DATE 3/19/73

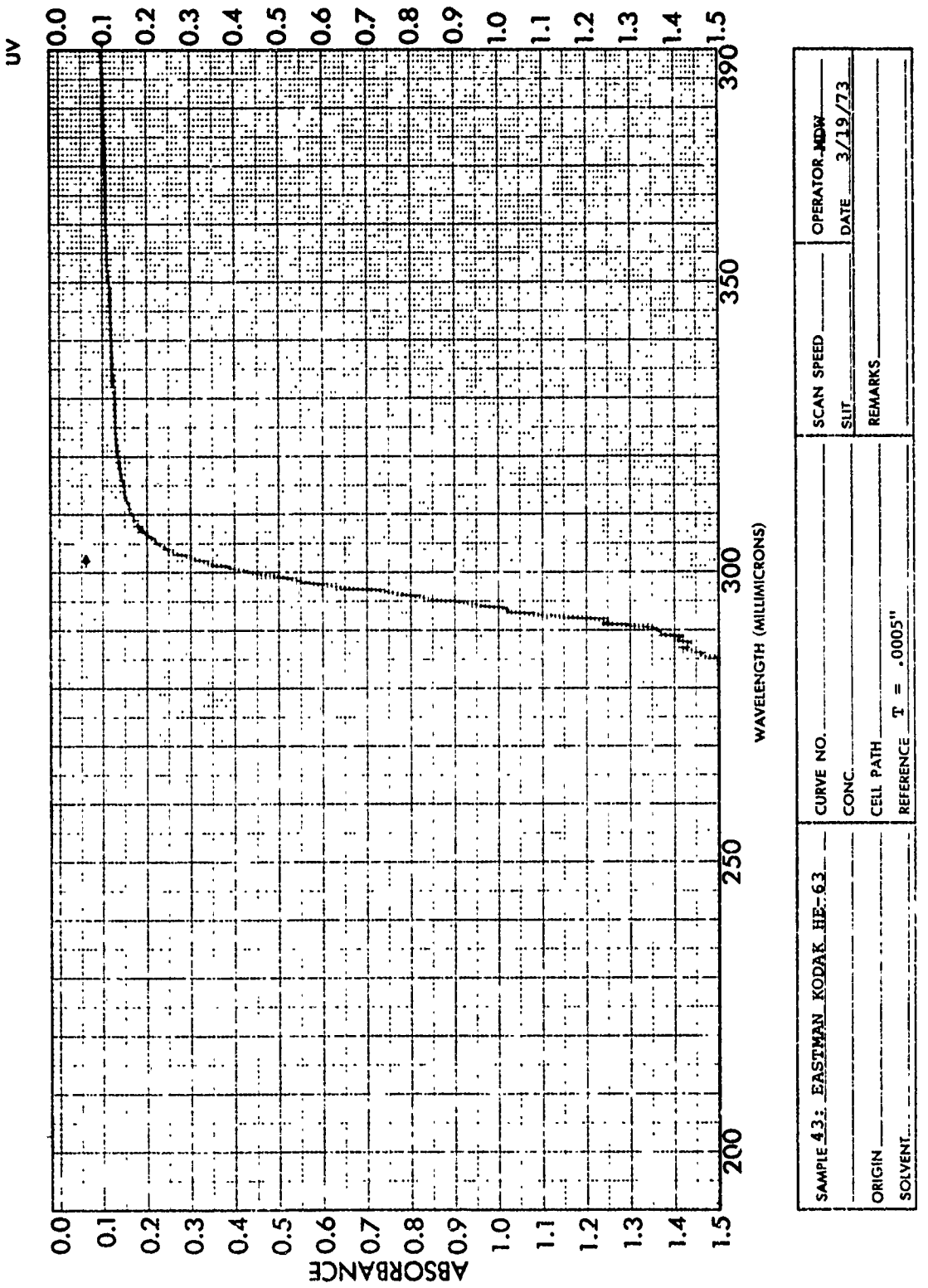

UV
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 39: STYCAST 1269-A
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDM
DATE 3/19/73

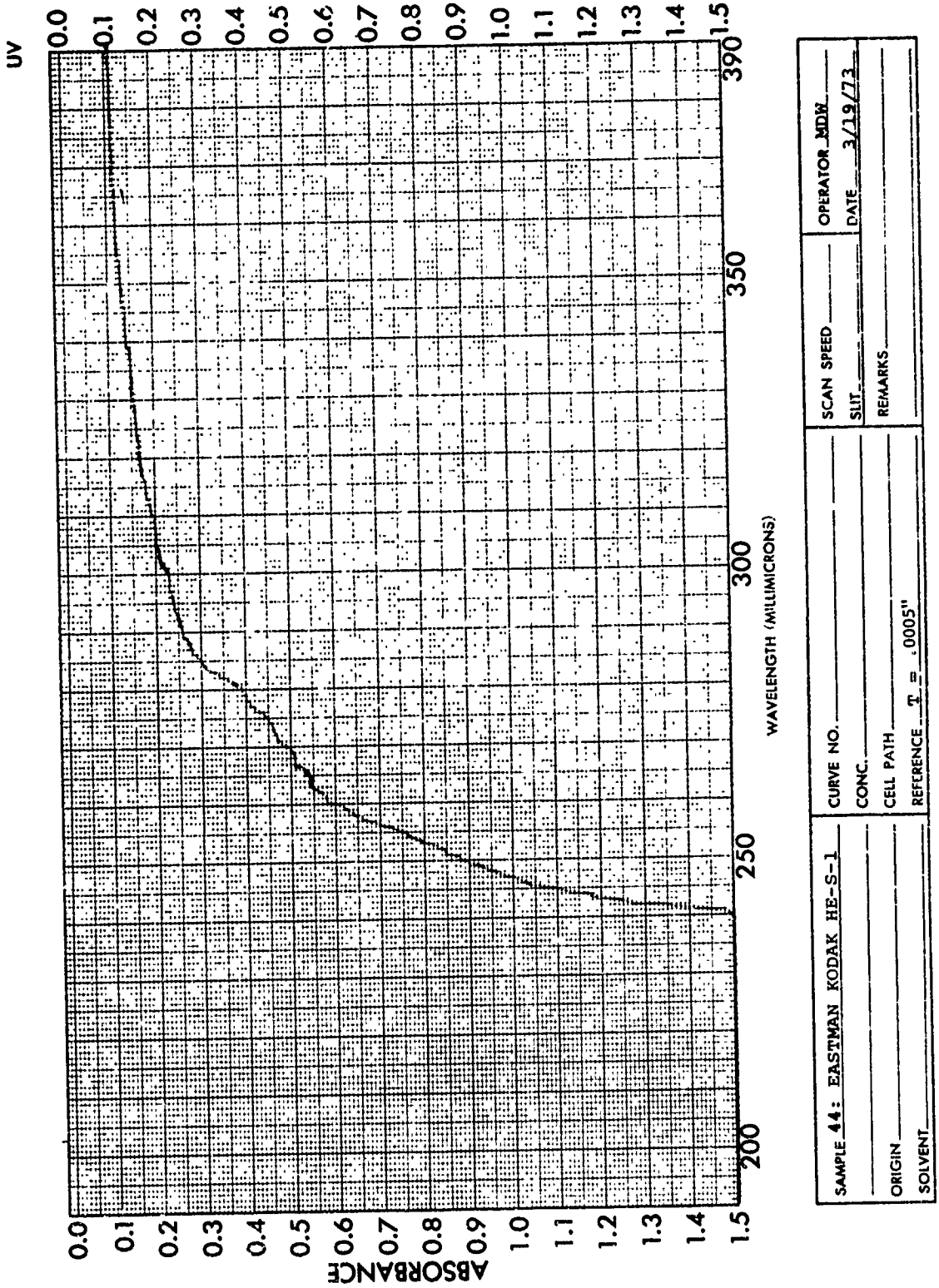

UV
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 40: EASTMAN KODAK 100-B
CURVE NO.
CONC.
CELL PATH
ORIGIN
SOLVENT
REFERENCE T = .0015"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73

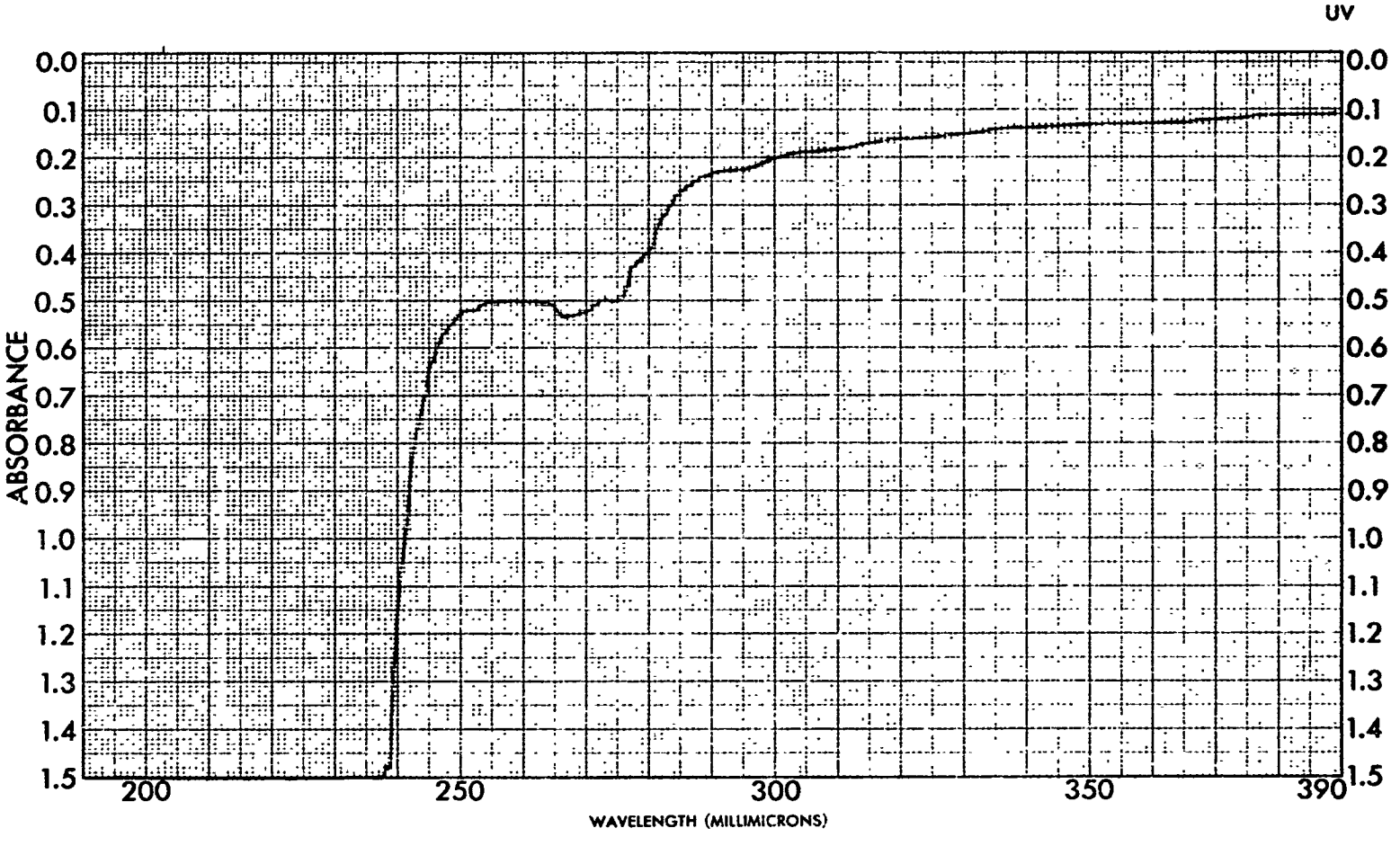


SAMPLE 41: EASTMAN KODAK 100X	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .001"		


UV
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
200
250
300
350
390
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 42: EASTMAN KODAK HE-2
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73


UV
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 43: EASTMAN KODAK HE-63
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73


UV
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 44: EASTMAN KODAK HE-S-1
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73



SAMPLE 45: EASTMAN KODAK HE-F-4	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0005"		

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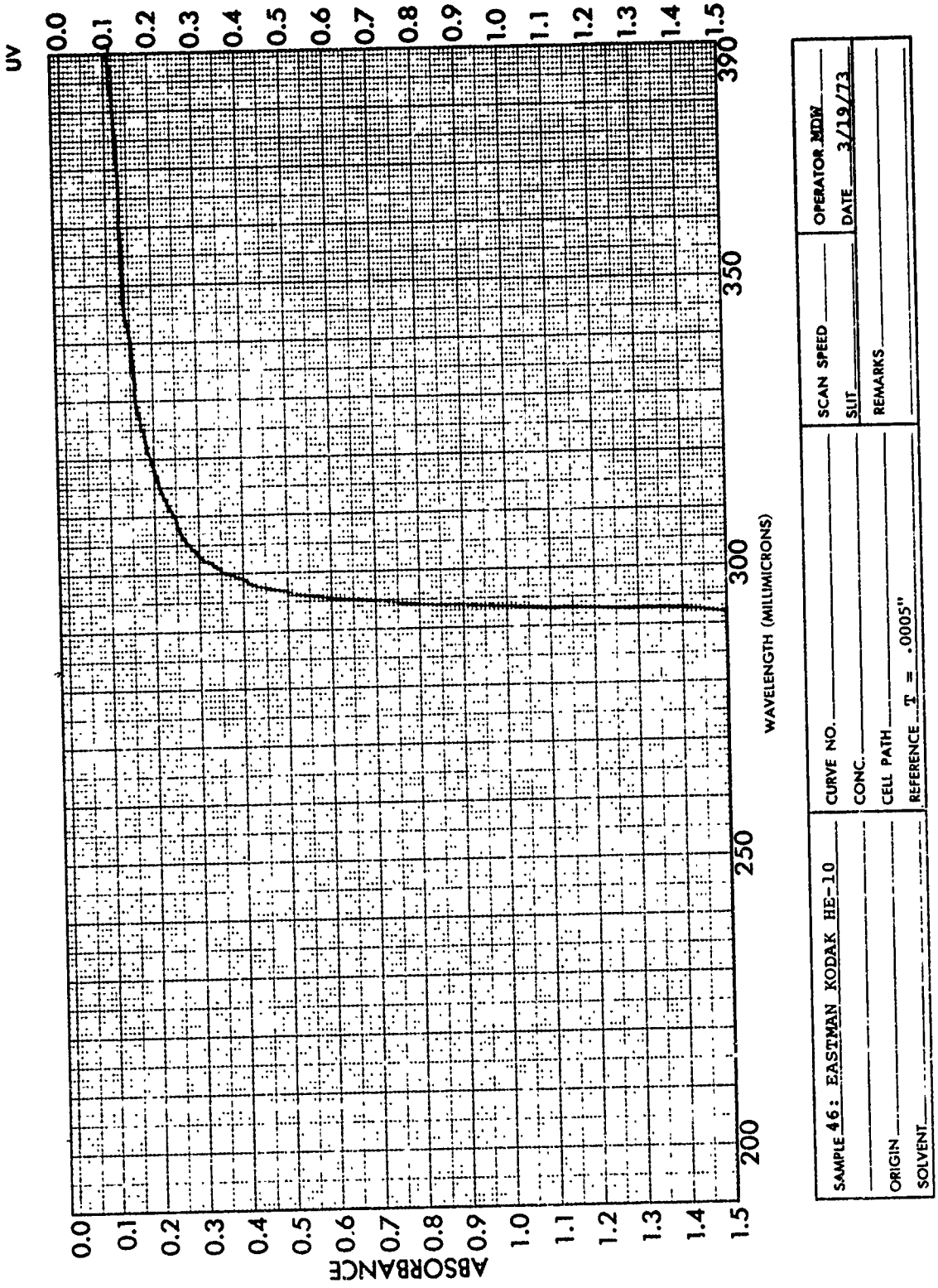
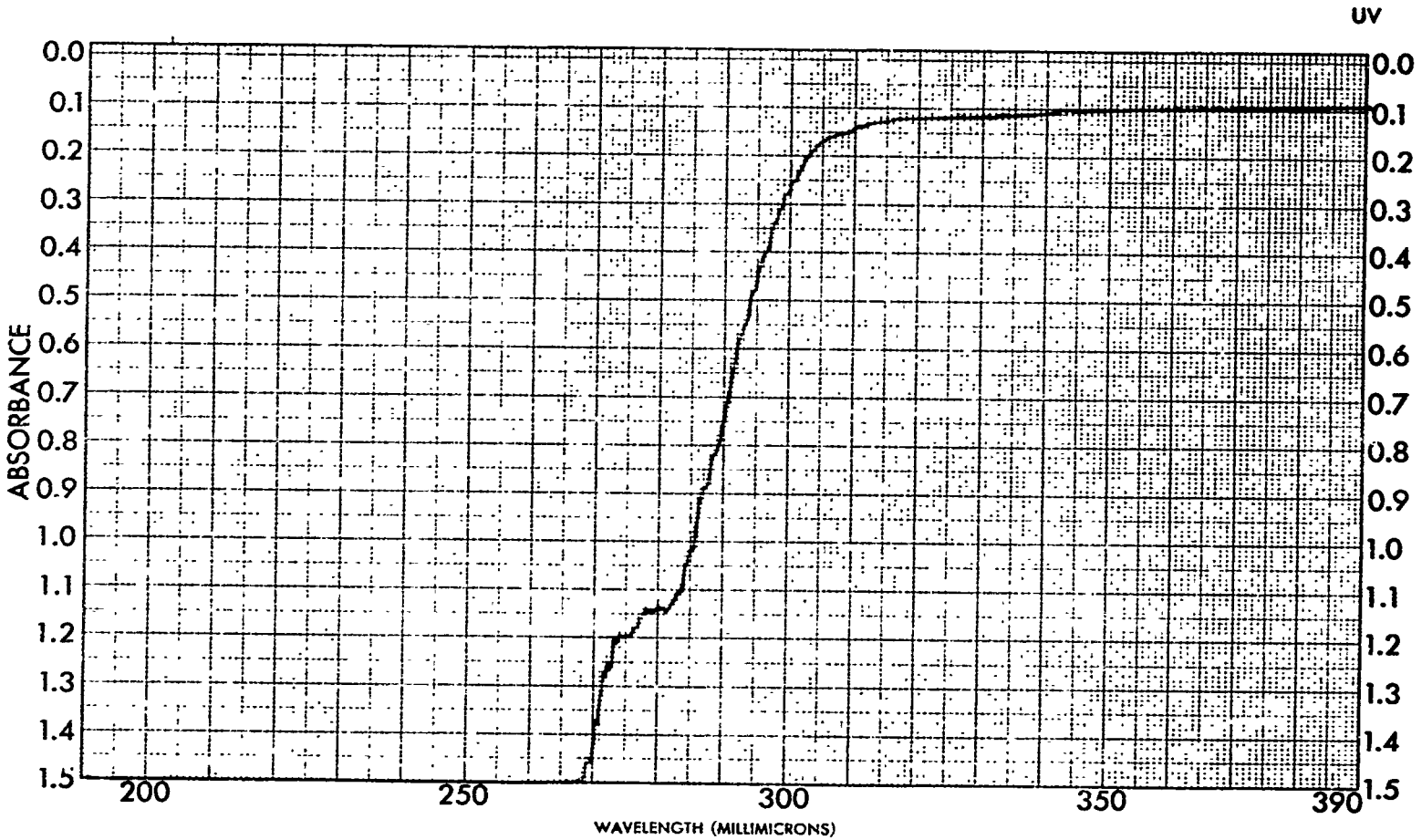
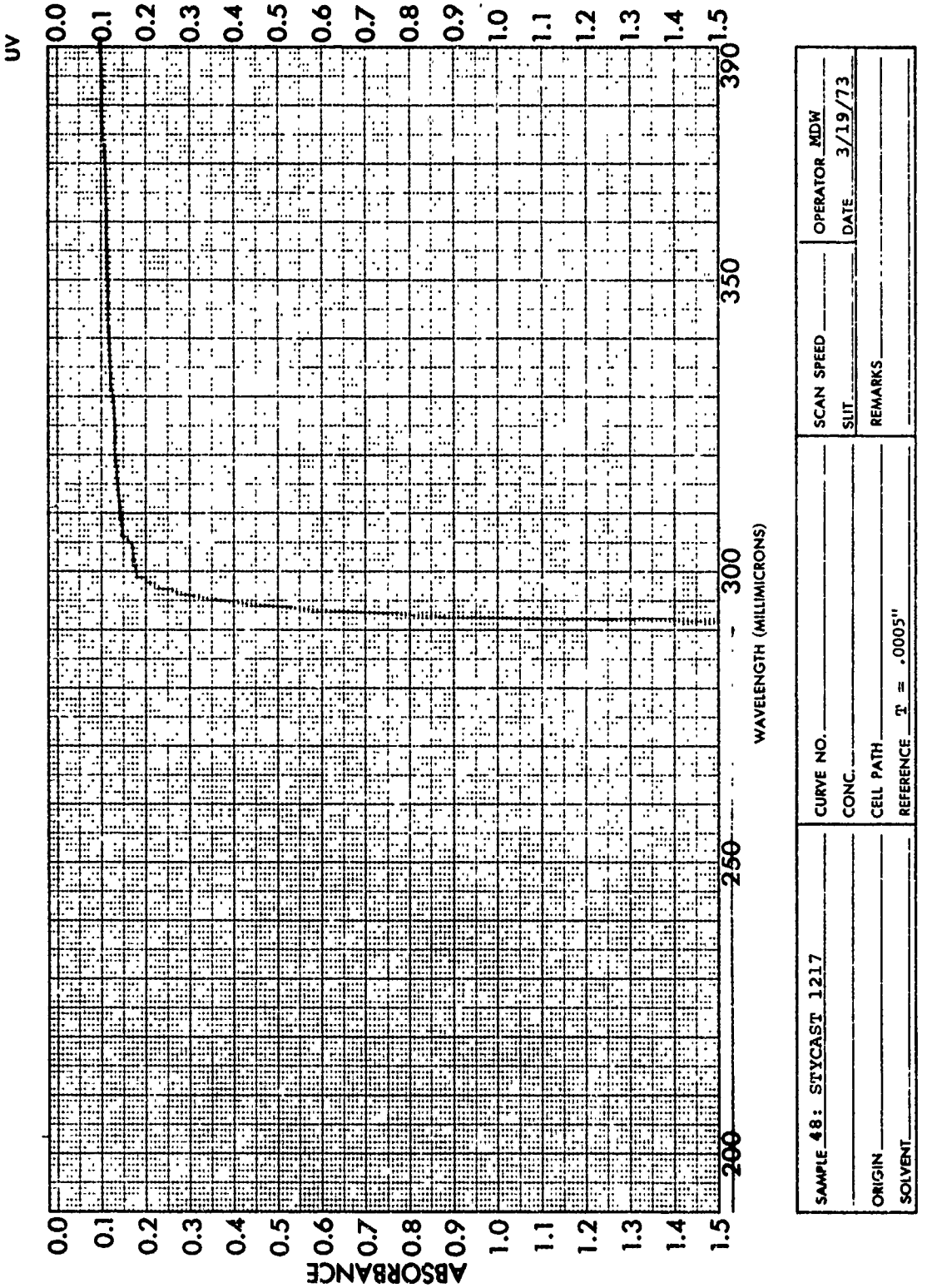
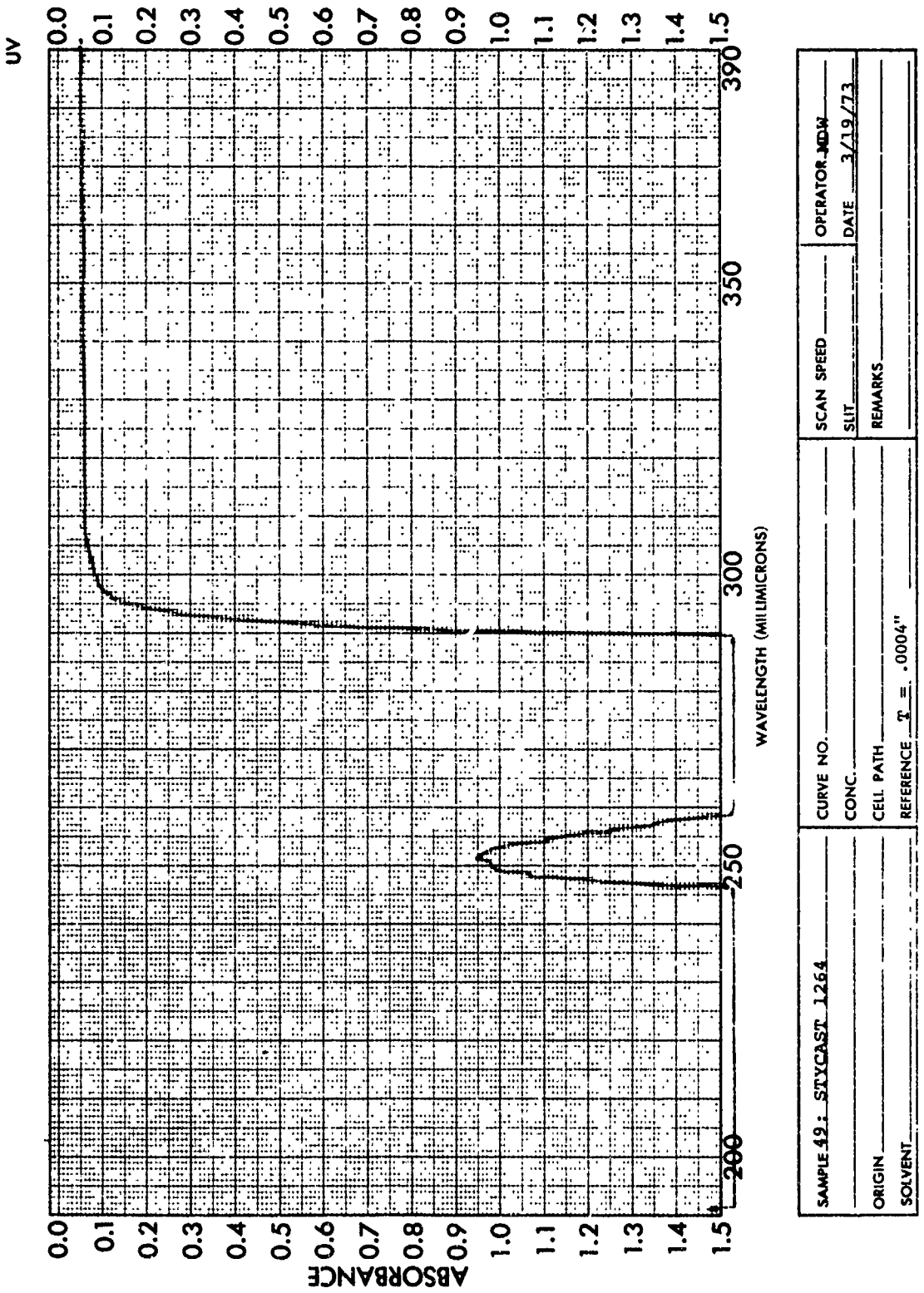

UV
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5
390 350 300 250 200
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 46: EASTMAN KODAK HE-10
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73

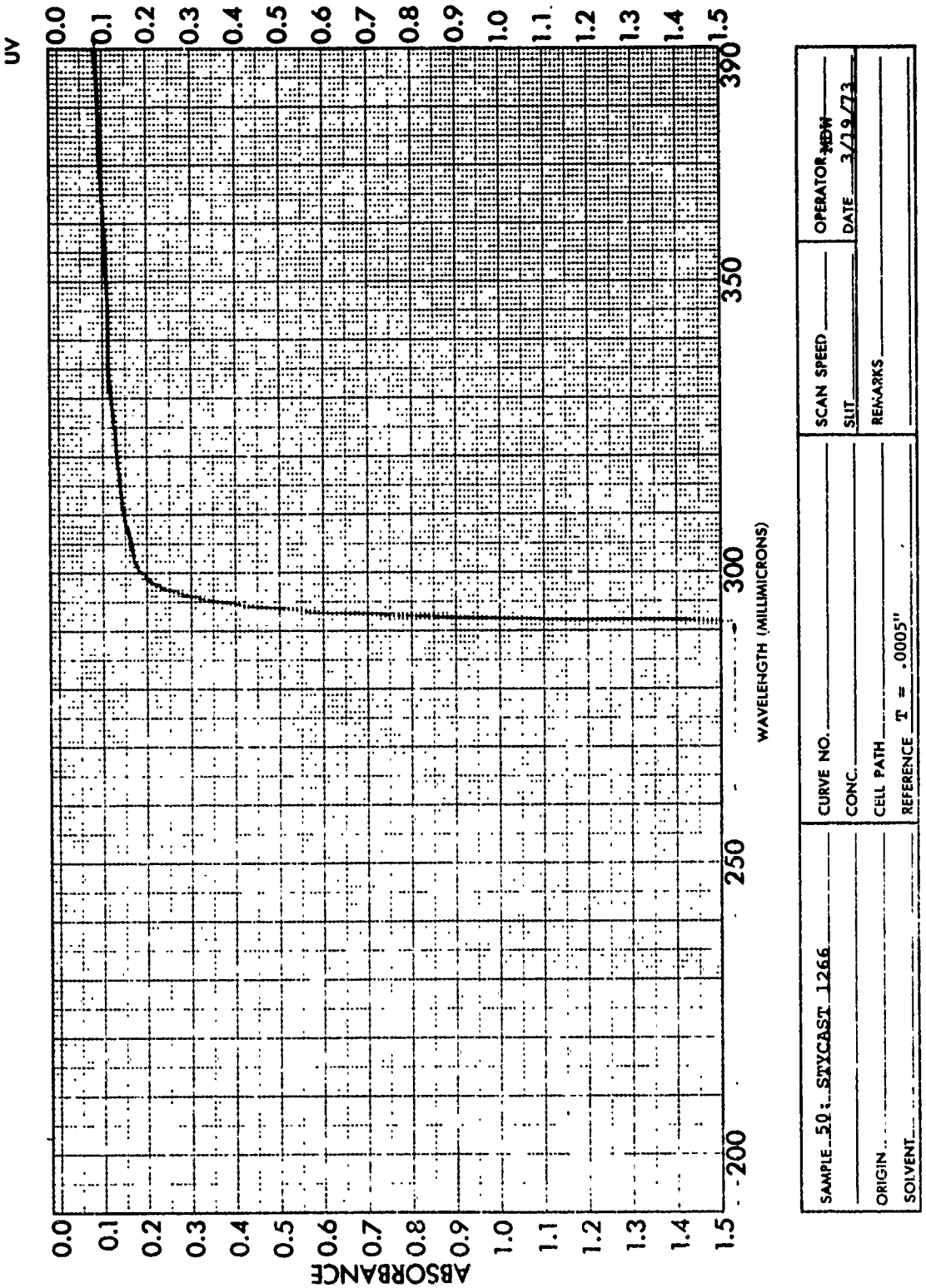


SAMPLE 47: EASTMAN KODAK HE-79	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0005"		

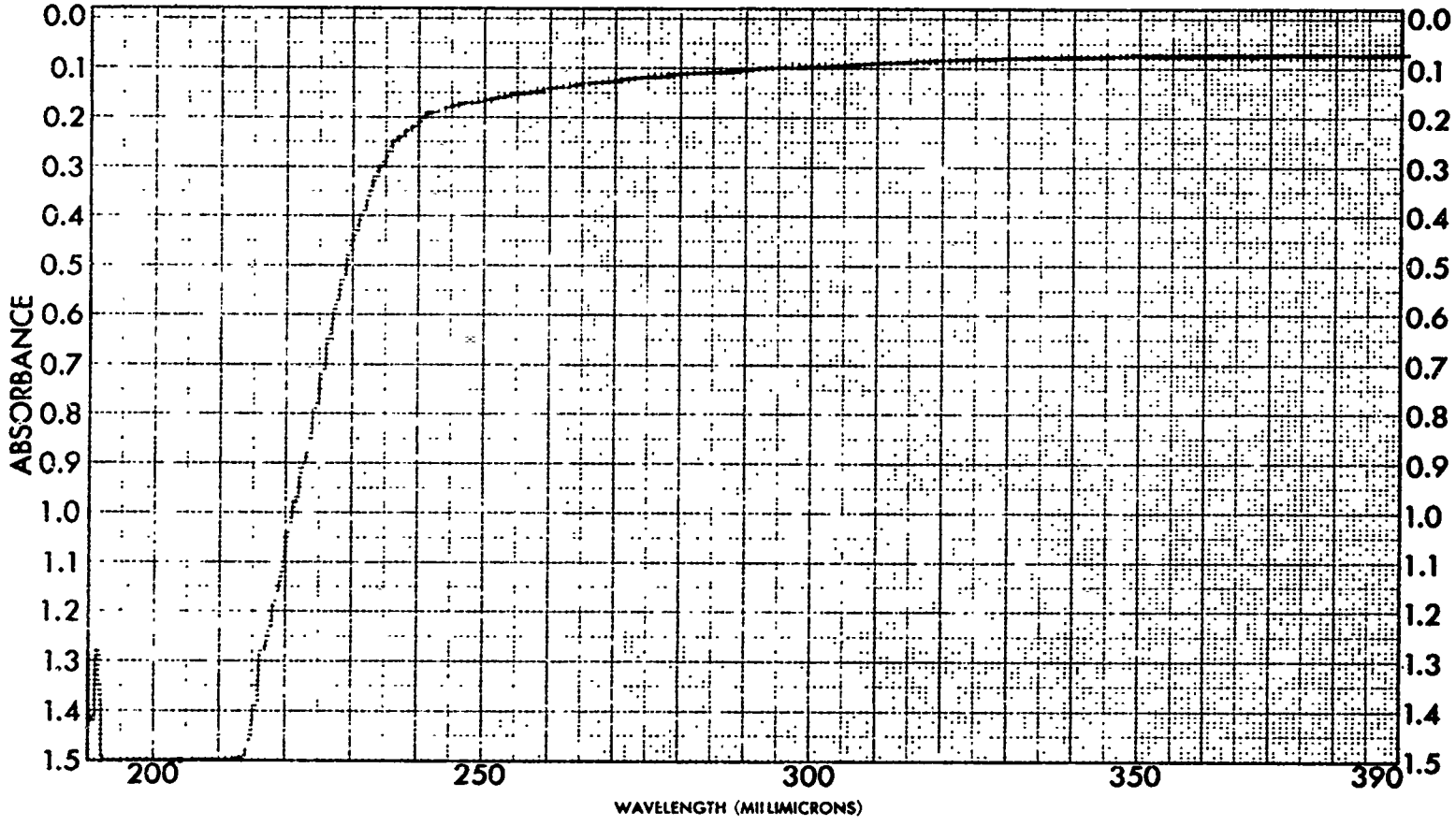
NWC TP 5583


UV
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
200
250
300
350
390
SAMPLE 48: STYCAST 1217
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73


UV
ABSORBANCE
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
200
250
300
350
390
WAVELENGTH (MILLIMICRONS)
SAMPLE 49: STYCAST 1264
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0004"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73

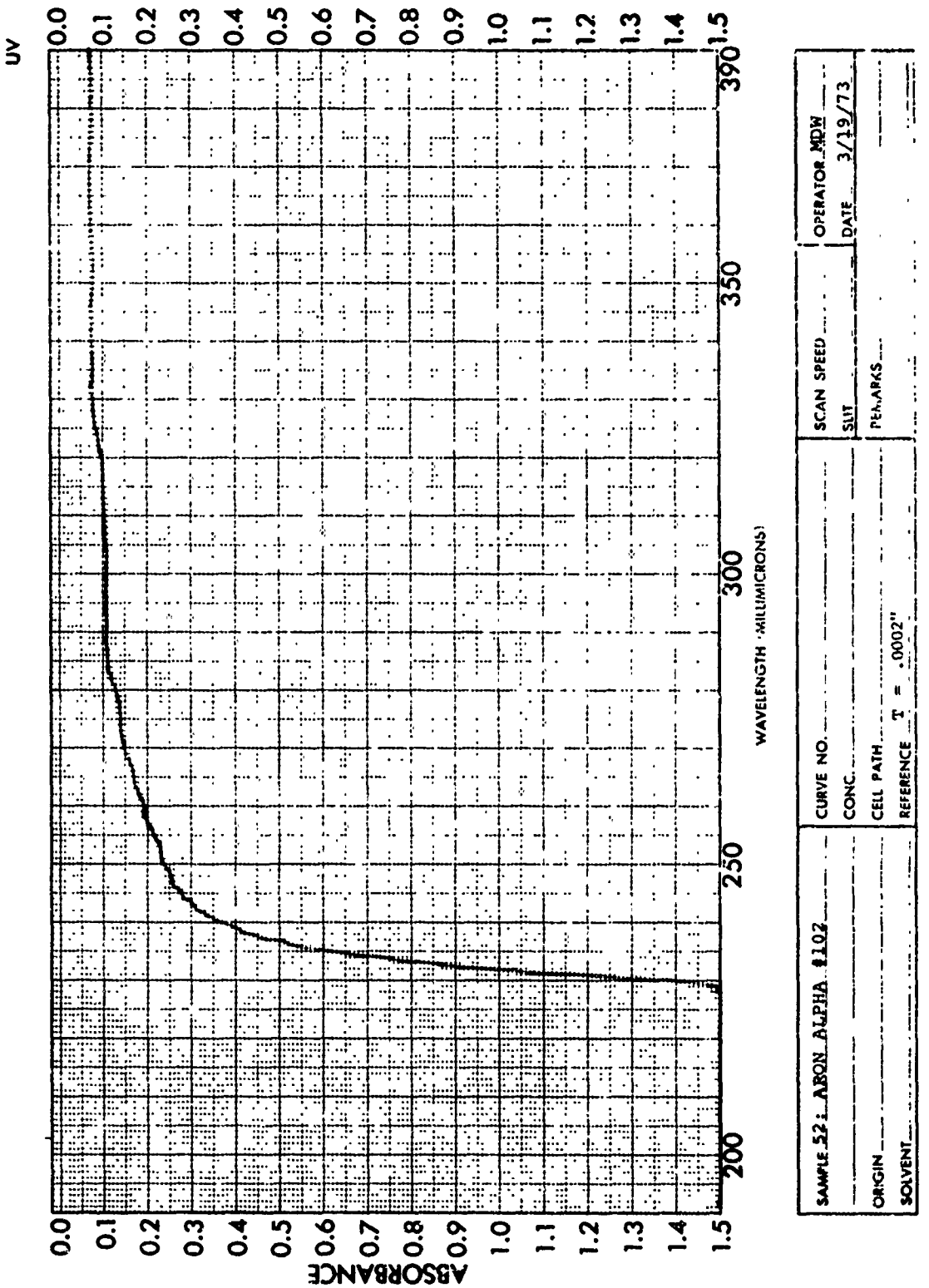

UV
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 50: SIXCAST 1266
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73

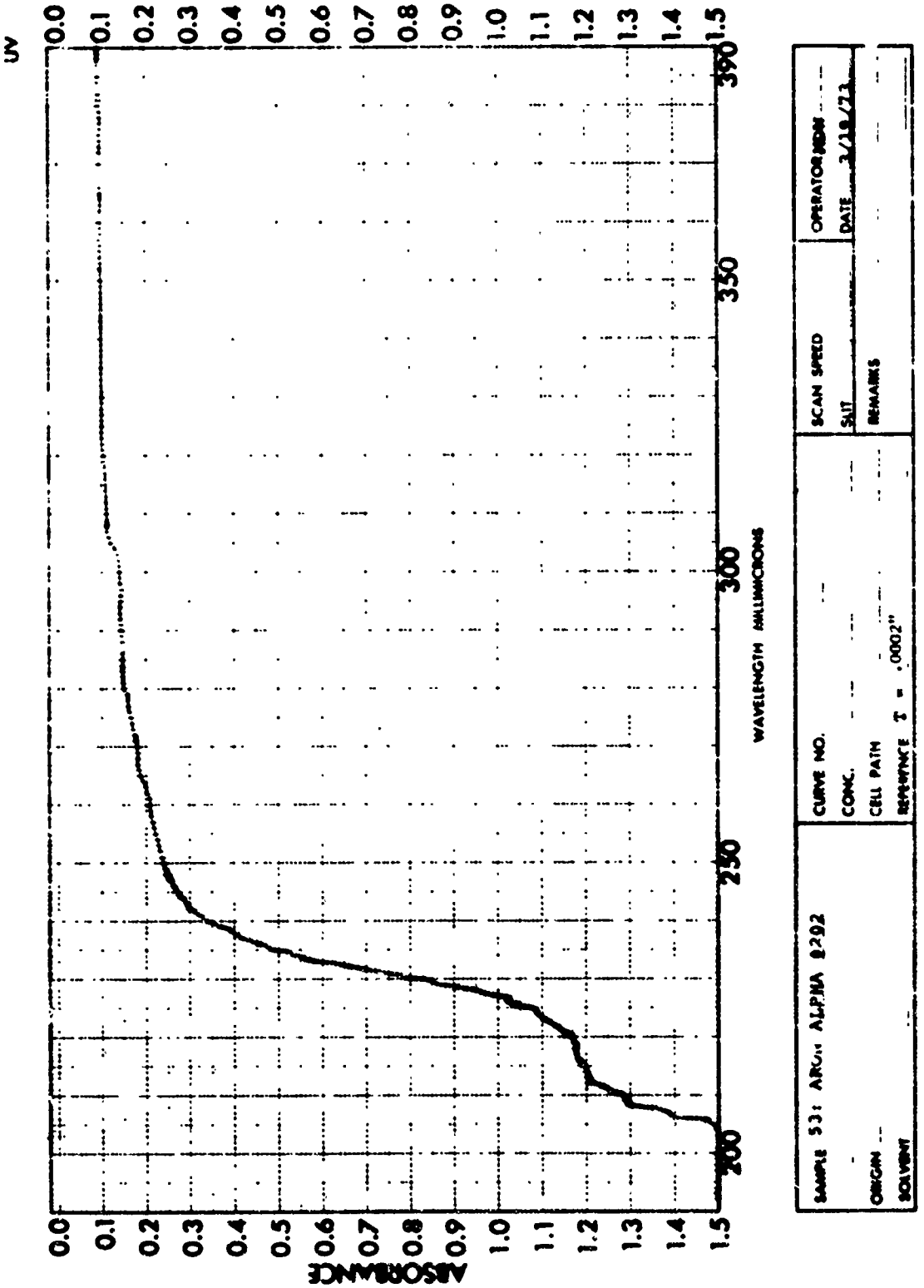
UV



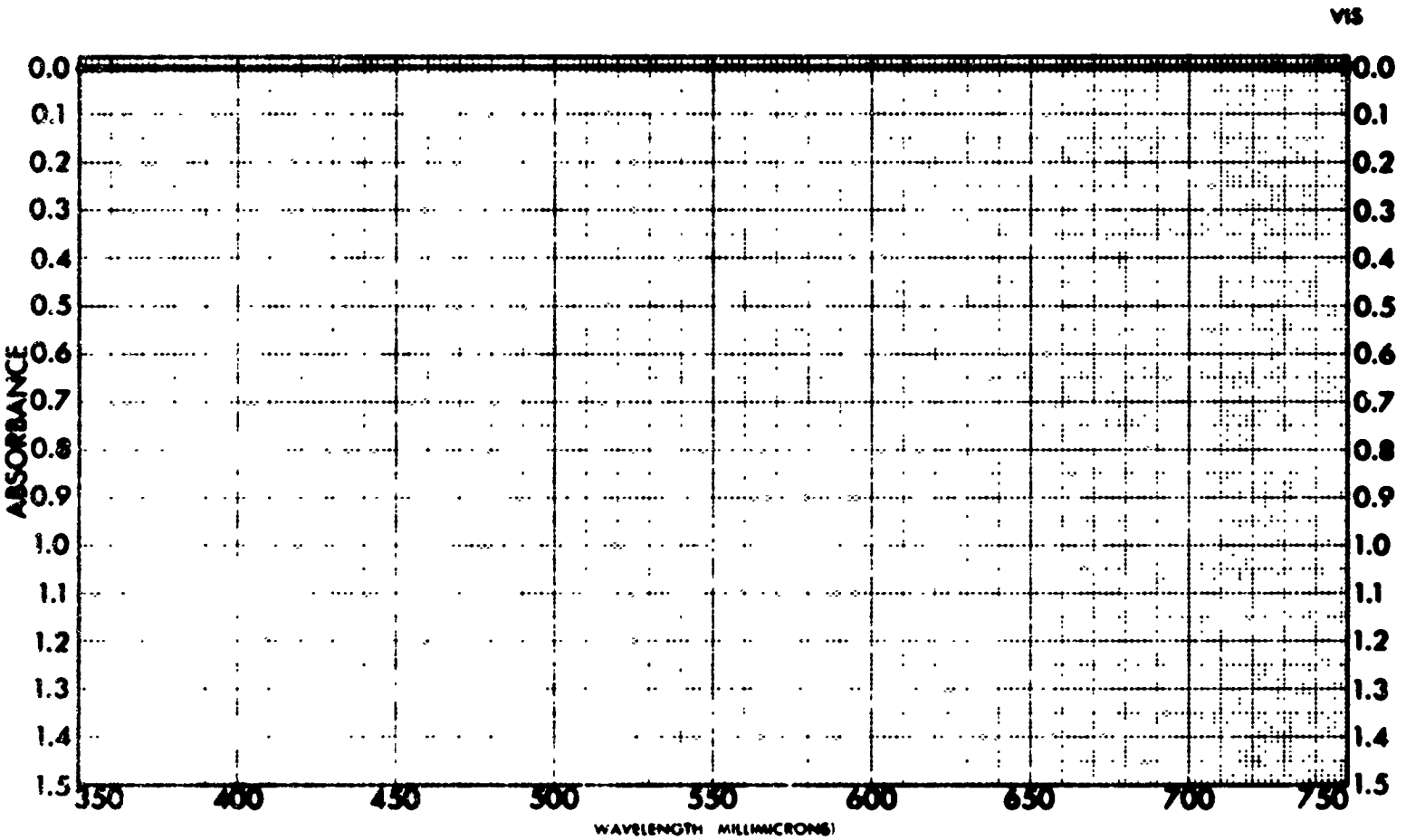
SAMPLE 51: ARON ALPHA #101	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0001"		

NMC TP 5583


UV
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5
200 250 300 350 390
ABSORBANCE
WAVELENGTH · MILLIMICRONS
SAMPLE 52 : ABON ALPHA #102
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0002"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73

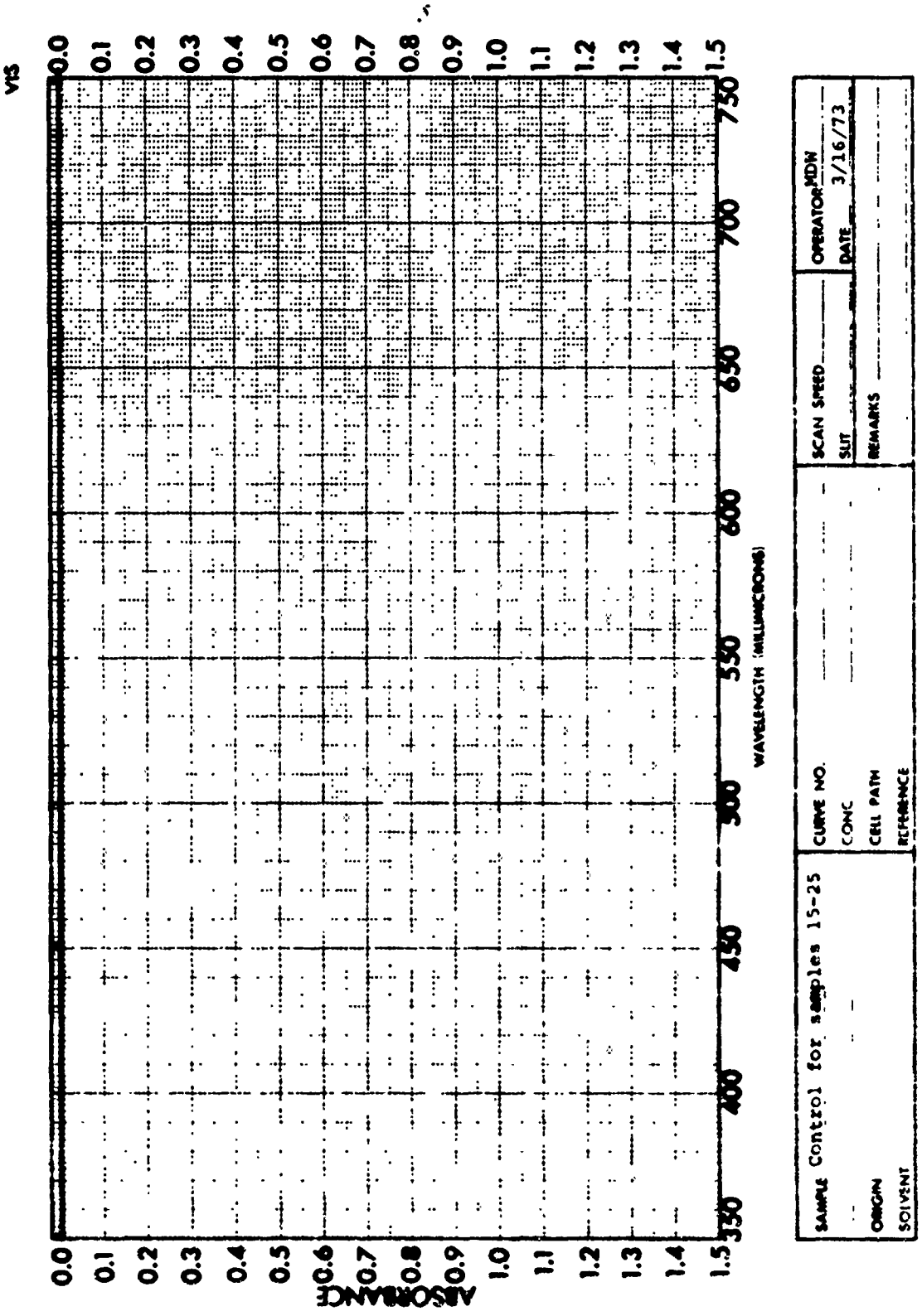

UV
ABSORBANCE
WAVELENGTH MILLIMICRONS
SAMPLE 531 ARCO ALPHA 8292
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0002"
SCAN SPEED
SLIT
REMARKS
OPERATOR
DATE 3/18/71

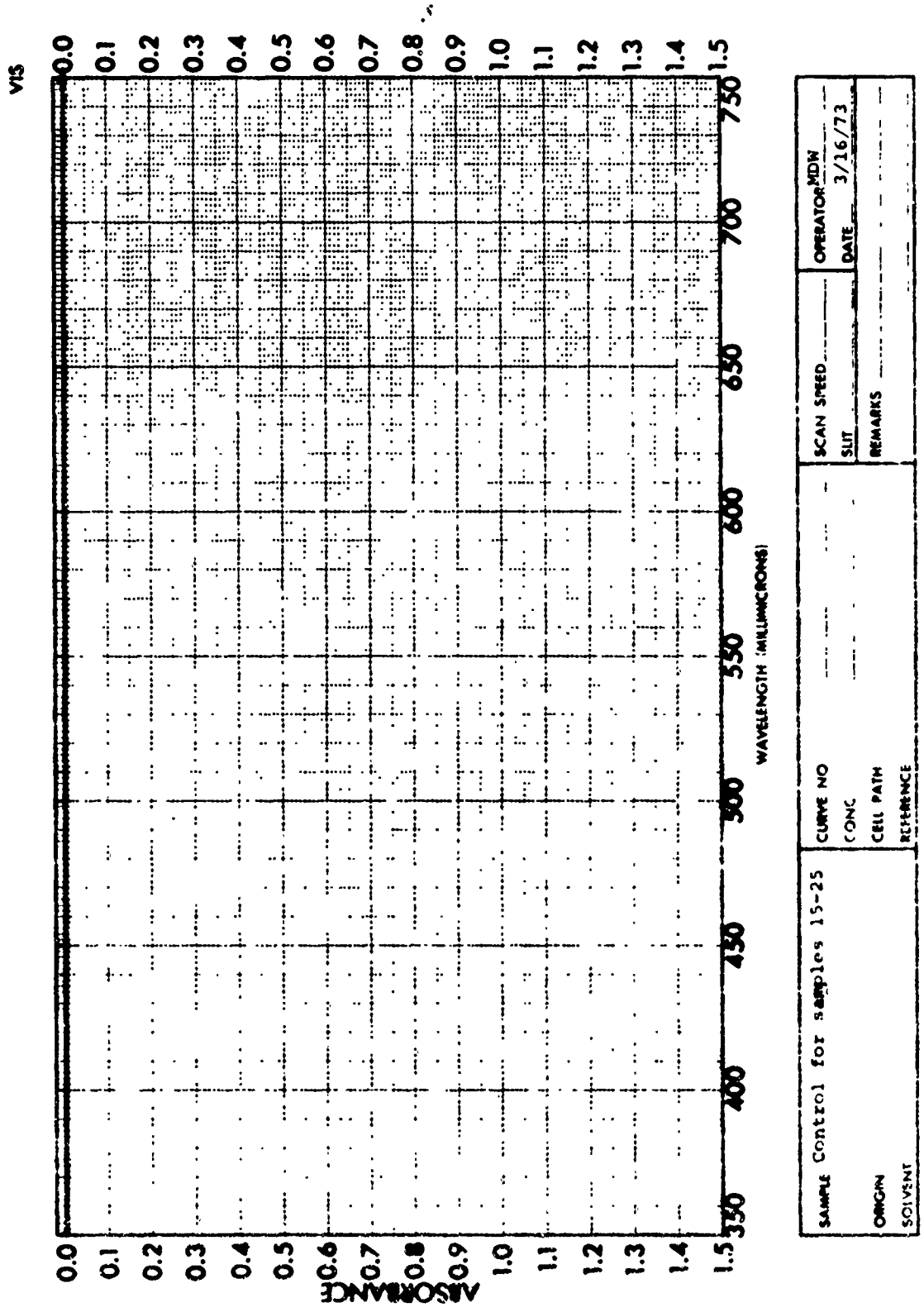
Appendix B
VISIBLE RANGE

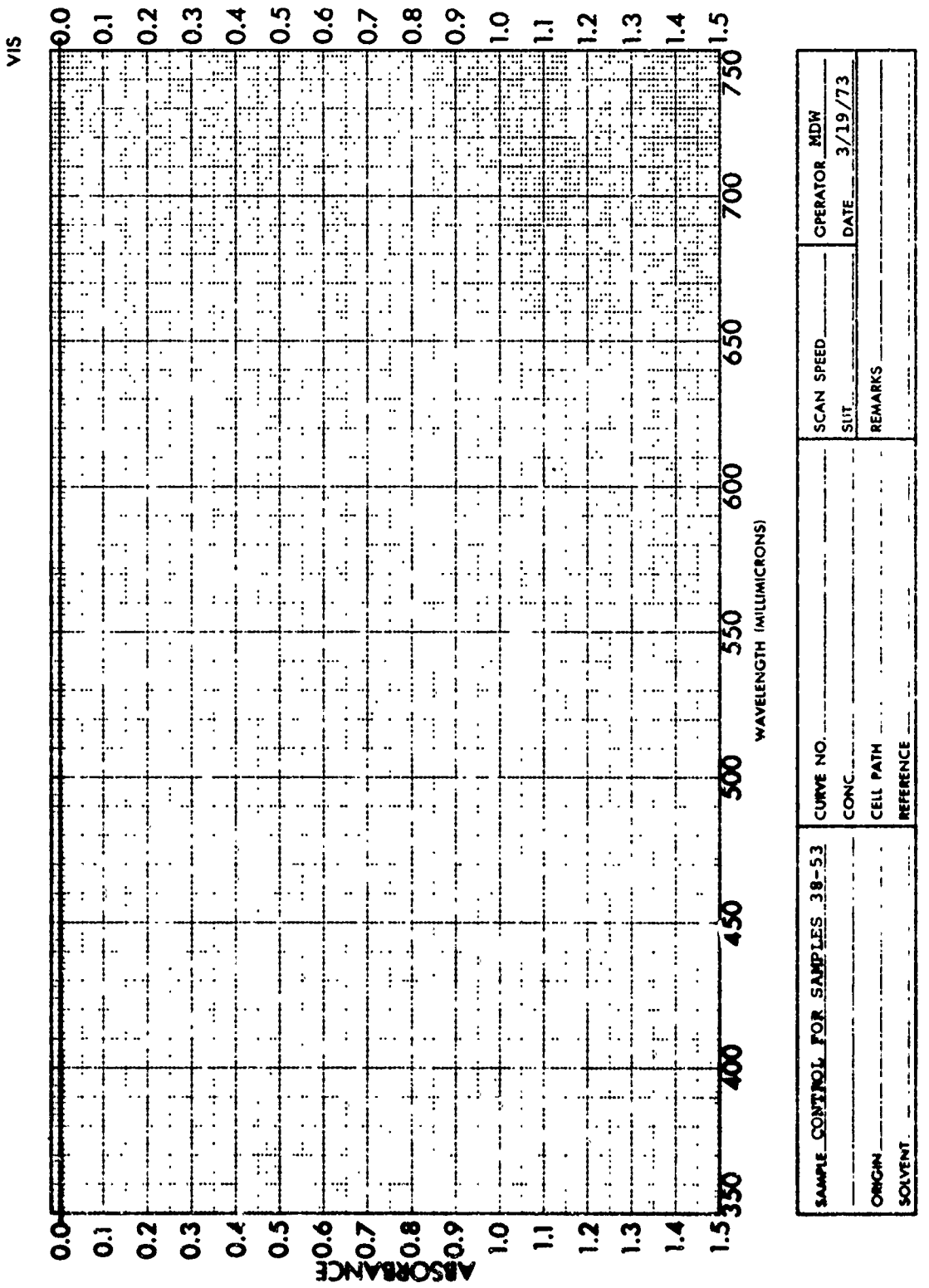


SAMPLE CONTROL FOR SAMPLES 1-14	CURVE NO	SCAN SPEED	OPERATOR NDW
	CONC	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE		

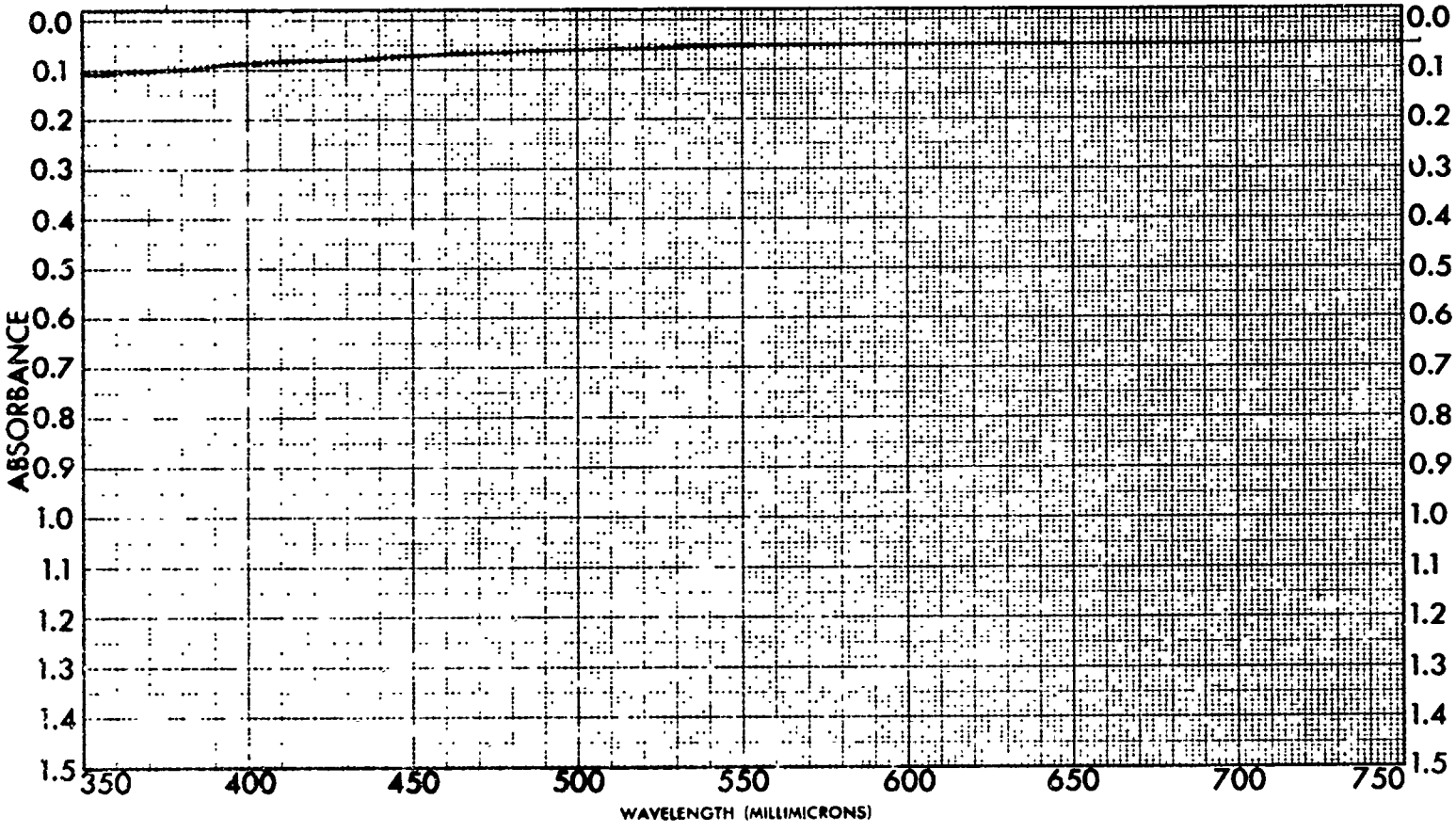
NMC TP 5583


VIS
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5
350 400 450 500 550 600 650 700 750
WAVELENGTH (MILLIMICRONS)
ABSORBANCE
SAMPLE Control for samples 15-25
ORIGIN
SOLVENT
CURVE NO.
CONC
CELL PATH
REFERENCE
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73


VIS
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5
ABSORBANCE
350 400 450 500 550 600 650 700 750
WAVELENGTH (MILLIMICRONS)
SAMPLE Control for samples 15-25
ORIGIN
SOLVENT
CURVE NO
CONC
CELL PATH
REFERENCE
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73

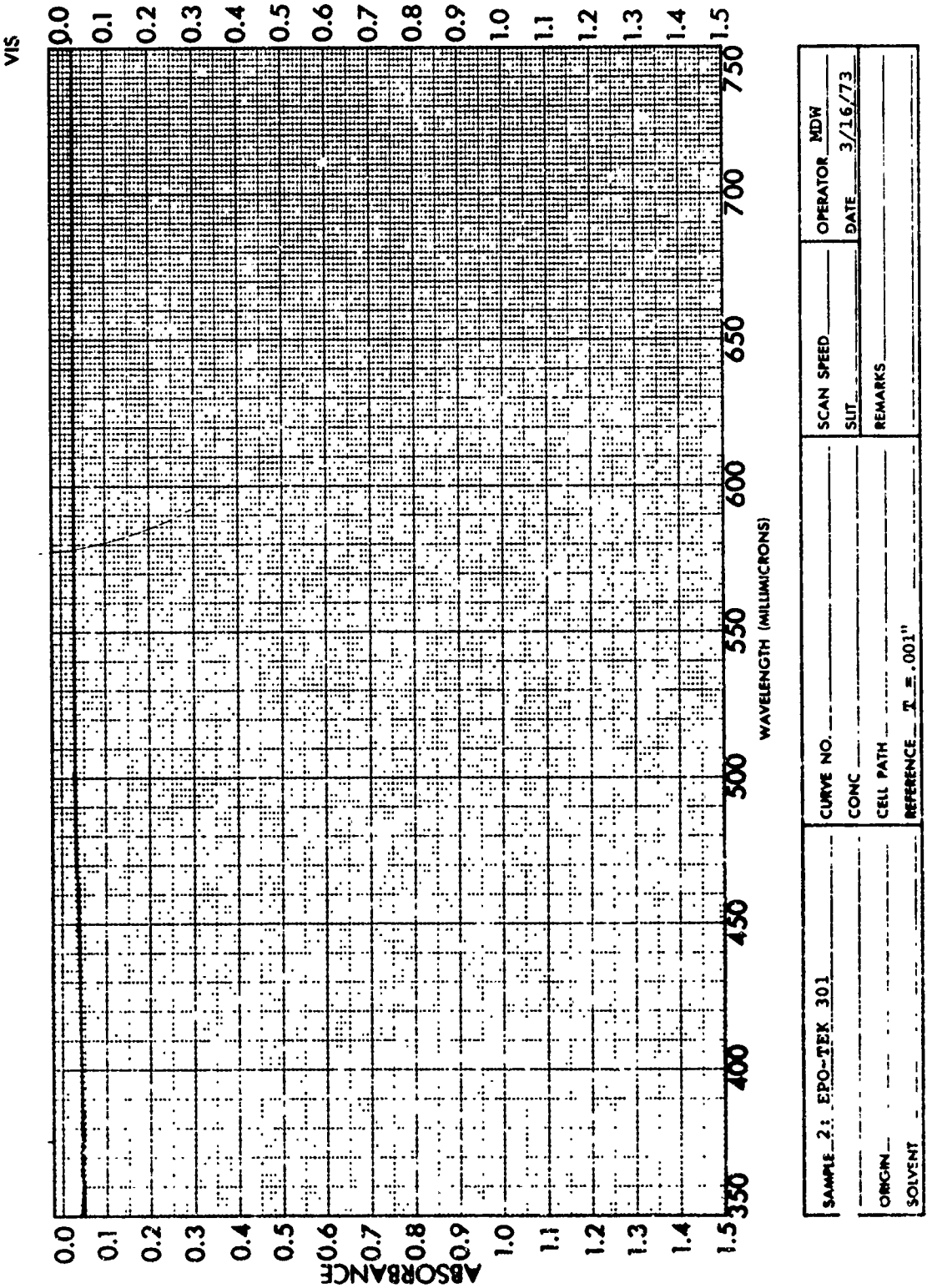

VIS
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE CONTROL FOR SAMPLES 38-53
CURVE NO.
CONC.
CELL PATH
REFERENCE
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73

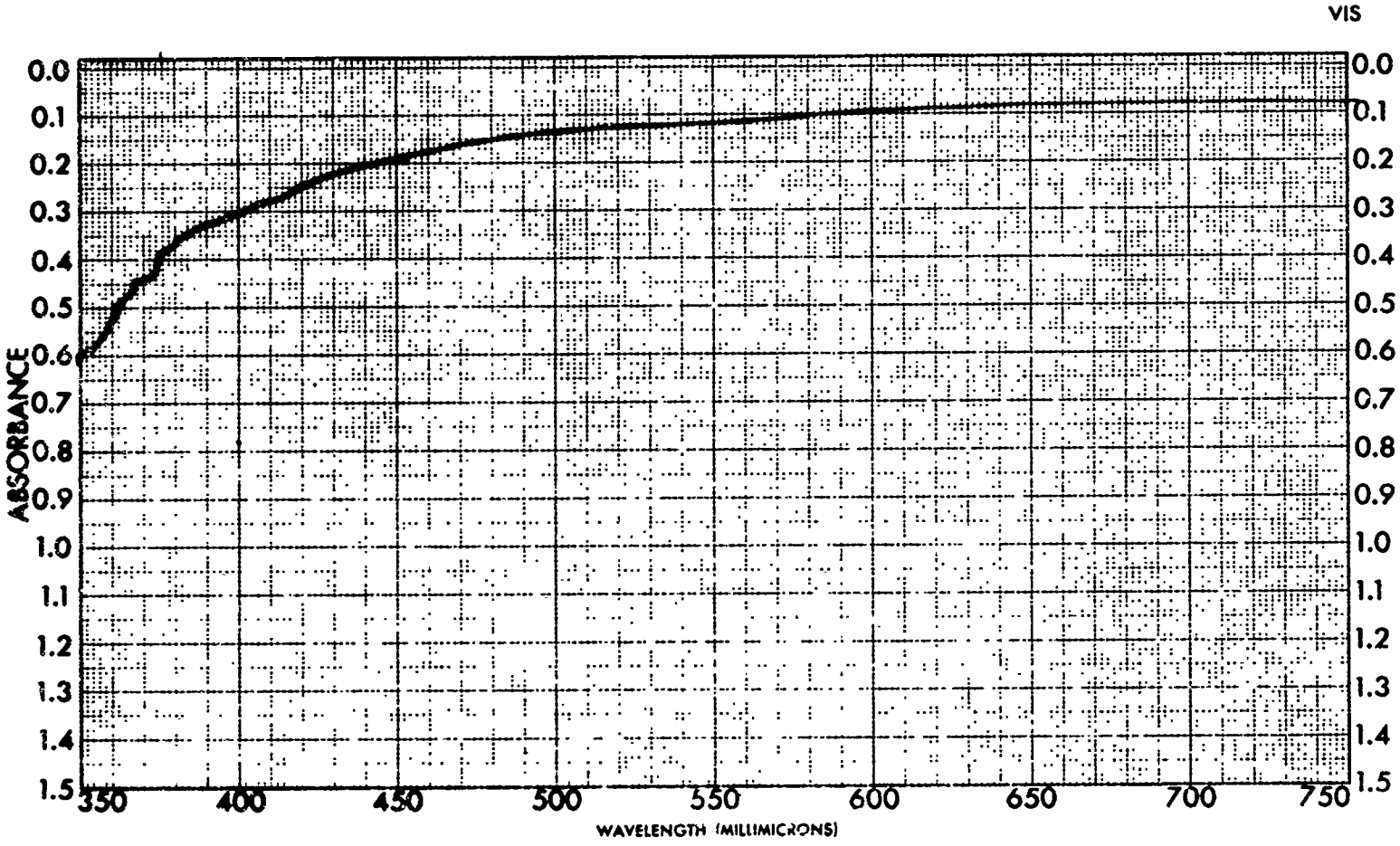
VIS



SAMPLE 1: EPON 828 & V-25	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0005"		

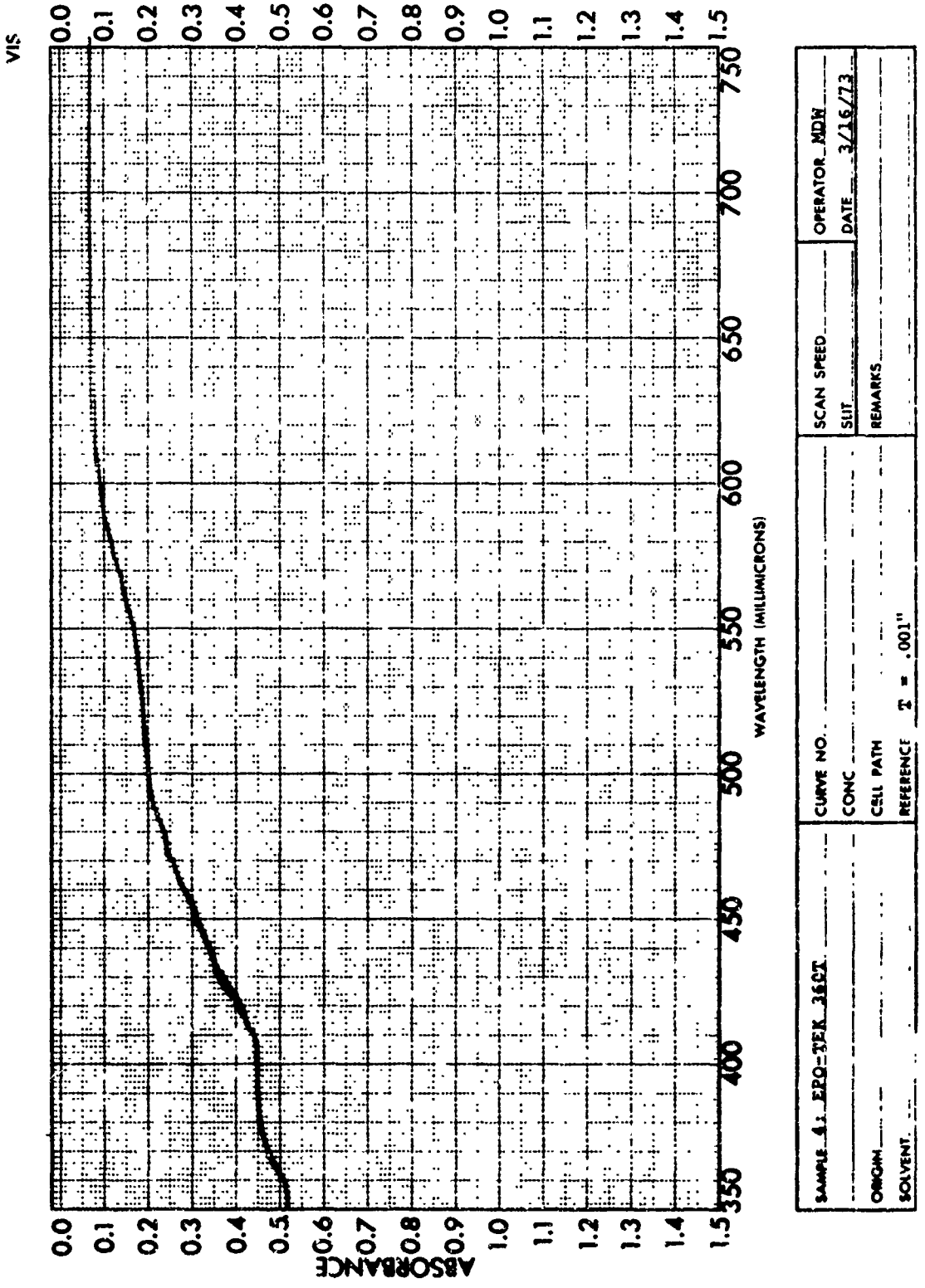
NWC TP 5583

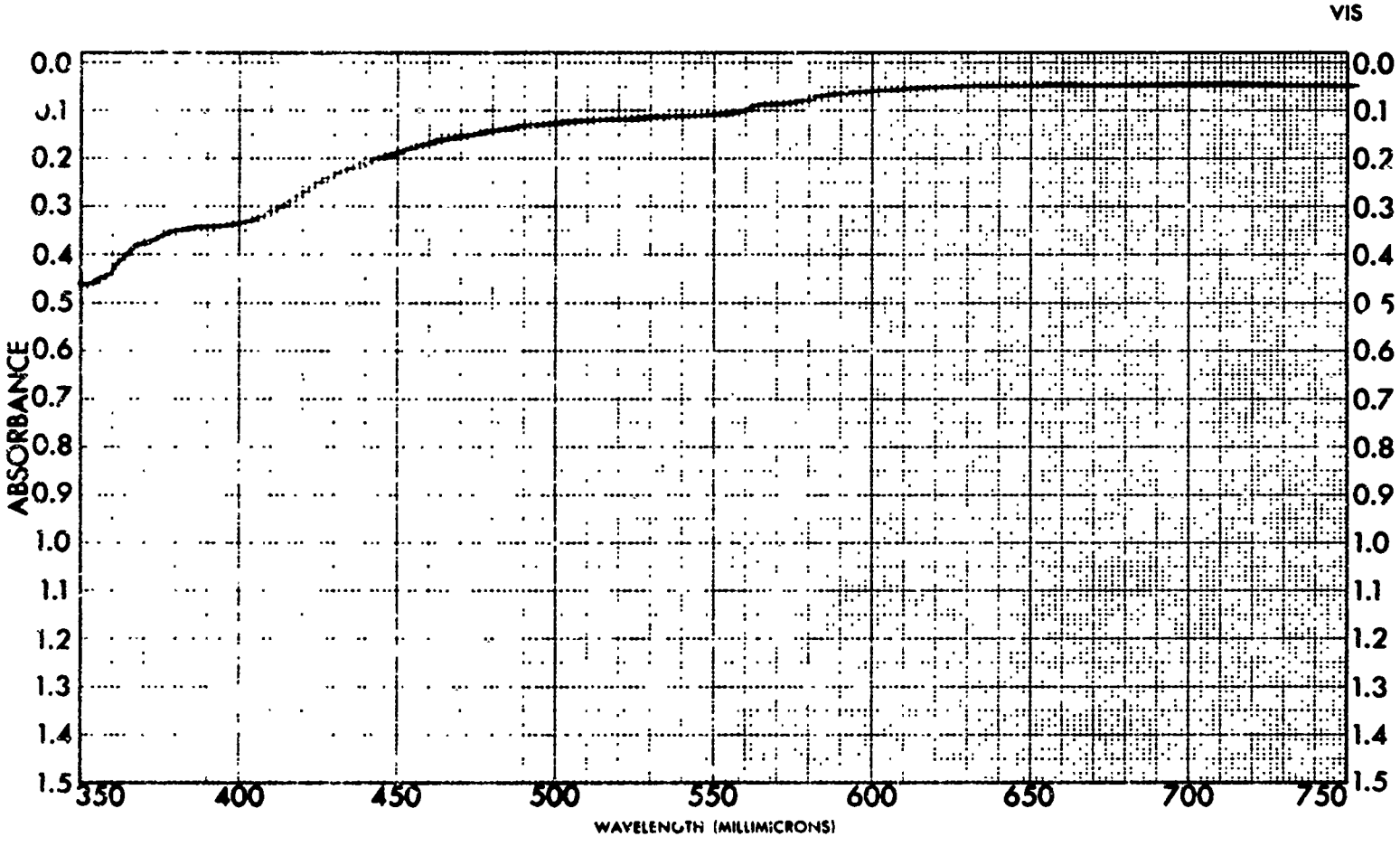

VIS
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5
350 400 450 500 550 600 650 700 750
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 2: EPO-TEK 301
ORIGIN
SOLVENT
CURVE NO.
CONC
CELL PATH
REFERENCE T = .001"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73



SAMPLE 3: EPO-TEK 360	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0015"		

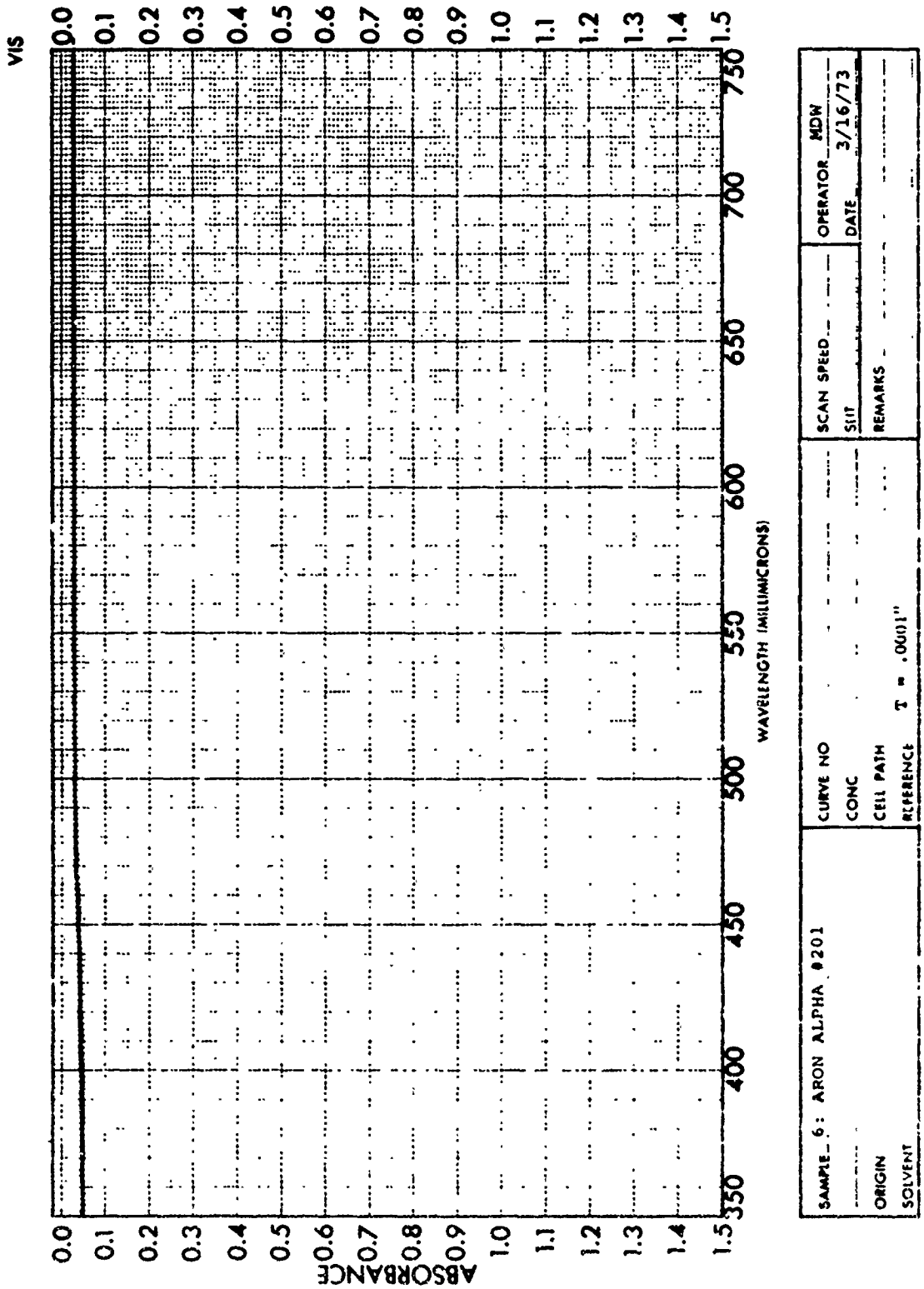
NWC TP 5583

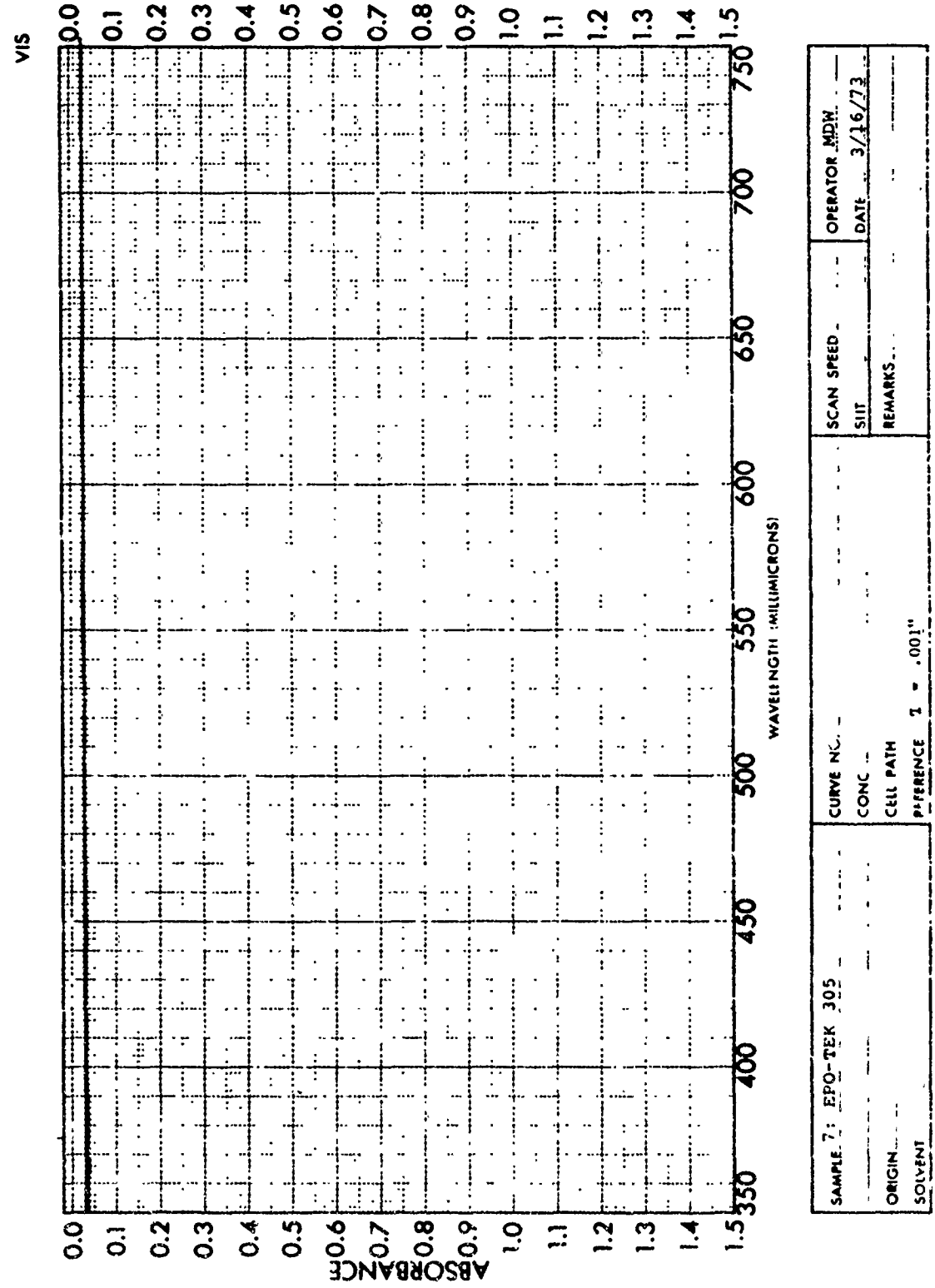

VIS
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 4: ERG-TEK 3607
ORIGIN
SOLVENT
CURVE NO.
CONC
CELL PATH
REFERENCE T = .001"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73

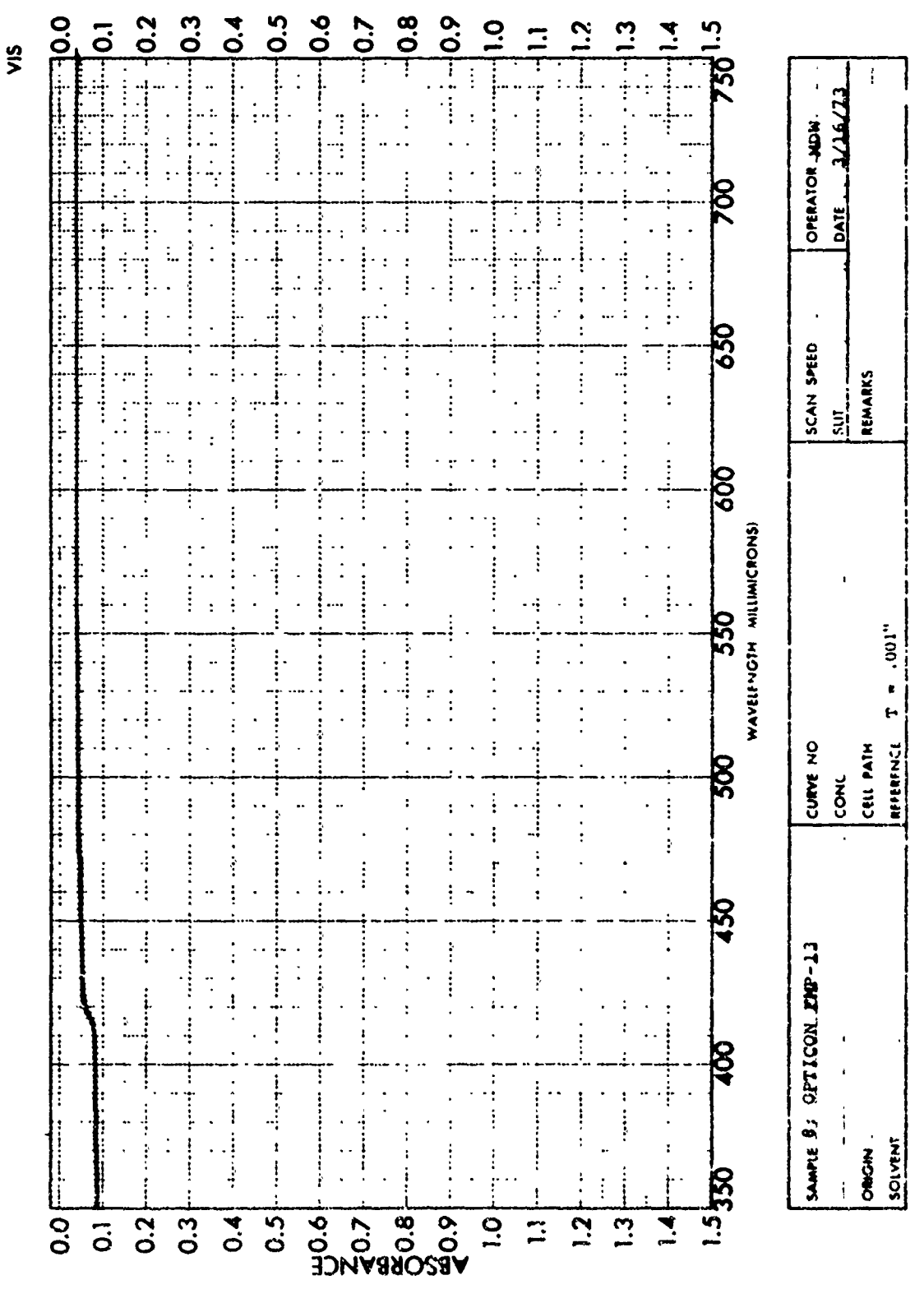


SAMPLE 5: EPO-TEK 360ST	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0015"		

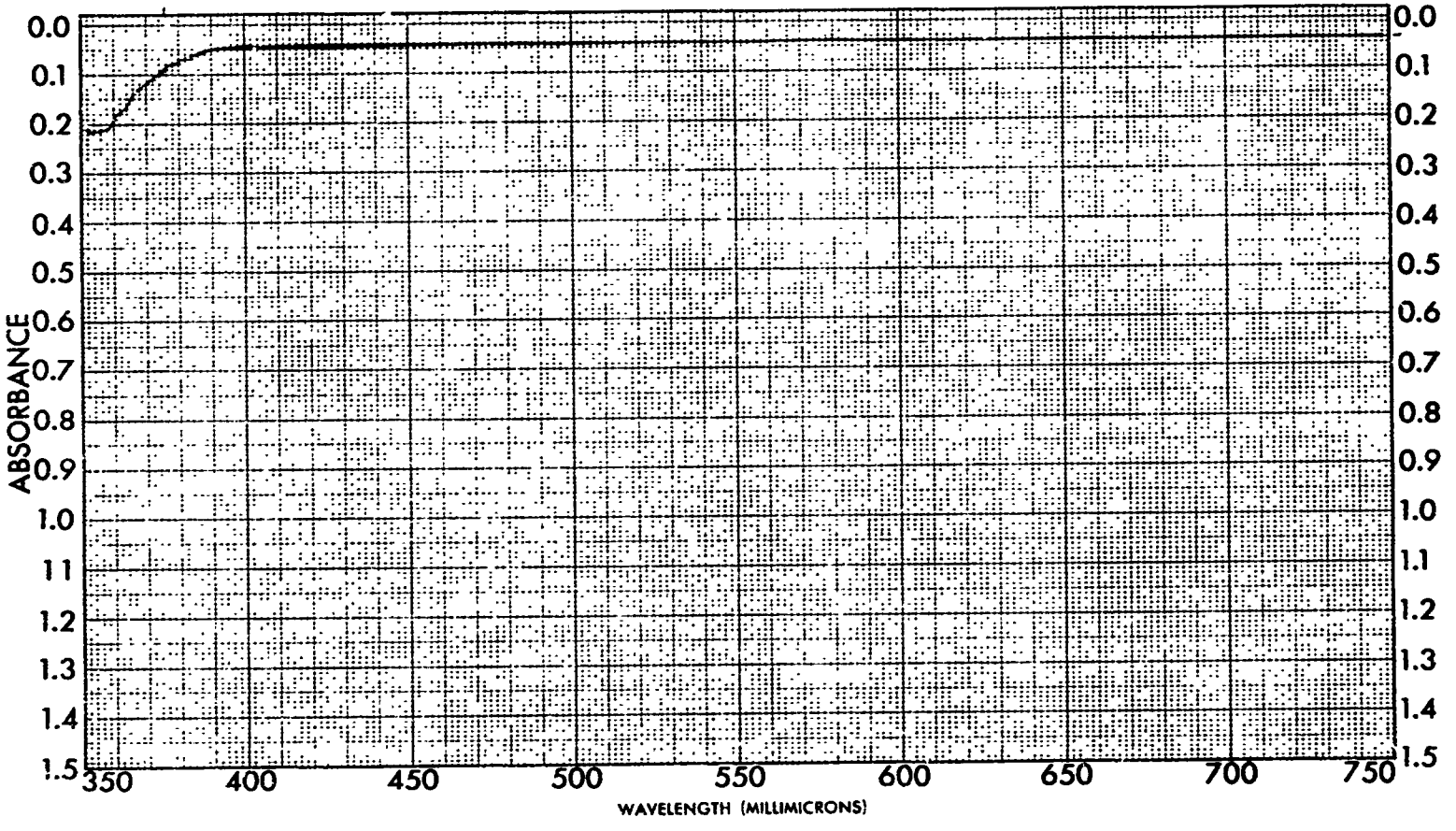
NWC TP 5583


VIS
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 6: ARON ALPHA #201
ORIGIN
SOLVENT
CURVE NO
CONC
CELL PATH
REFERENCE T = .0001"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73


VIS
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 7: EPO-TEK 305
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .001"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73

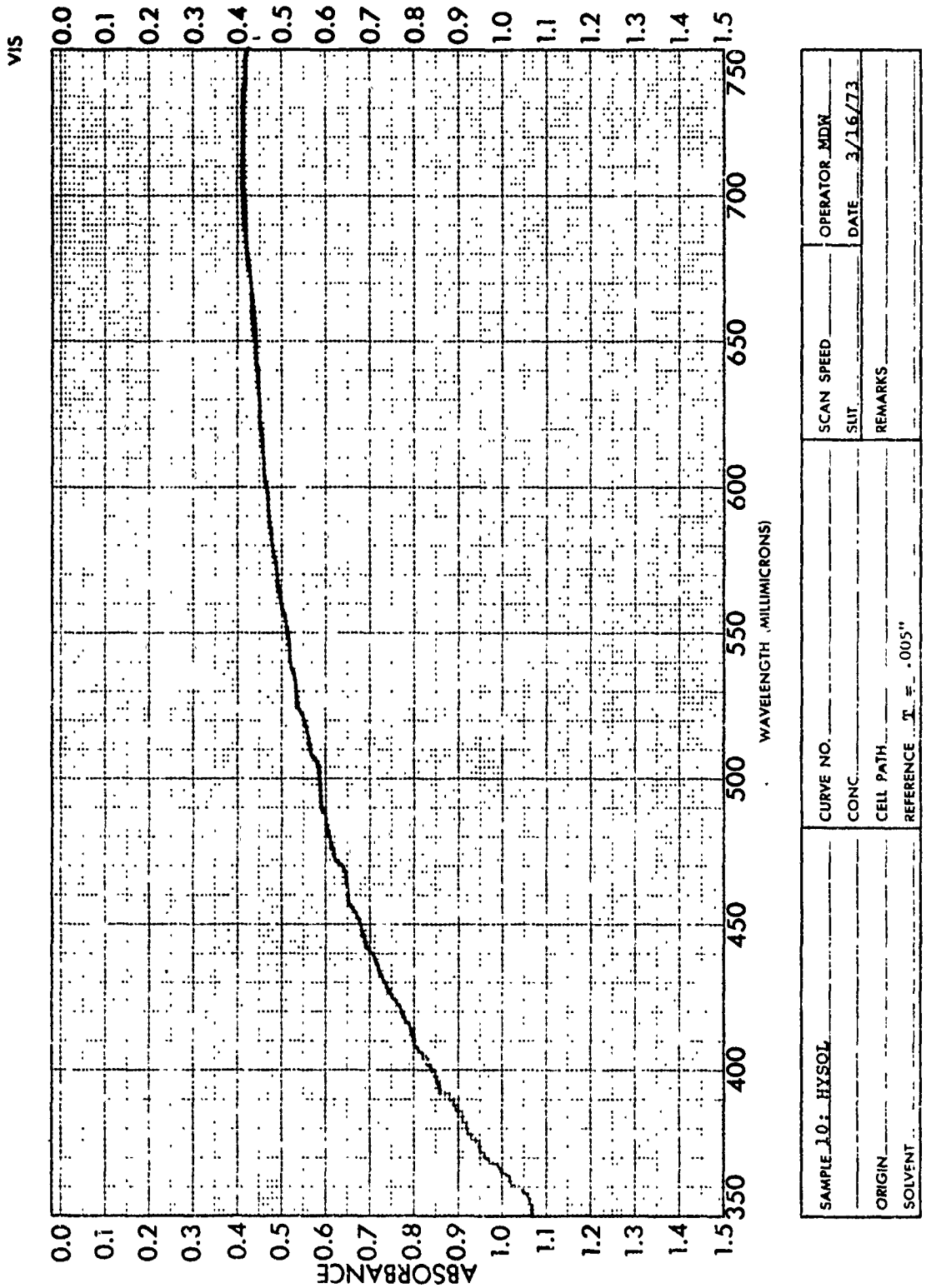

VIS
ABSORBANCE
WAVELENGTH MILLIMICRONS)
SAMPLE #: OPTICON EMP-13
ORIGIN
SOLVENT
CURVE NO
CONC
CELL PATH
REFERENCE T = .001"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73

VIS

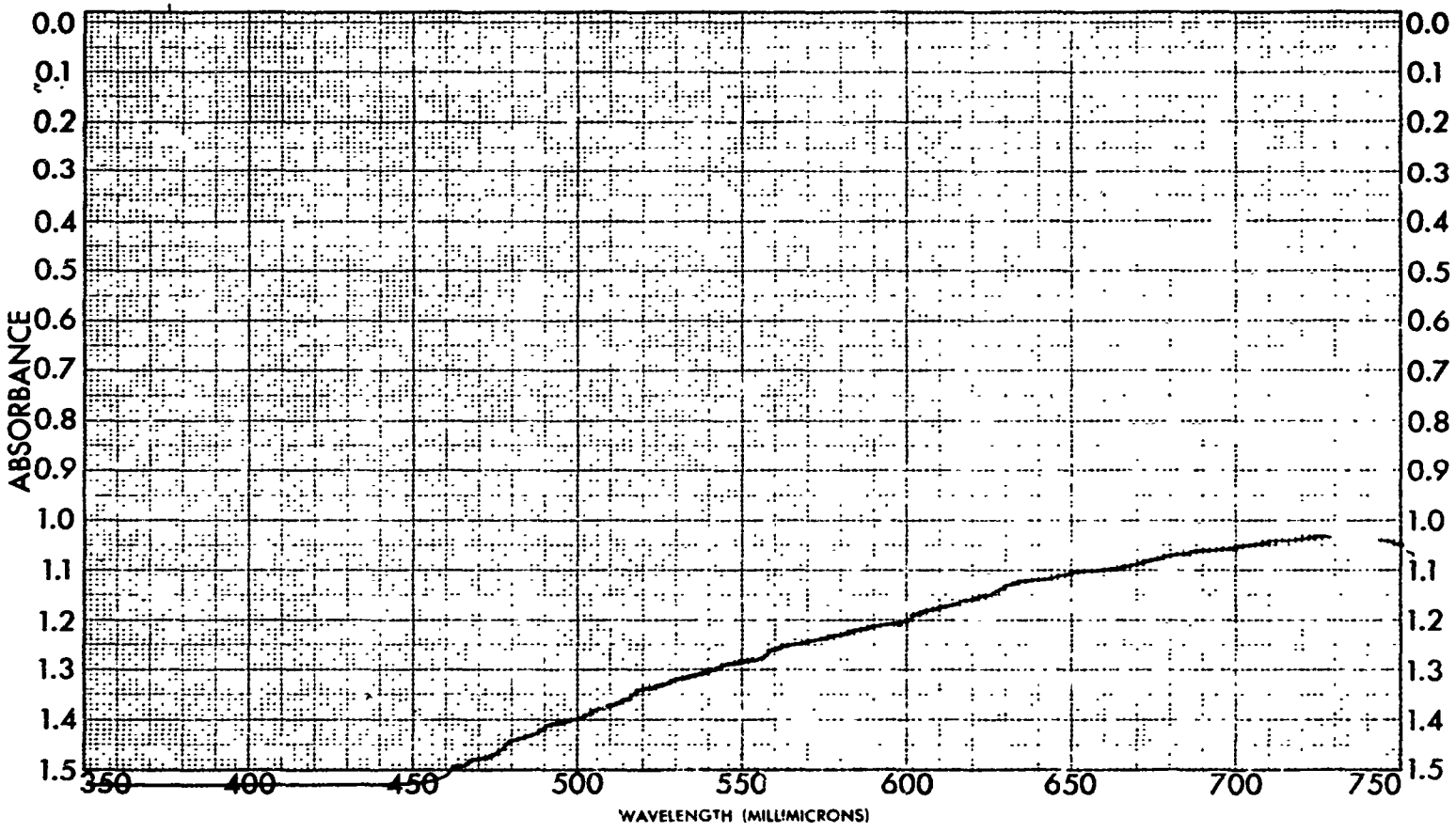


SAMPLE 9: OPTICON UV-57	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH.	REMARKS	
SOLVENT	REFERENCE T = .002"		

NWC TP 5583

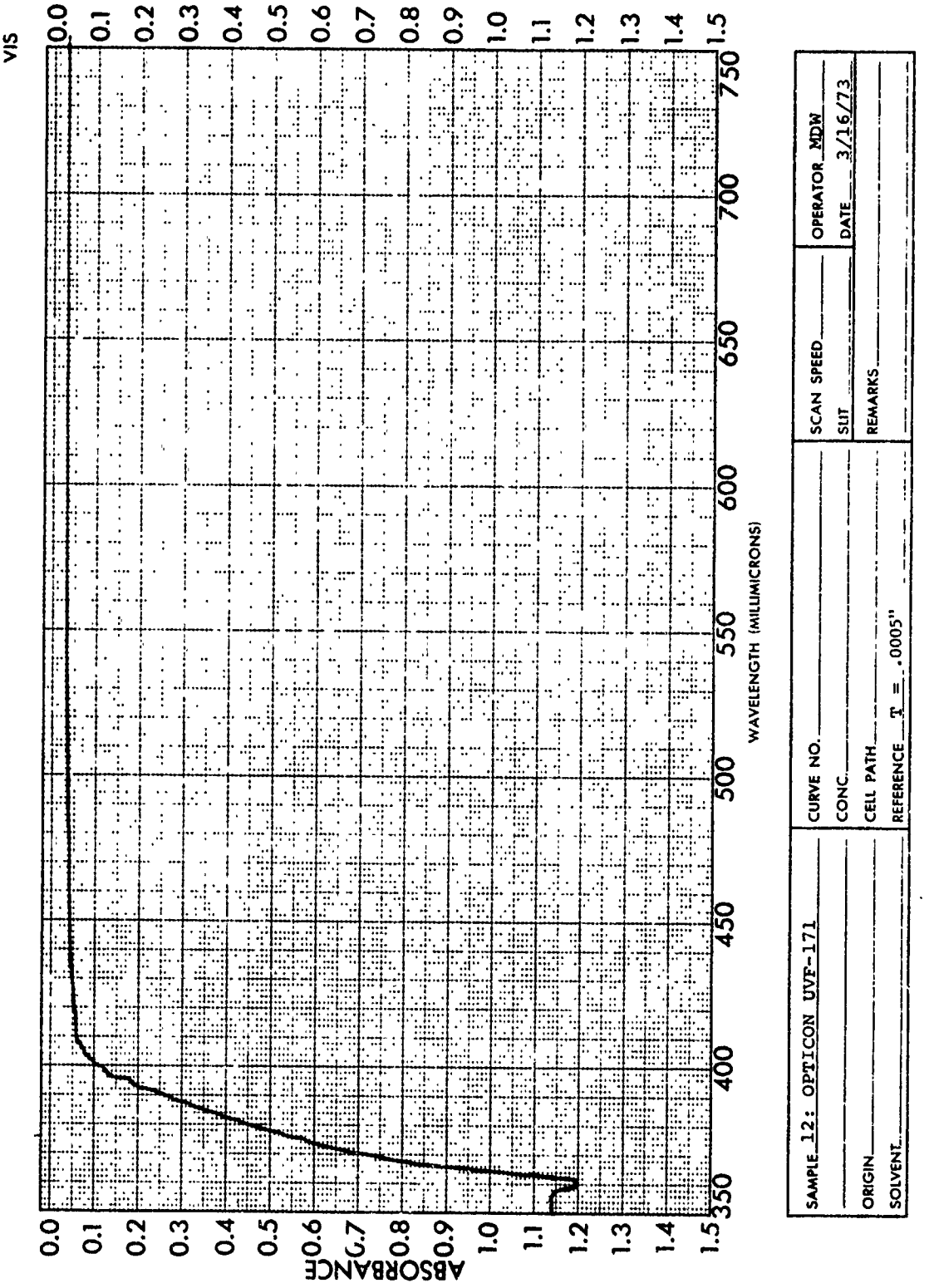

VIS
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5
350 400 450 500 550 600 650 700 750
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 10: HYSOL
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73

VIS

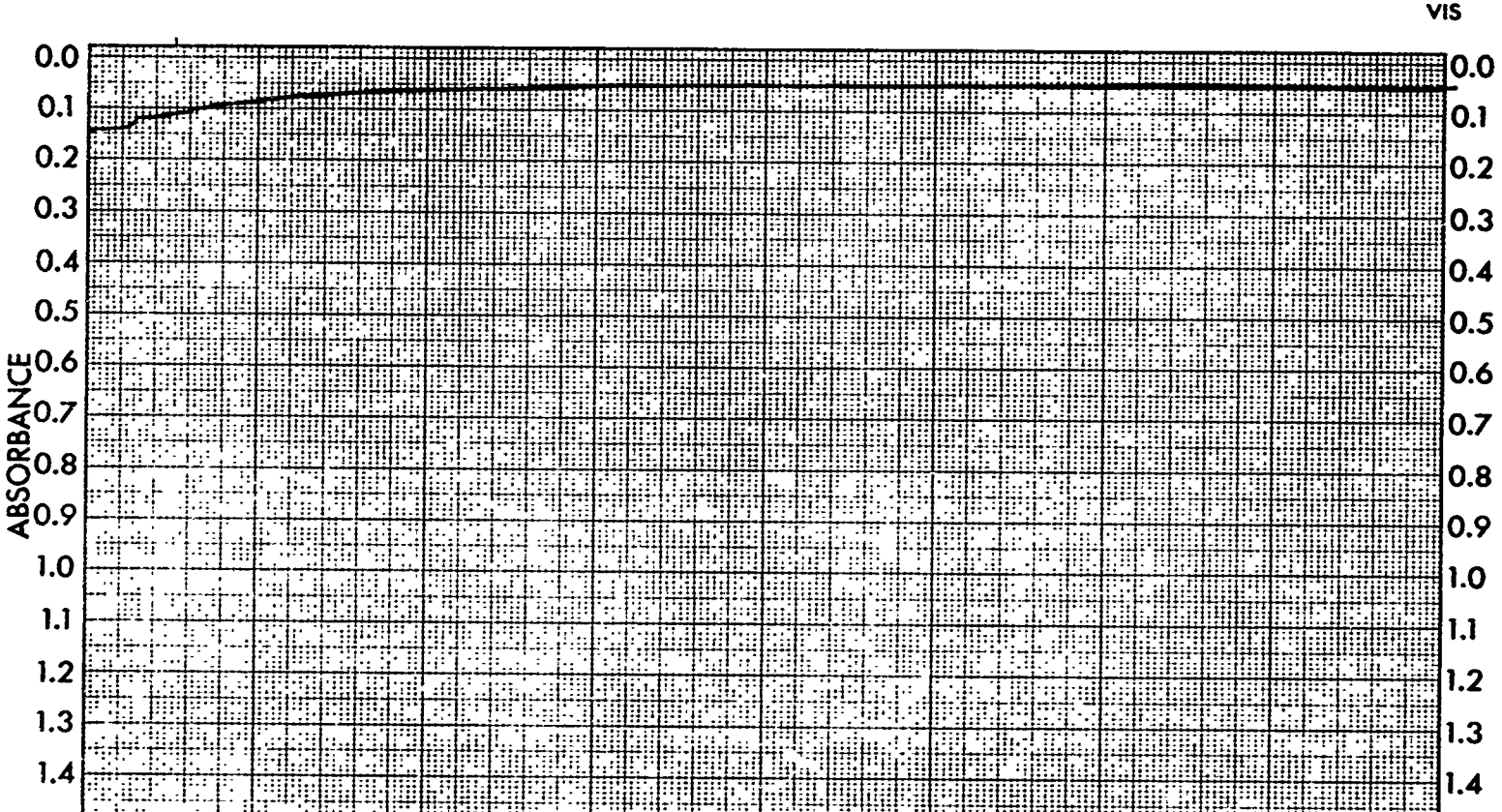


SAMPLE 11: 3M	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0035"		

NWC TP 5583

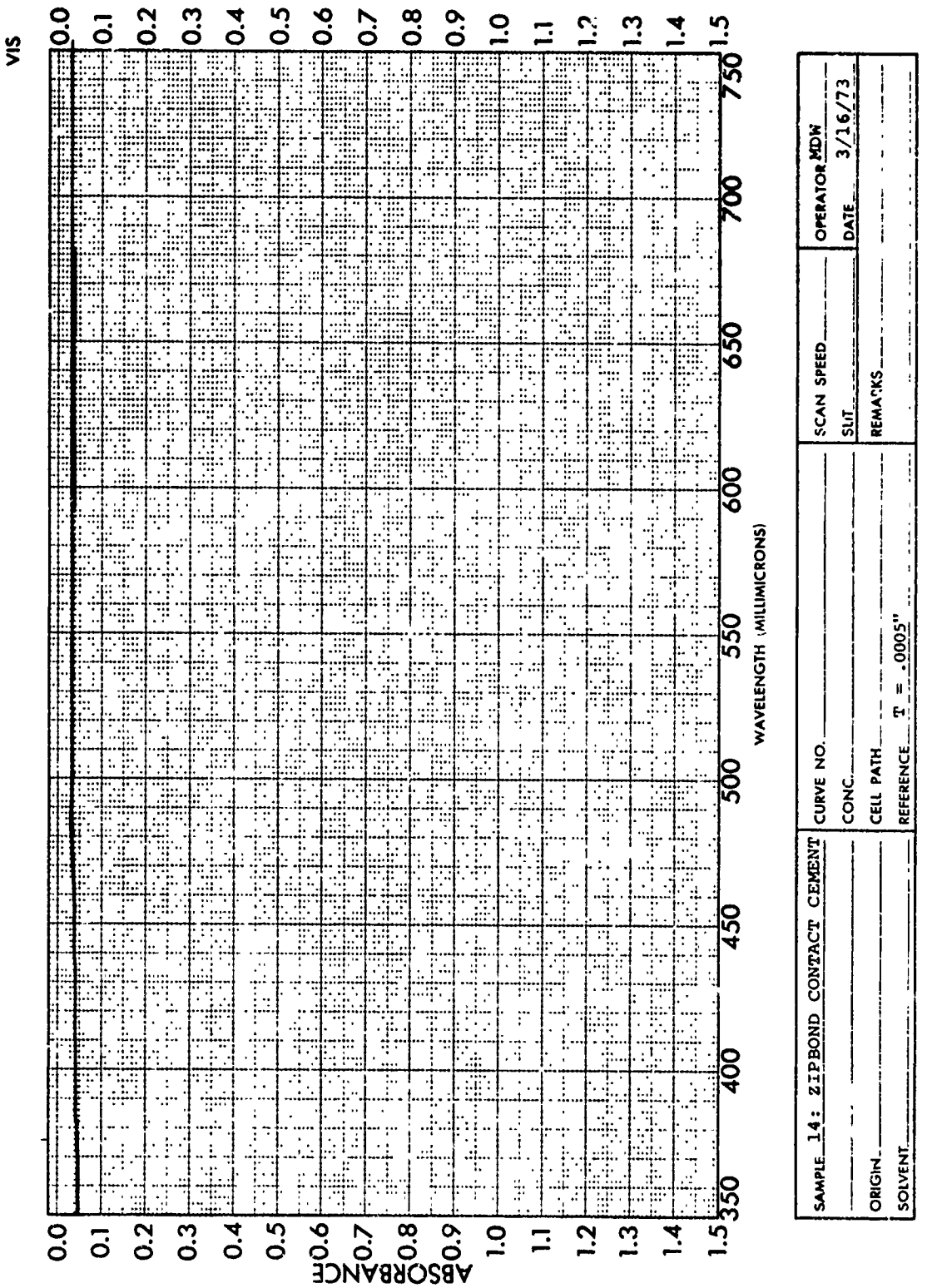

VIS
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 12: OPTICON UVF-171
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73

VIS

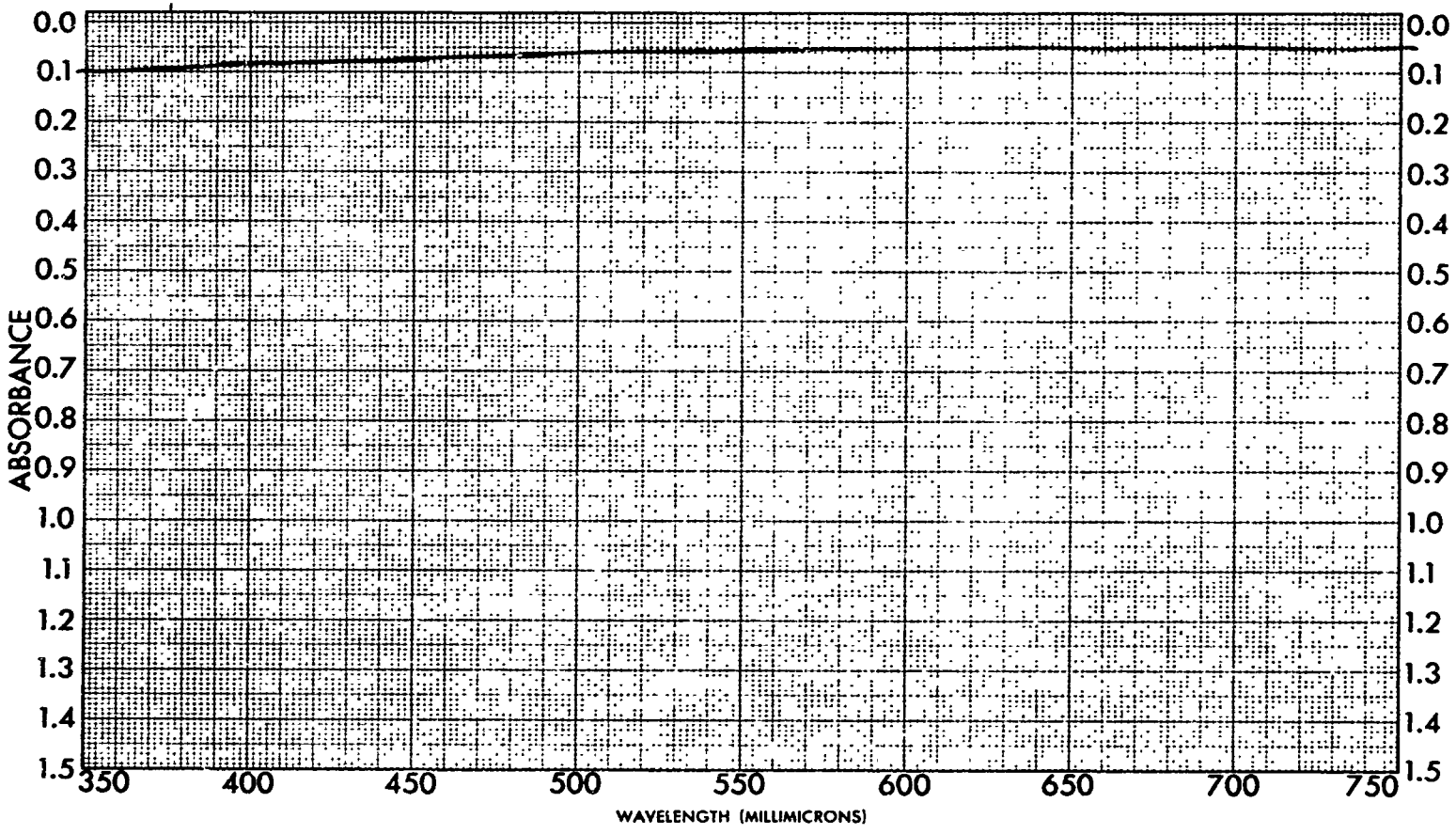


SAMPLE 13: OPTICON SFA-23	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .001"		

NWC TP 5583

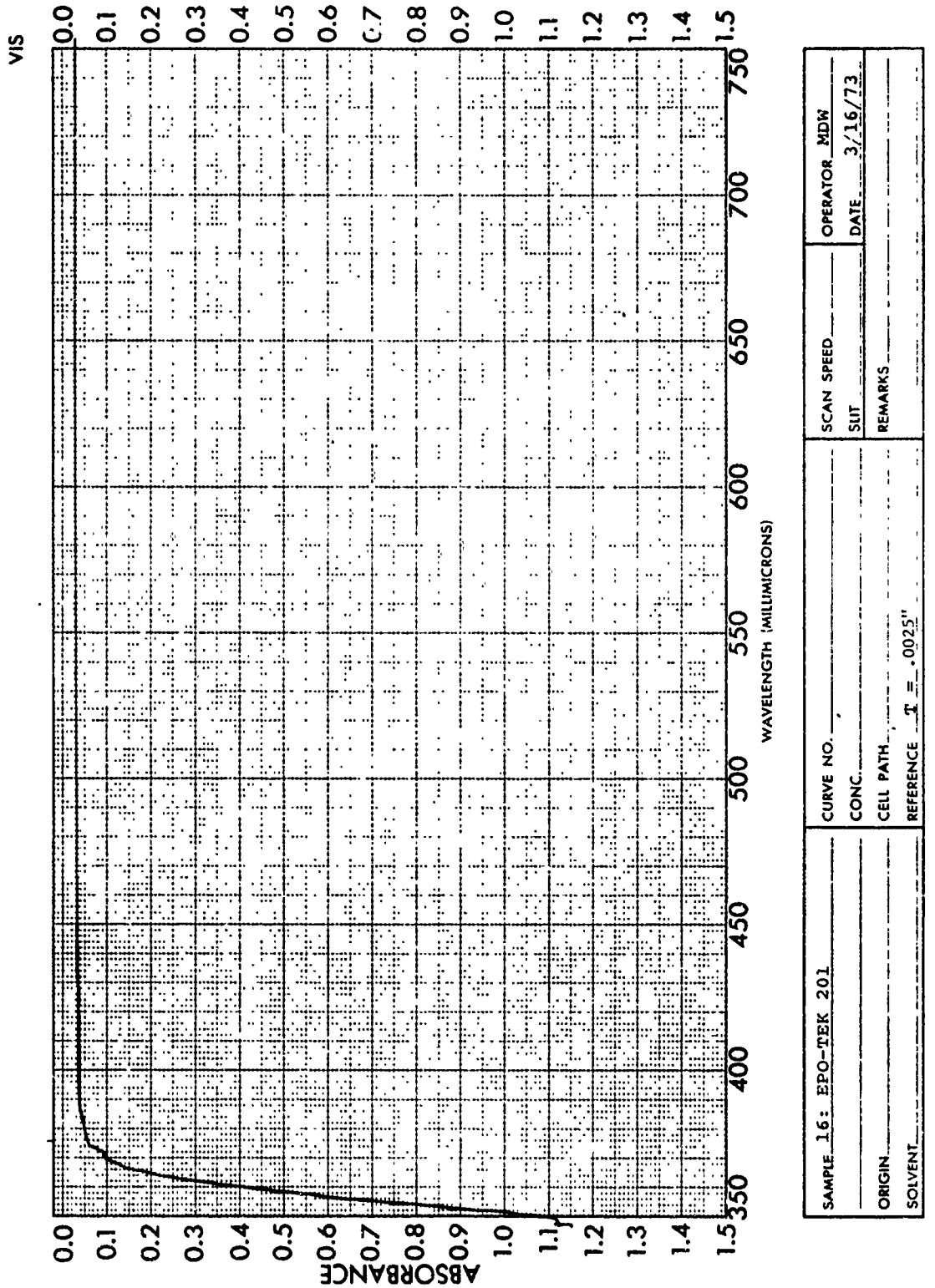

VIS
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
350
400
450
500
550
600
650
700
750
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 14: ZIPBOND CONTACT CEMENT
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73

VIS

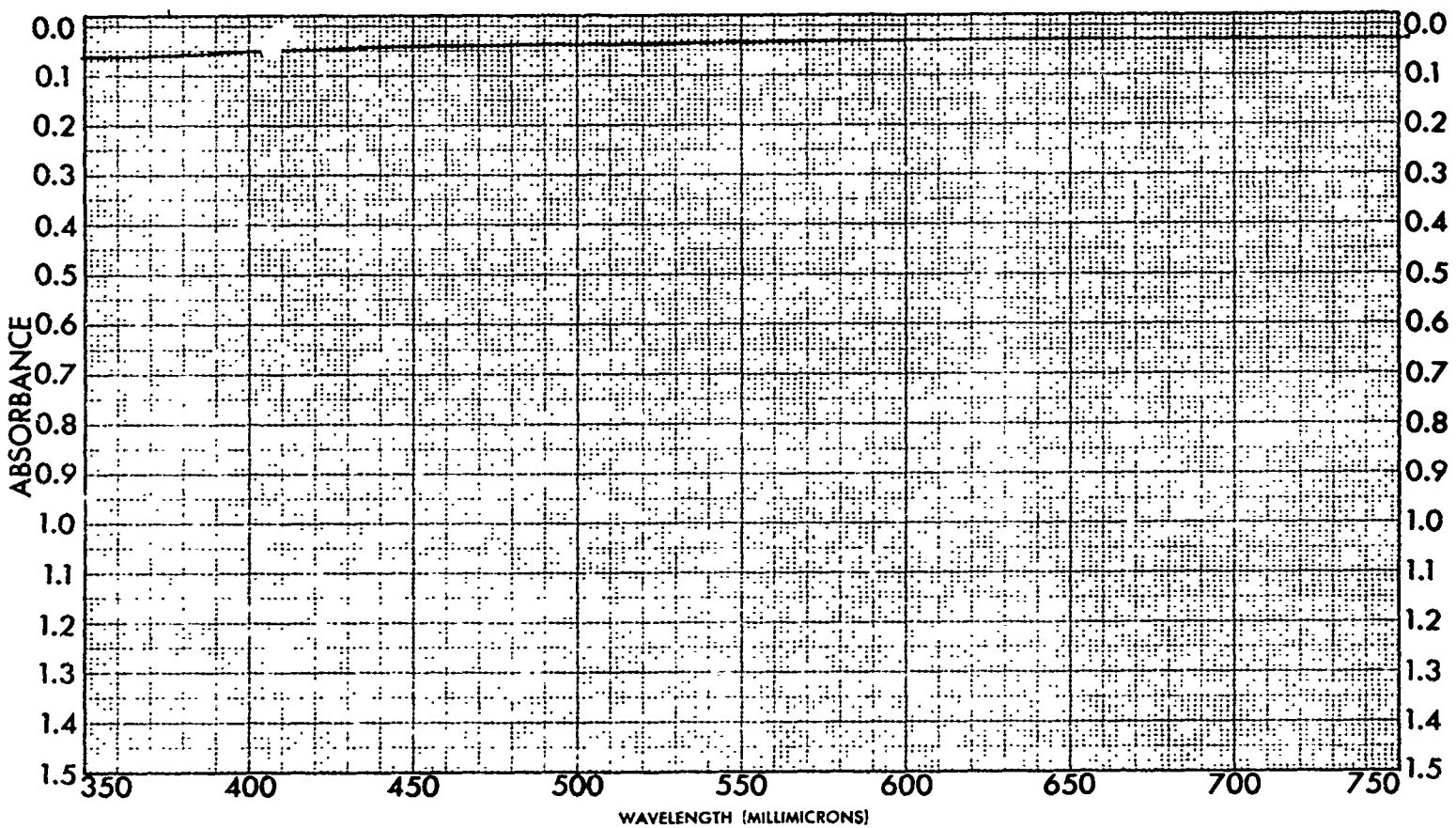


SAMPLE 15: LENS BOND M-62	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .001"		

NWC TP 5583

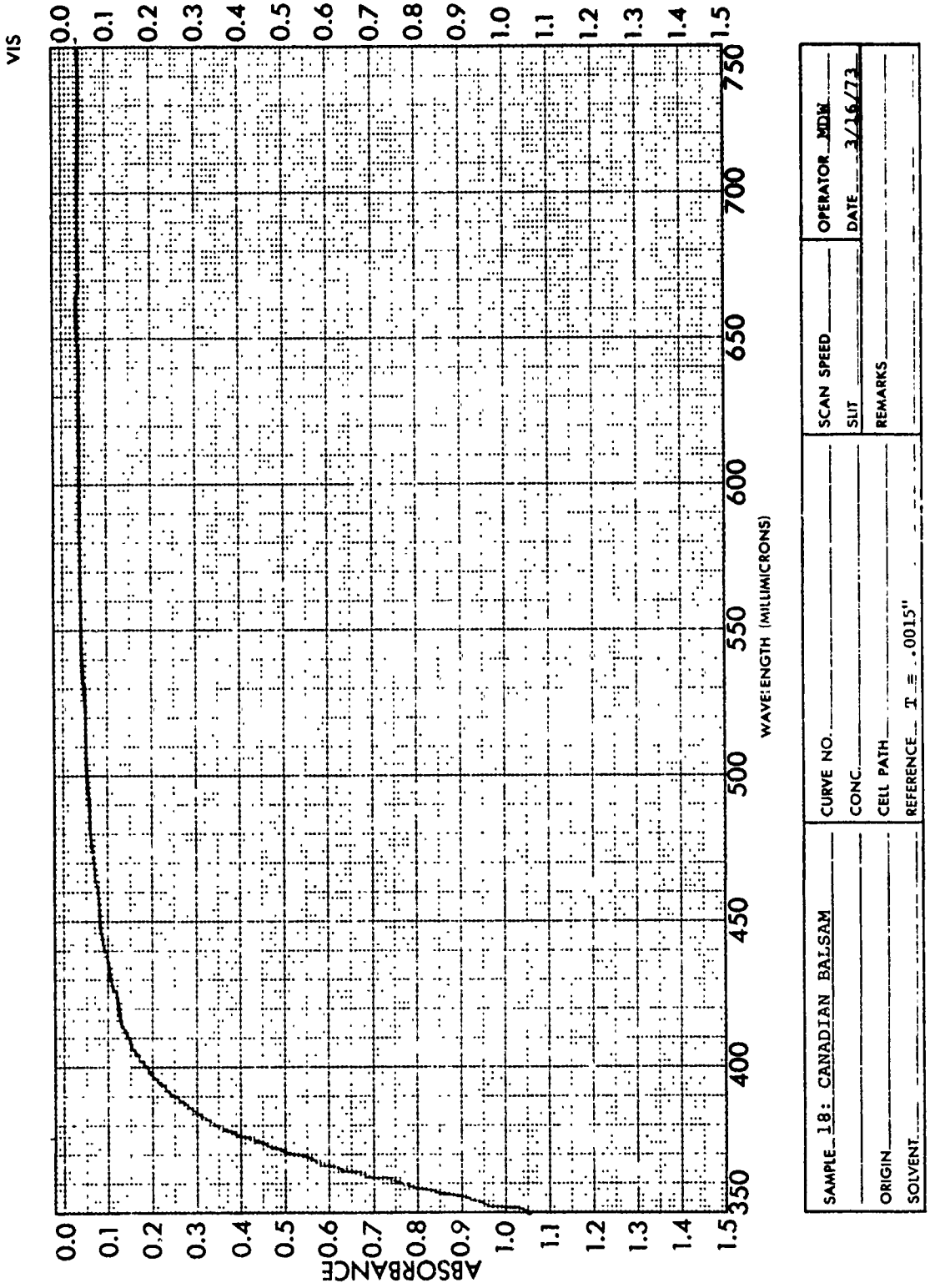

VIS
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
350
400
450
500
550
600
650
700
750
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 16: EPO-TEK 201
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0025"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73

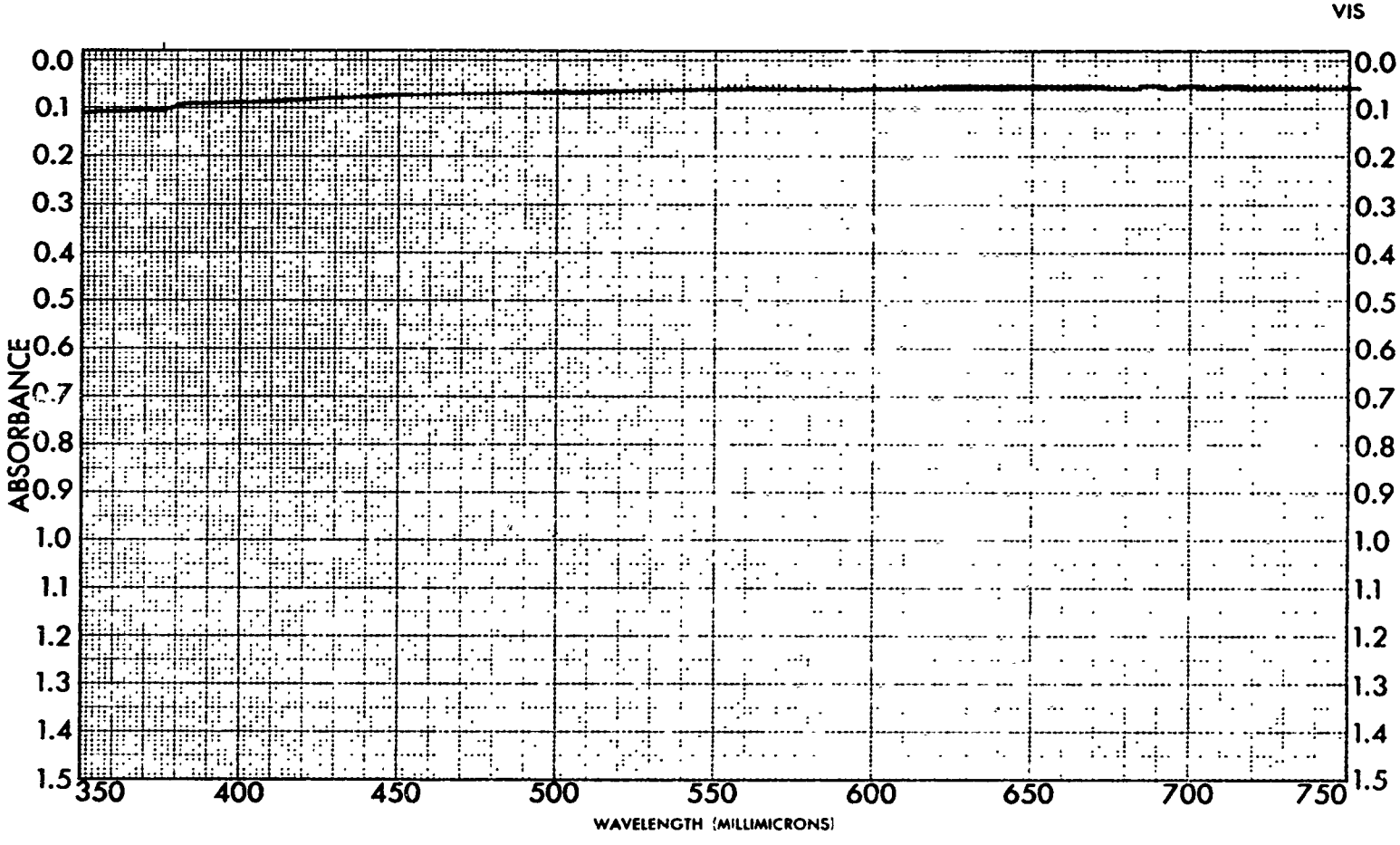
VIS



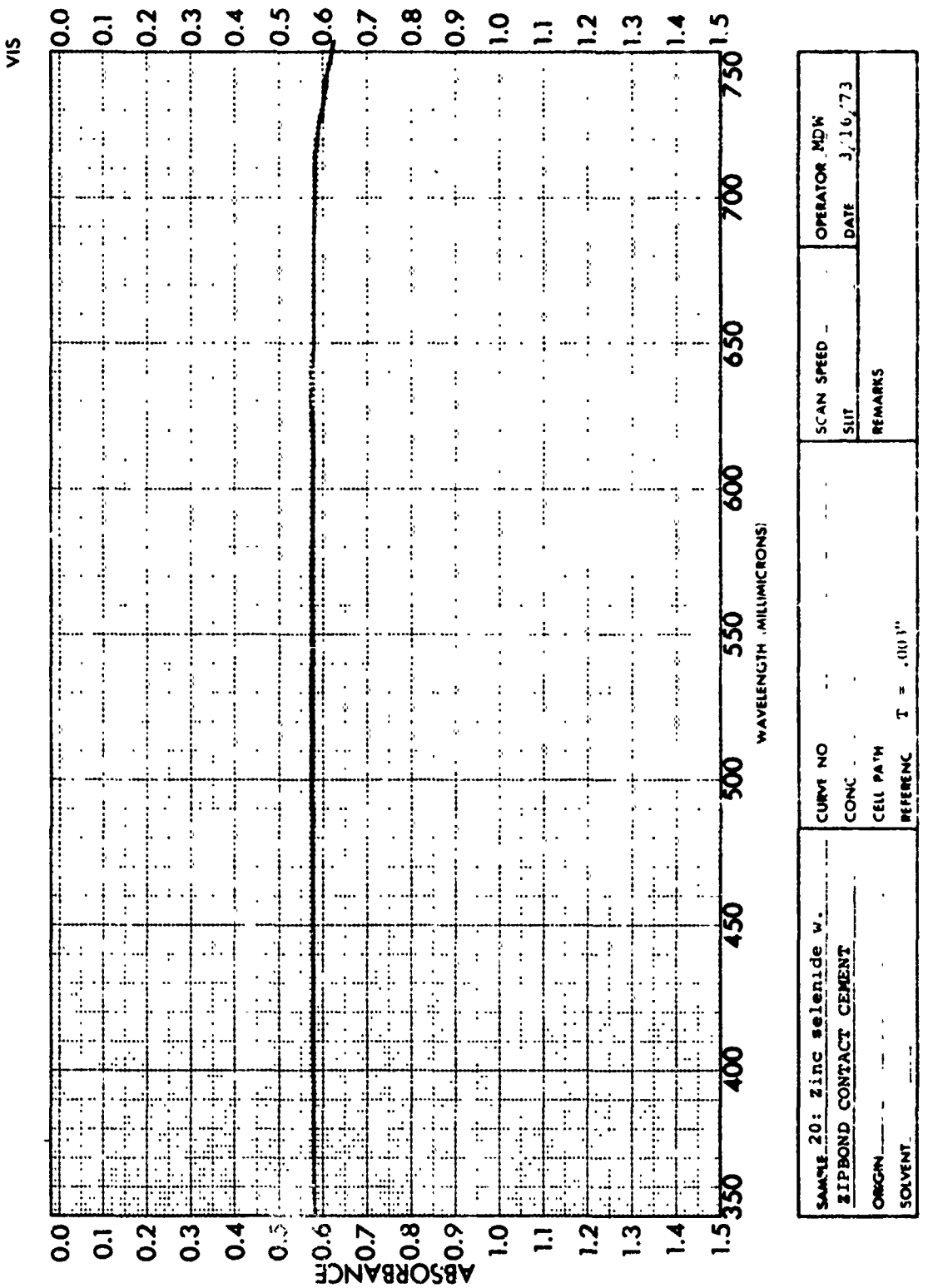
SAMPLE 17: EPO-TEK 310	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .003"		

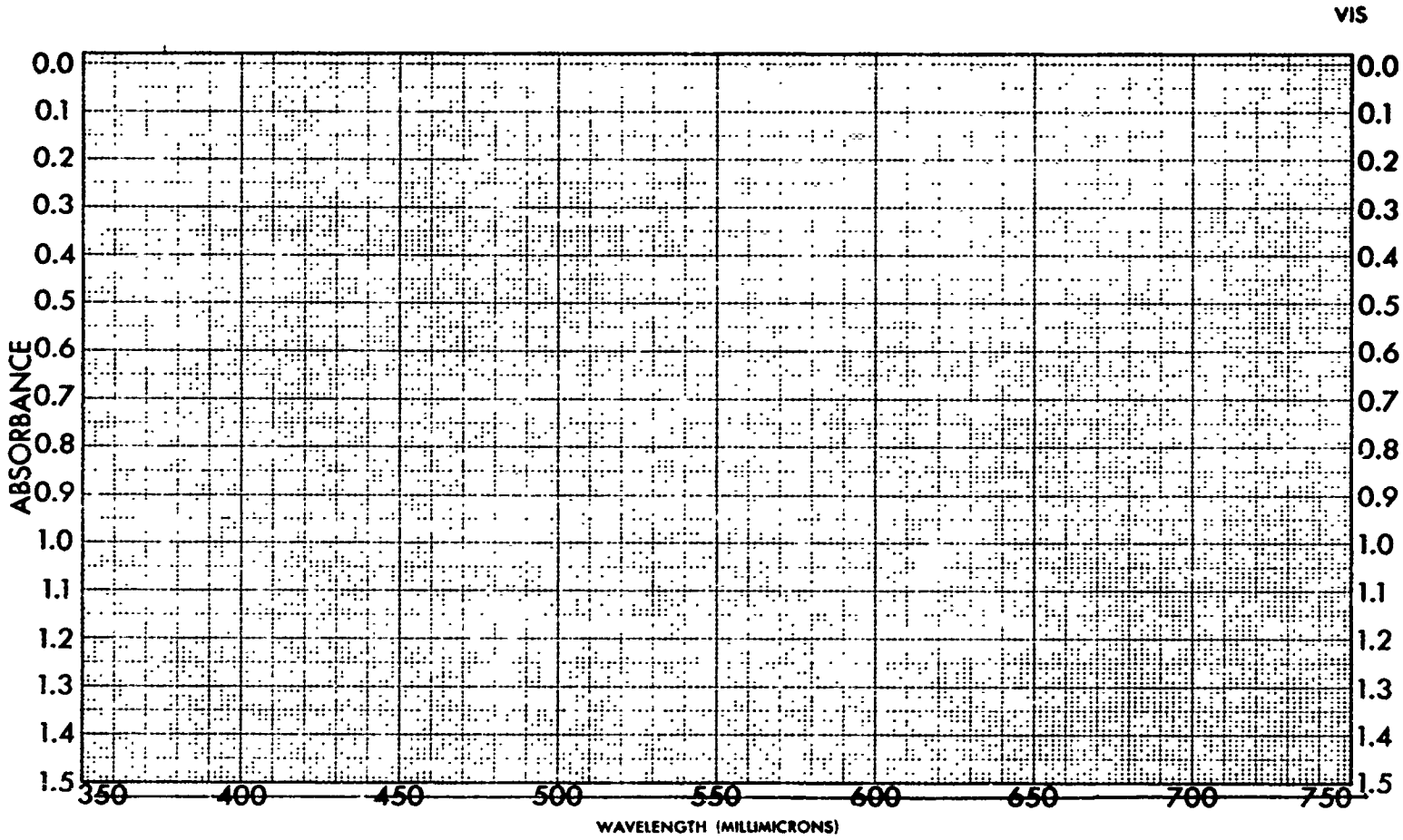
NMC TP 5583


VIS
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 18: CANADIAN BALSAM
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0015"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73



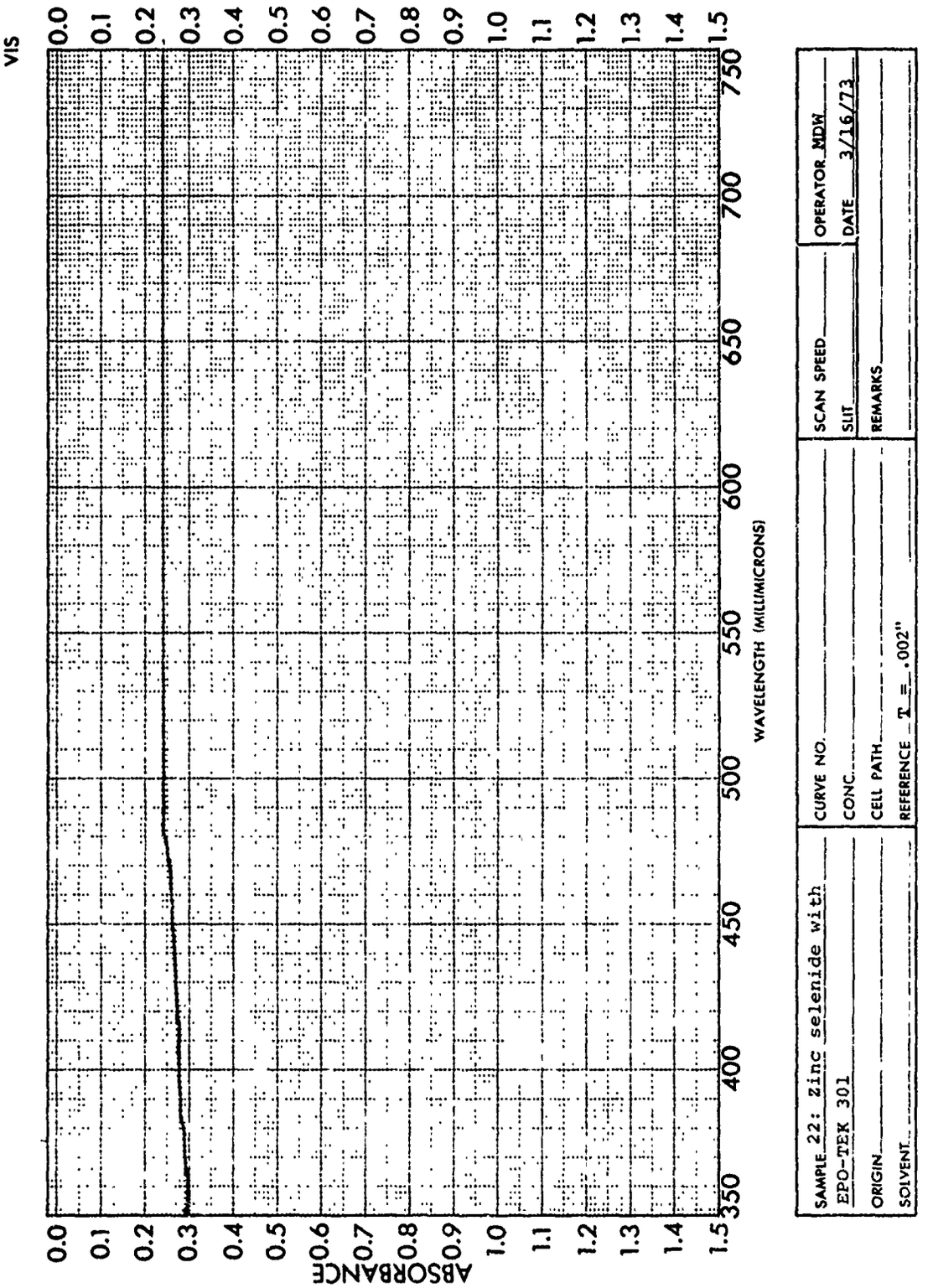
SAMPLE 19: CELLULOSE CAPRATE	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .003"		


VIS
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5
350 400 450 500 550 600 650 700 750
WAVELENGTH (MILLIMICRONS)
ABSORBANCE
SAMPLE 20: Zinc selenide w.
ZIPBOND CONTACT CEMENT
ORIGIN
SOLVENT
CURVE NO
CONC
CELL PATH
REFERENC T = .001"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73

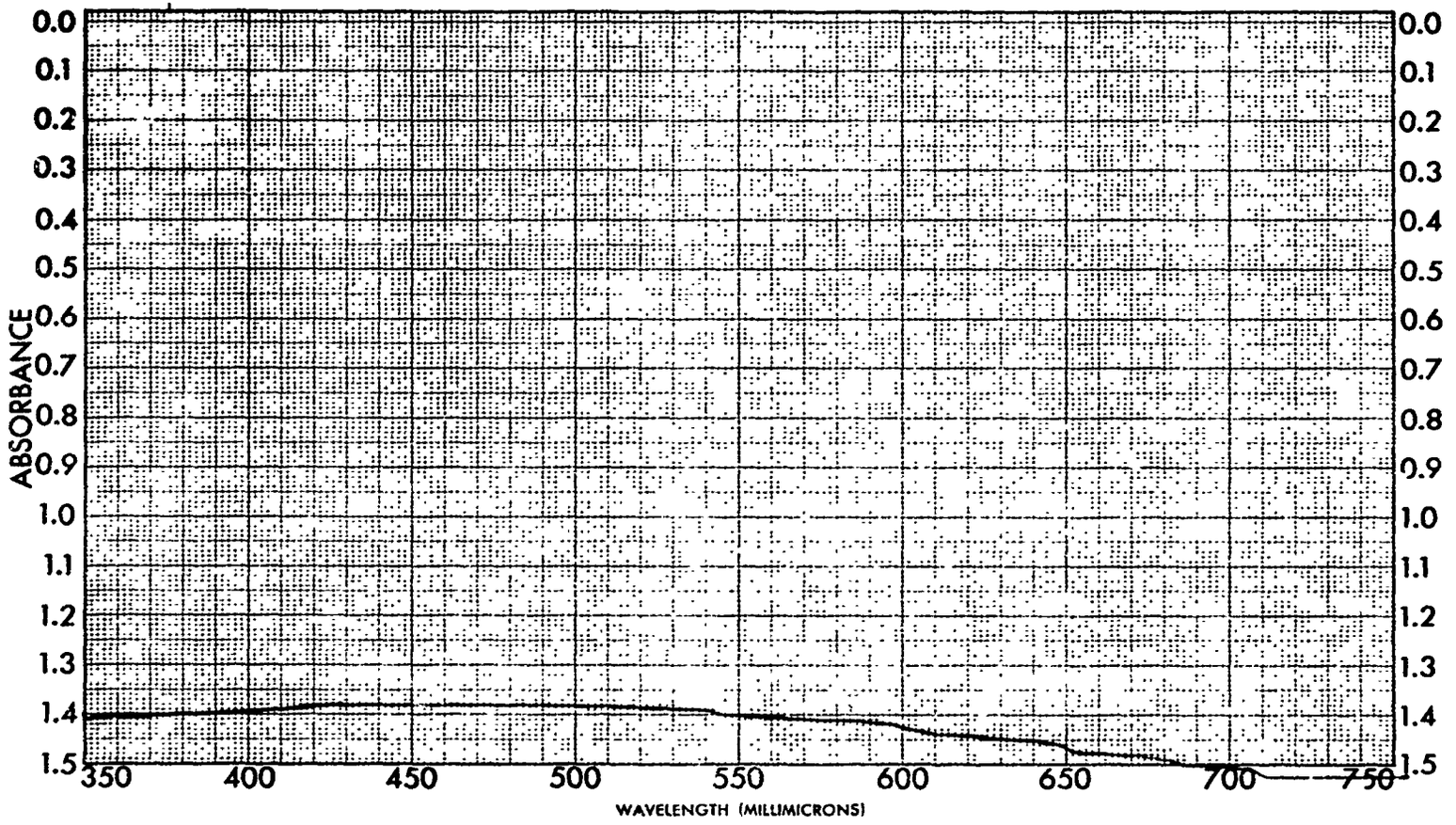


SAMPLE 21: Zinc sulfide w. ZIPBOND CONTACT CEMENT	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .001"		

NWC TP 5583

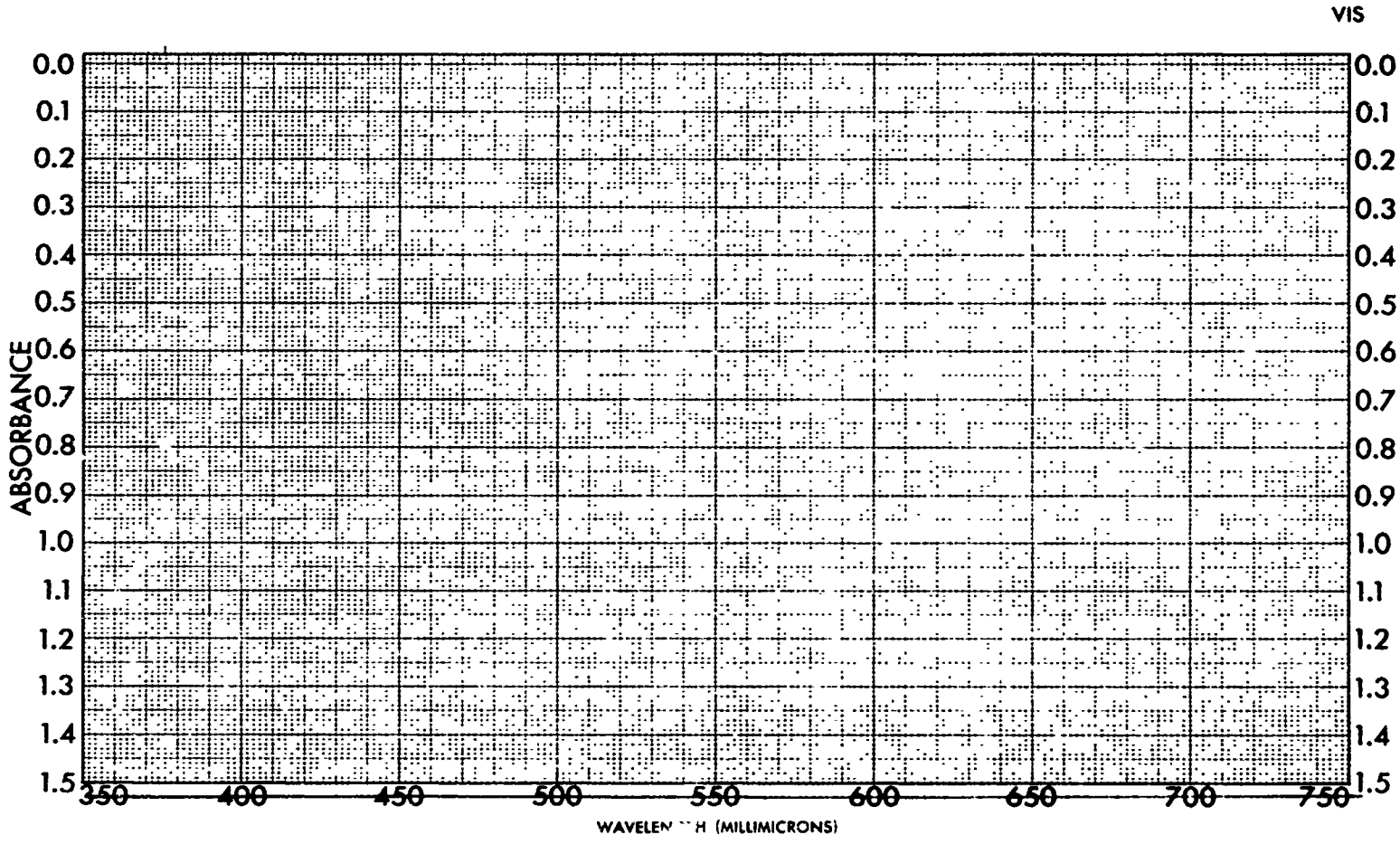

VIS
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5
350 400 450 500 550 600 650 700 750
WAVELENGTH (MILLIMICRONS)
ABSORBANCE
SAMPLE 22: zinc selenide with EPO-TEK 301
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .002"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/16/73

VIS



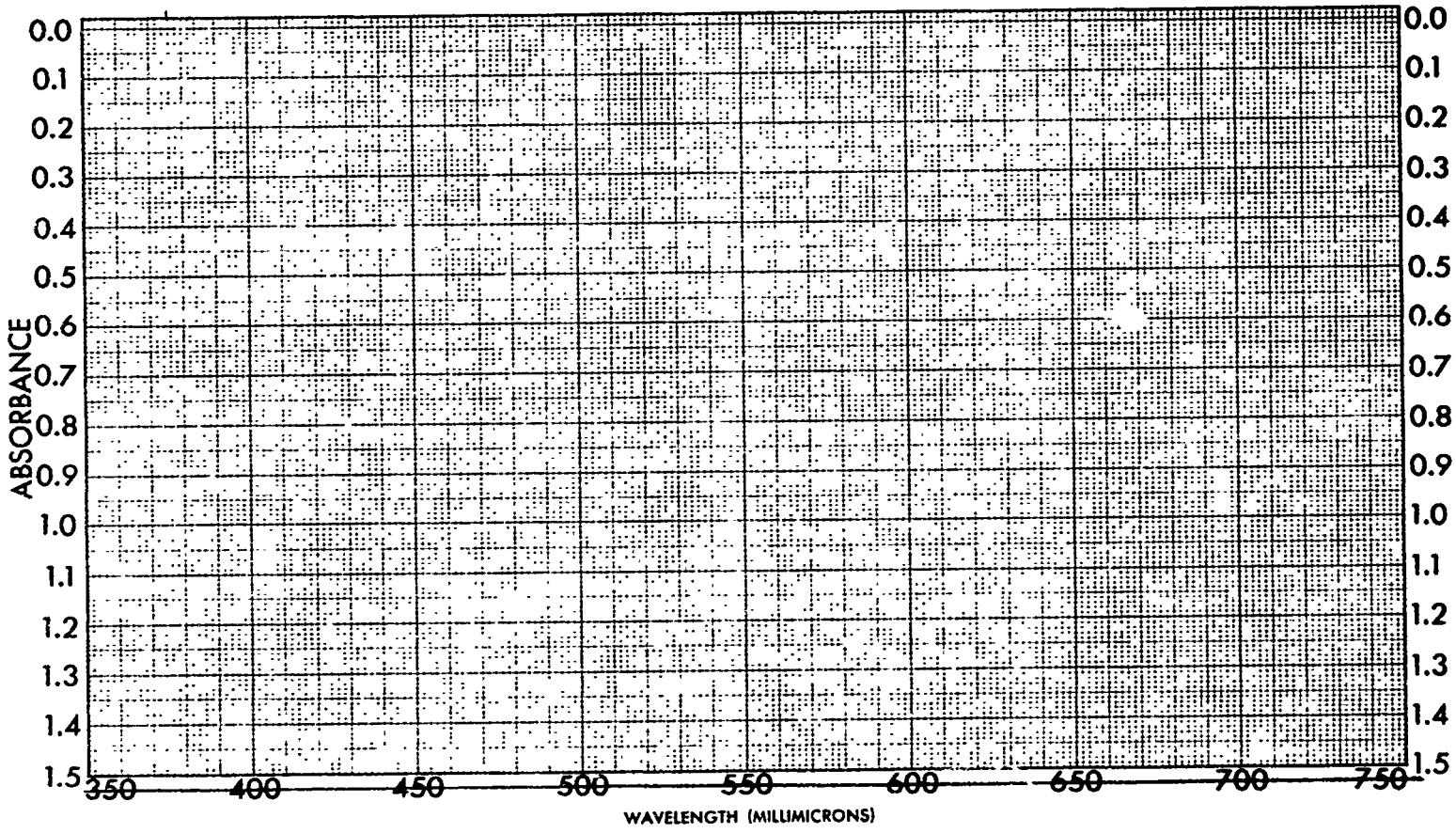
SAMPLE 23: Zinc sulfide w. EPO-TEK 301	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0025"		

NWC TP 5583



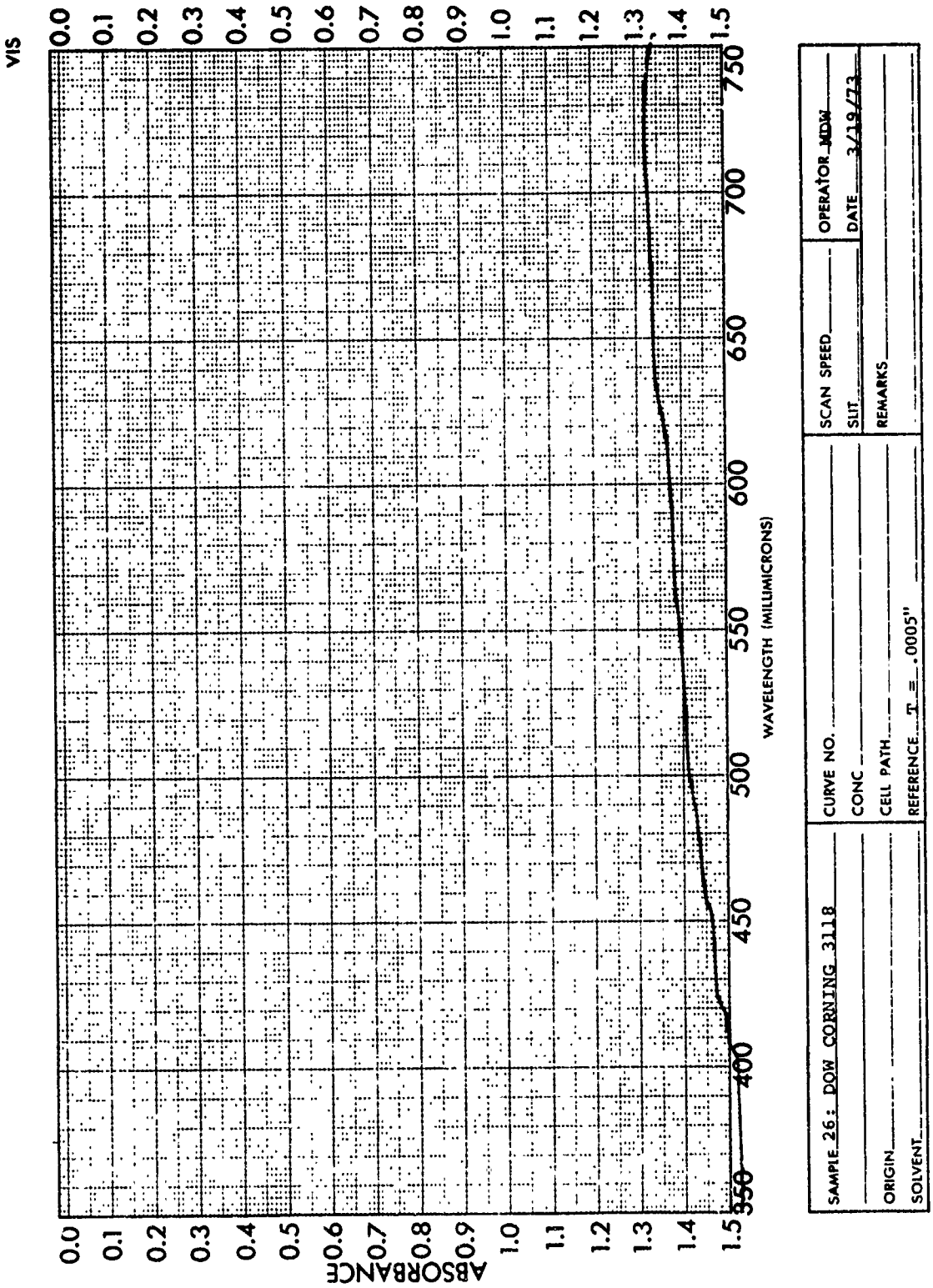
SAMPLE 24: 1" dia. epoxy plug w. zinc selenide & EPO-TEK 301	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .040"		

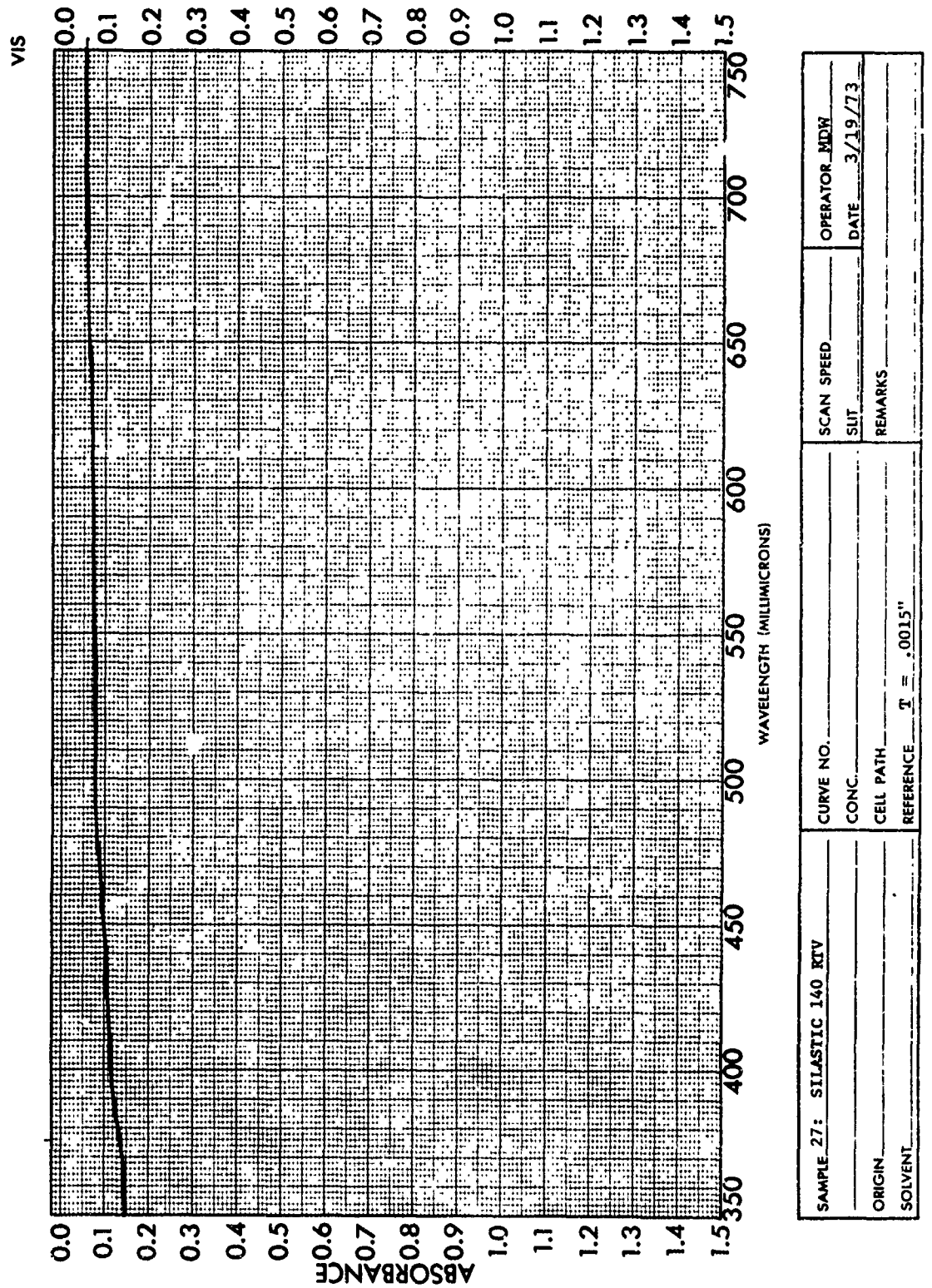
VIS

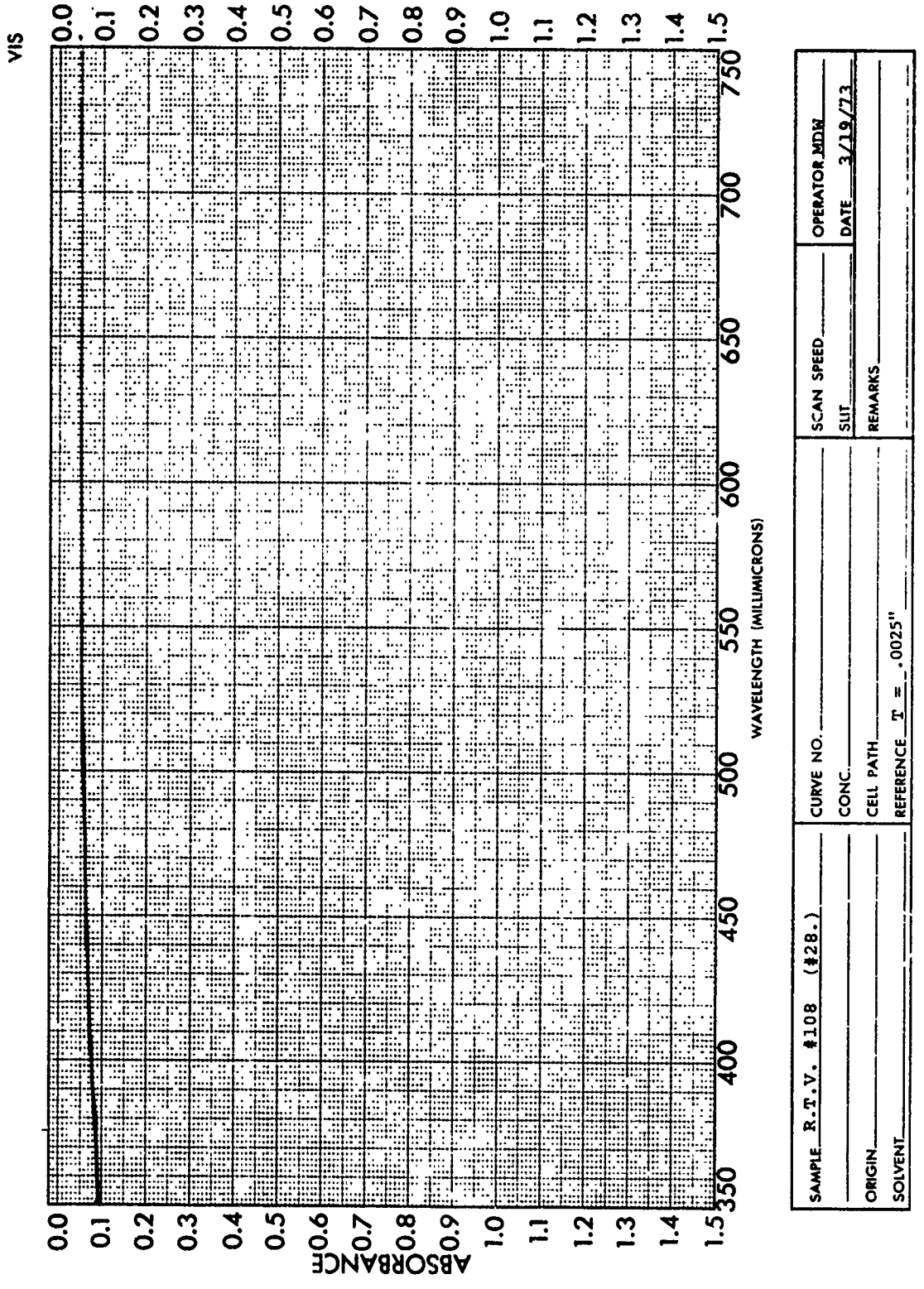


SAMPLE 25: 1" dia. epoxy plug w. zinc sulfide & EPO-TEK 301	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/16/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .049"		

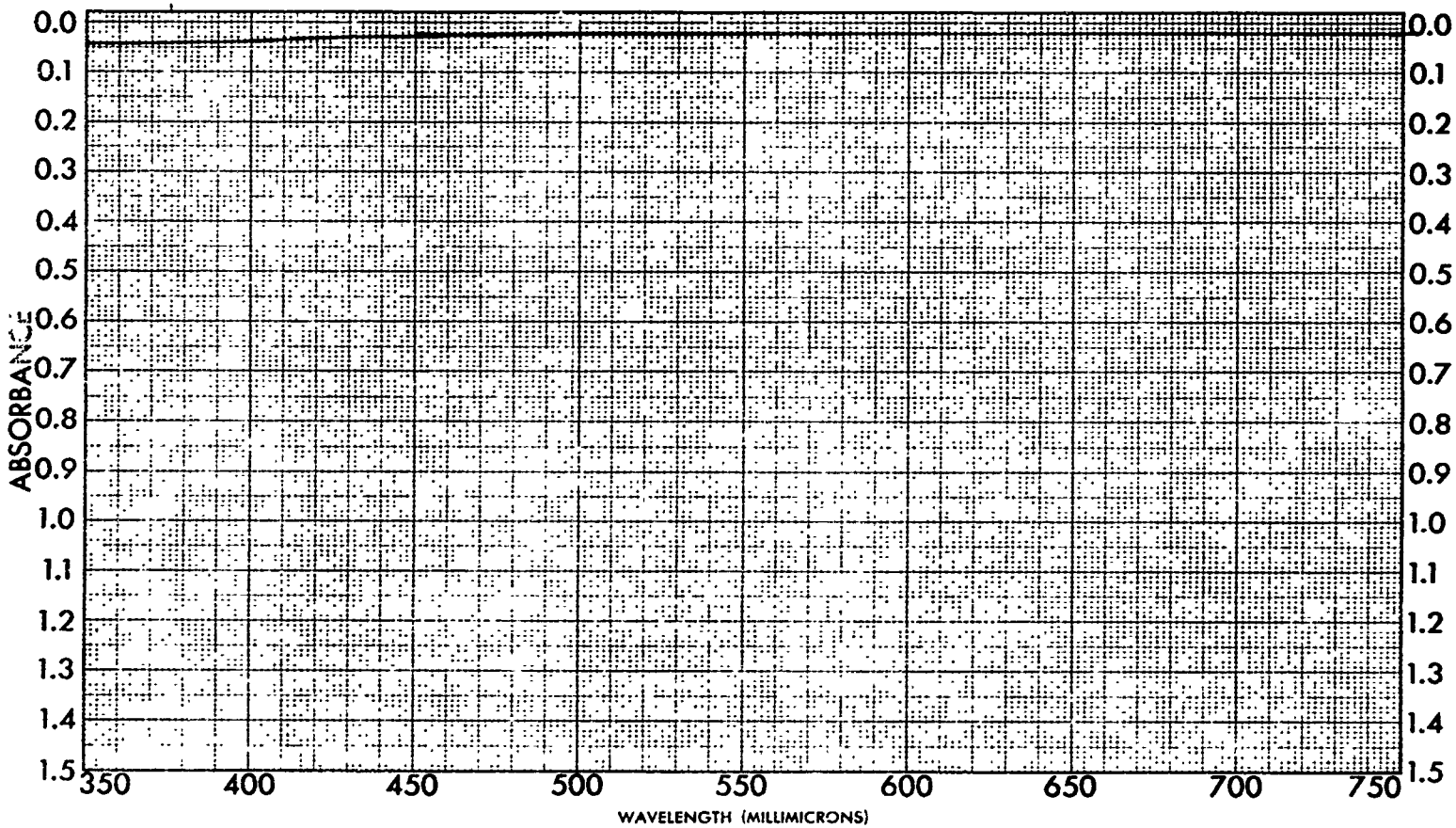
NWC TP 5583


VIS
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5
350 400 450 500 550 600 650 700 750
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 26: DOW CORNING 3118
ORIGIN
SOLVENT
CURVE NO.
CONC
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73


VIS
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
ABSORBANCE
350
400
450
500
550
600
650
700
750
WAVELENGTH (MILLIMICRONS)
SAMPLE 27: SILASTIC 140 RTV
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0015"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73

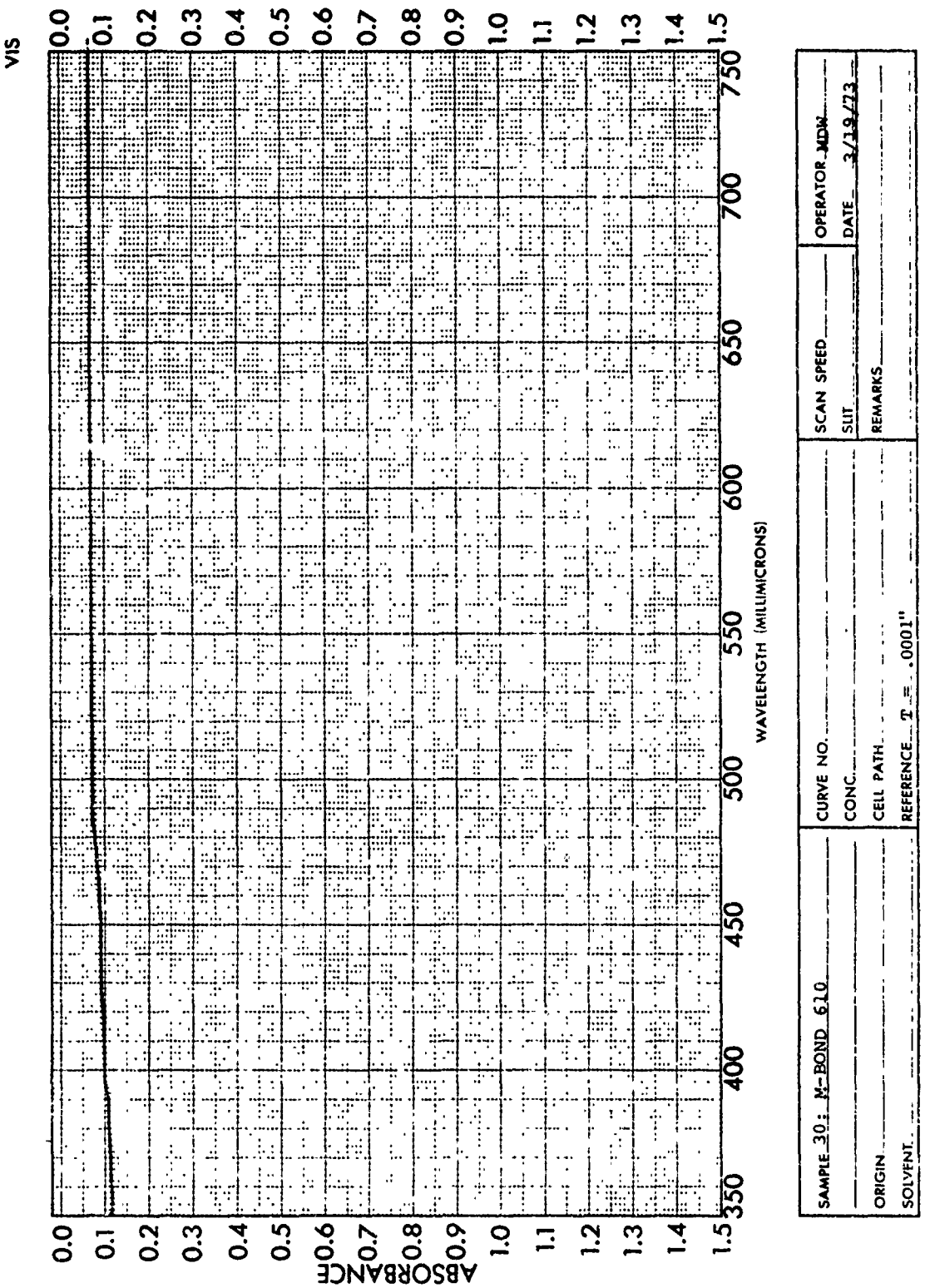

VIS
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
ABSORBANCE
350
400
450
500
550
600
650
700
750
WAVELENGTH (MILLIMICRONS)
SAMPLE R.T.V. #108 (#28.)
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0025"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73

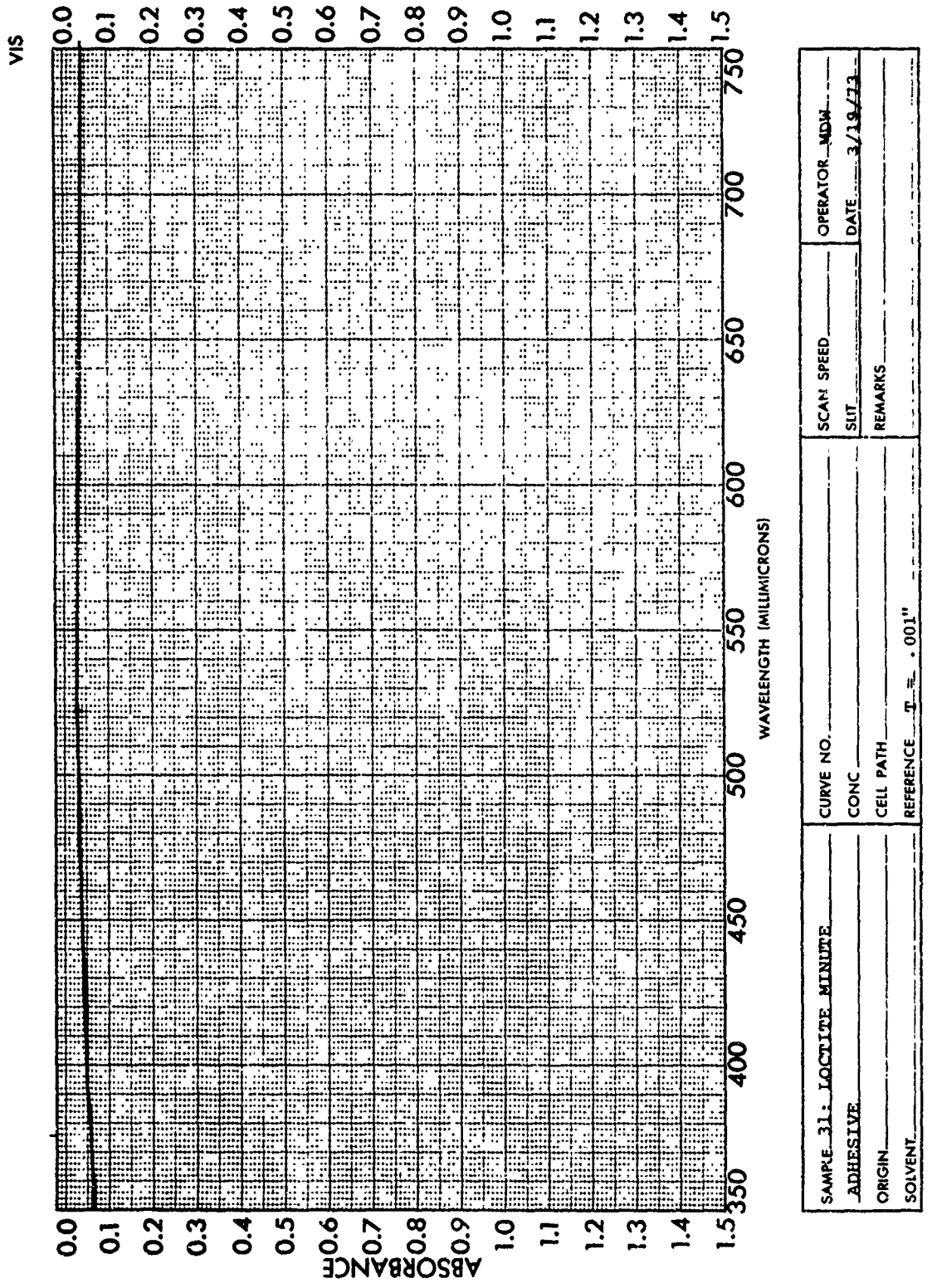
VIS

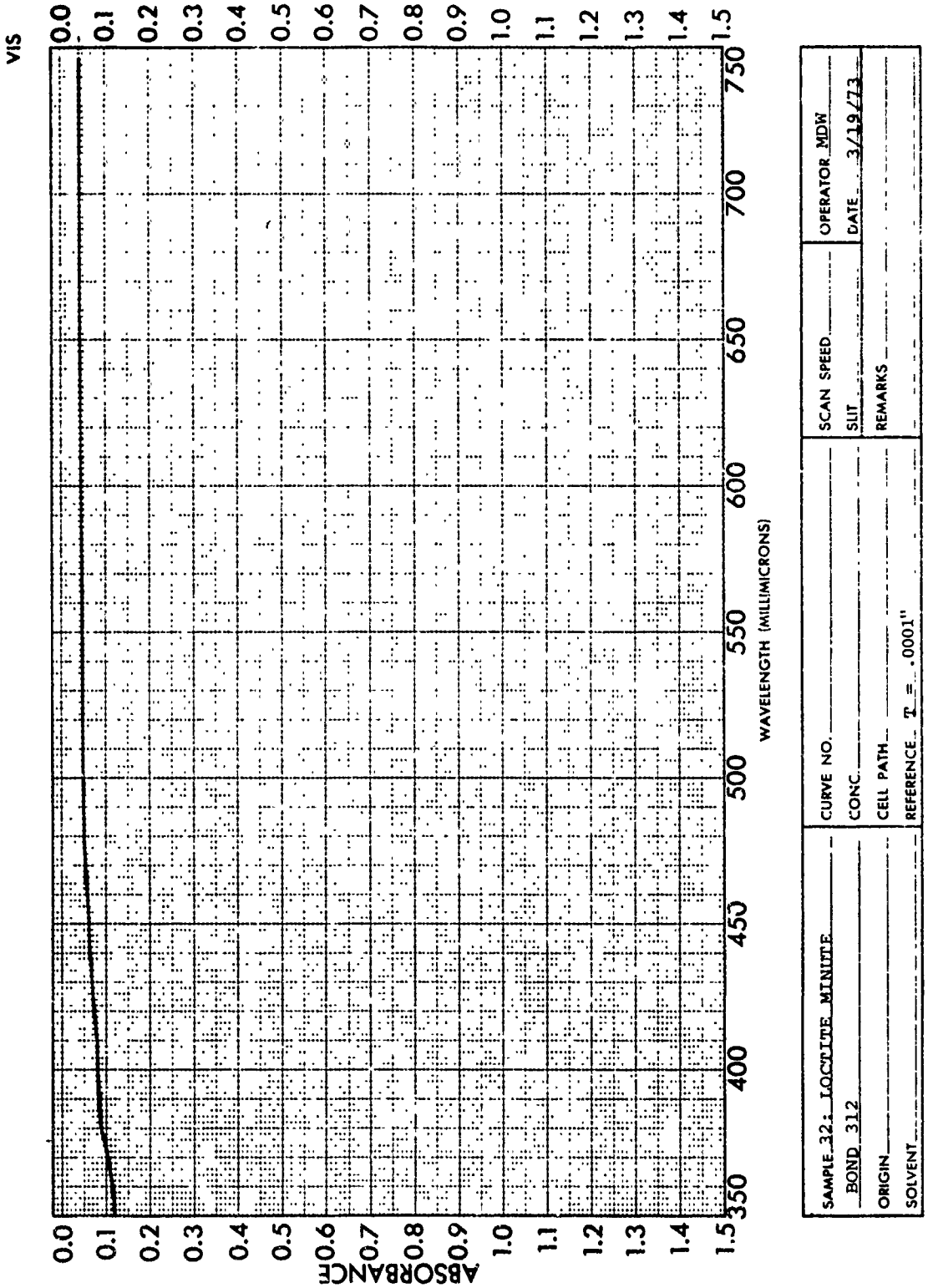


SAMPLE 29: EASTMAN 910	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0001"		

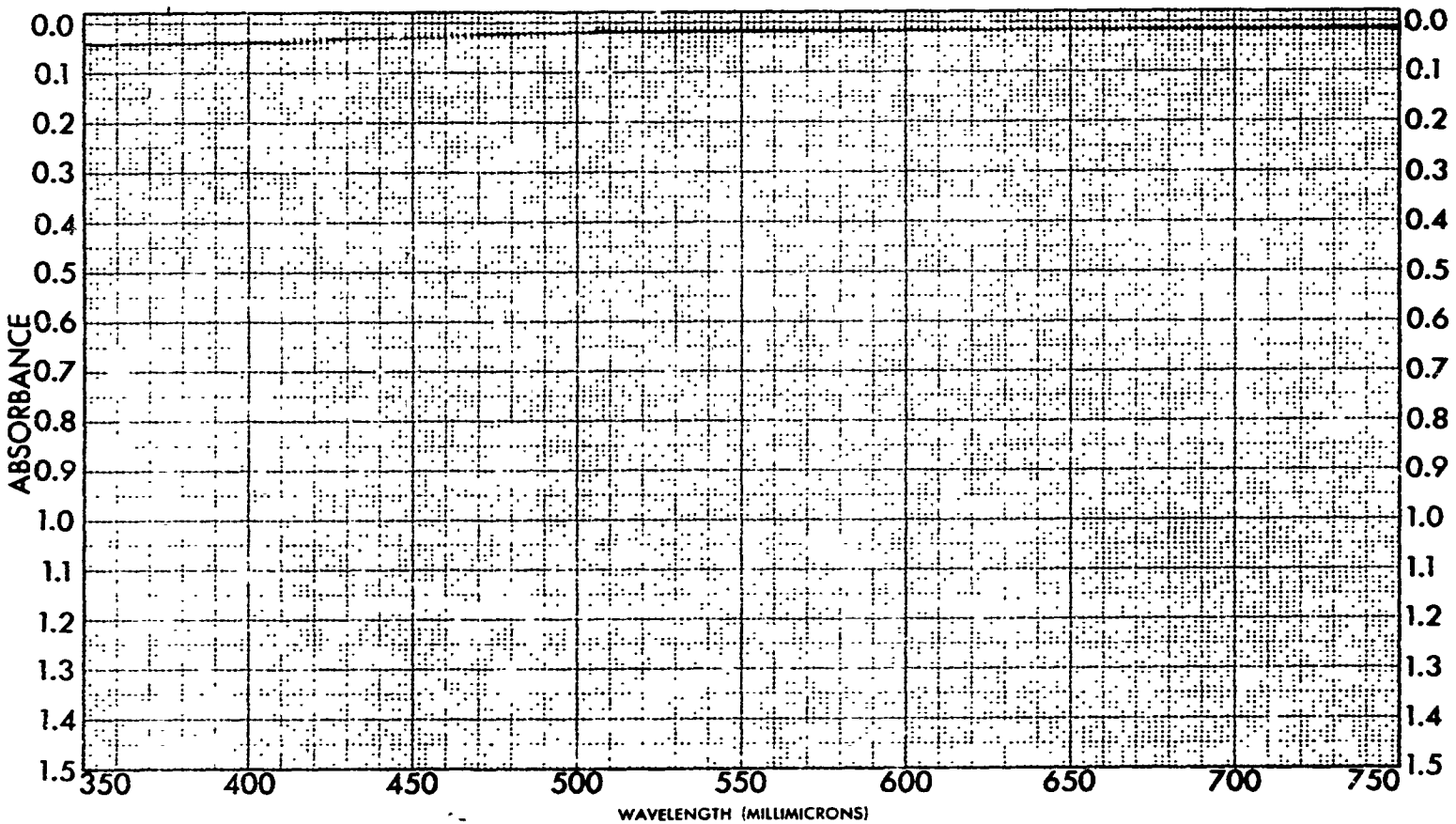
NWC TP 5583


VIS
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
350
400
450
500
550
600
650
700
750
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 30: M-BOND 610
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0001"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73


VIS
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
ABSORBANCE
350
400
450
500
550
600
650
700
750
WAVELENGTH (MILLIMICRONS)
SAMPLE 31: LOCTITE MINUTE
ADHESIVE
ORIGIN
SOLVENT
CURVE NO.
CONC
CELL PATH
REFERENCE T = .001"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73

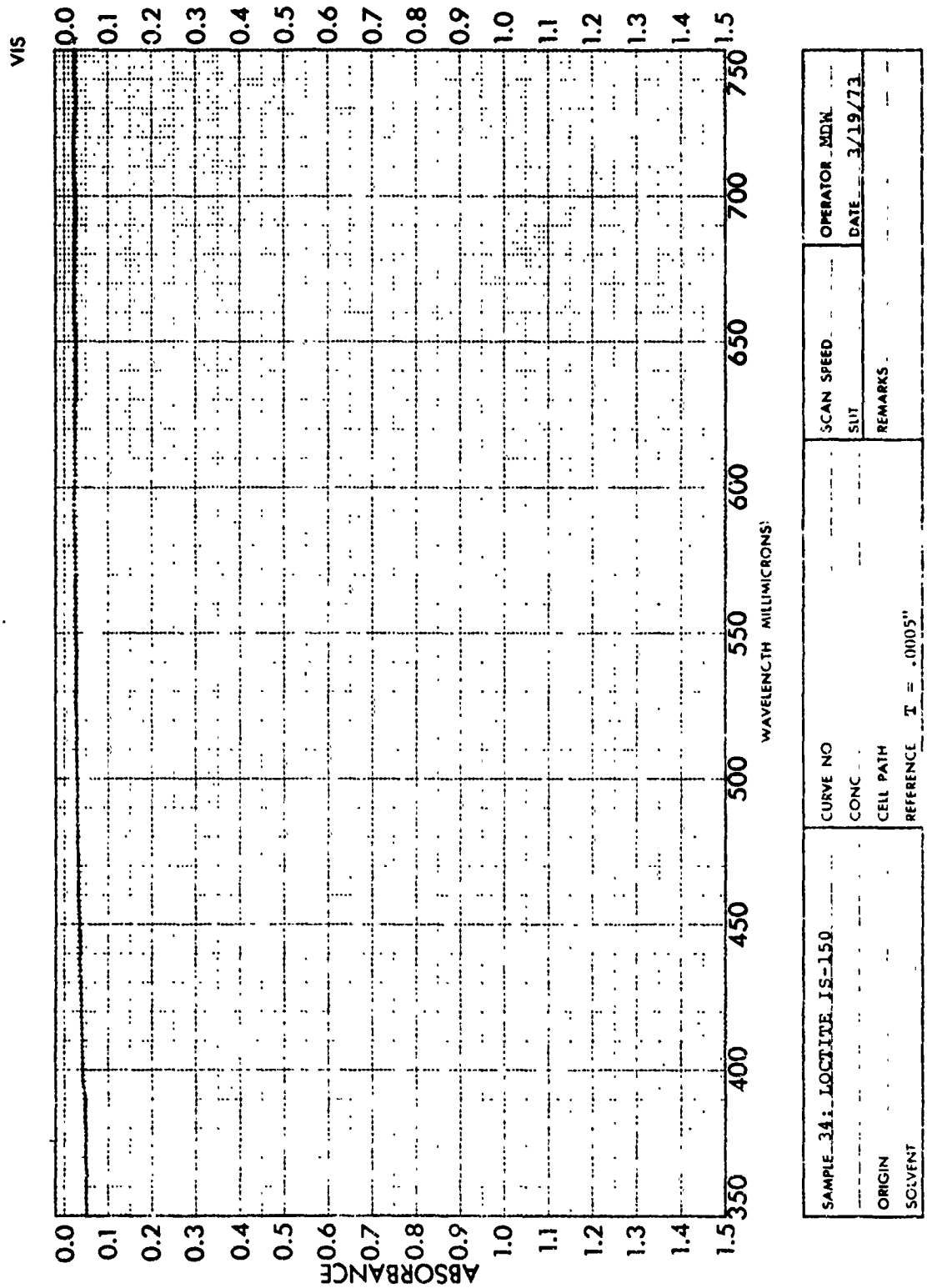

VIS
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
350
400
450
500
550
600
650
700
750
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 32: LOCTITE MINITE BOND 312
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0001"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73

VIS

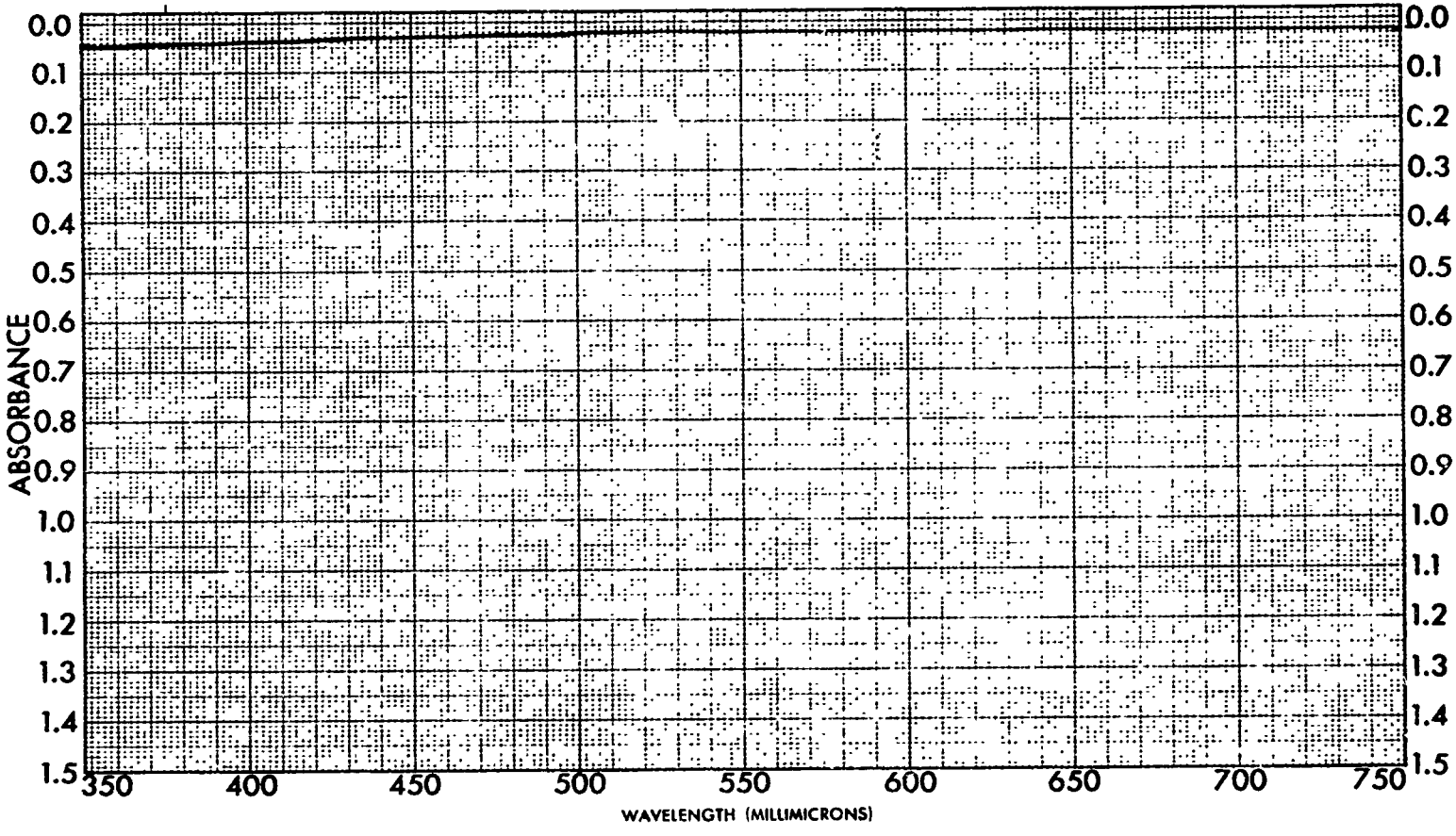


SAMPLE 33: LOCTITE IS-12	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0004"		

NWC TP 5583

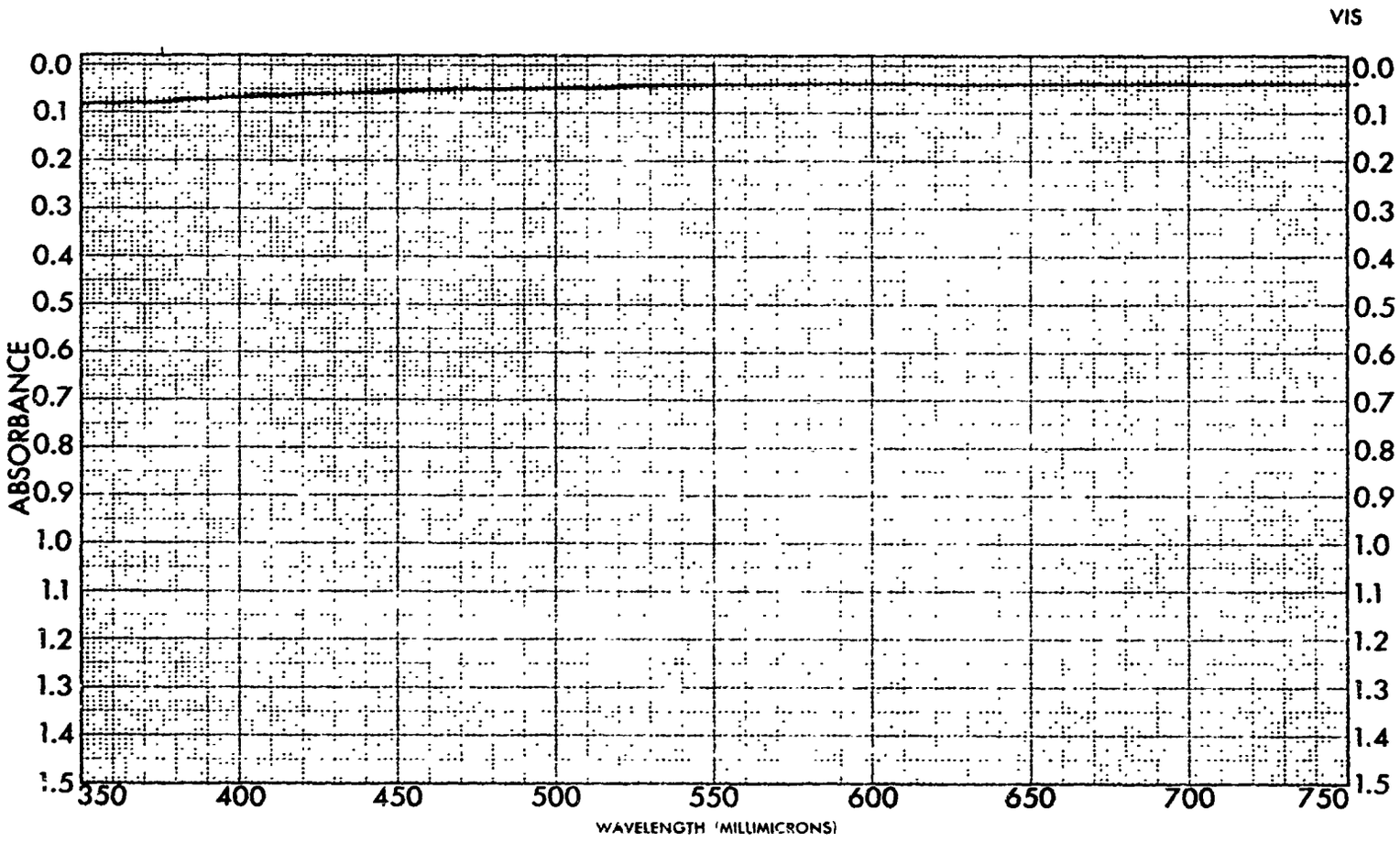

VIS
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
350
400
450
500
550
600
650
700
750
ABSORBANCE
WAVELENGTH MILLIMICRONS
SAMPLE 34: LOCTITE IS-150
ORIGIN
SOLVENT
CURVE NO
CONC
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDH
DATE 3/19/73

VIS

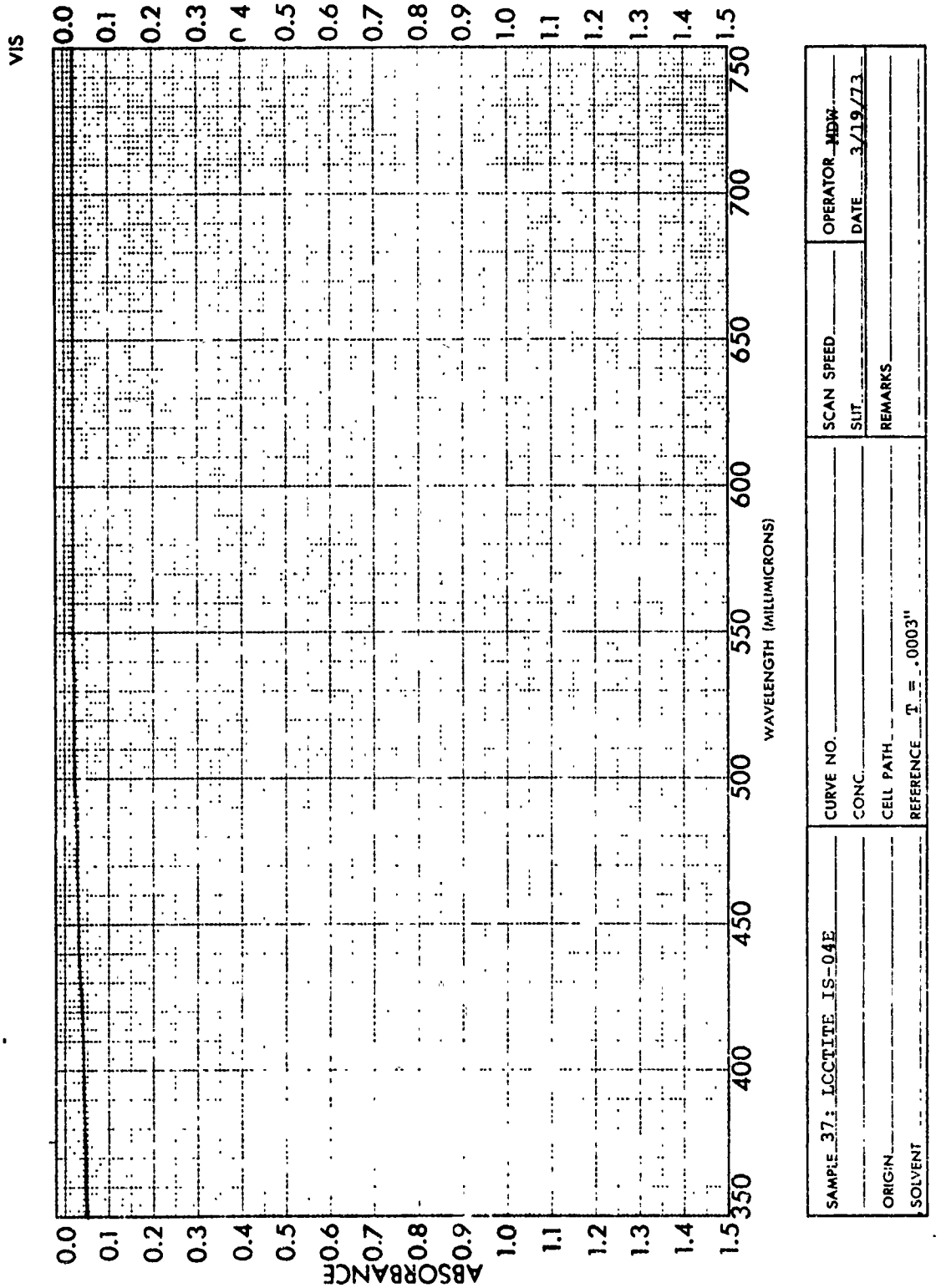


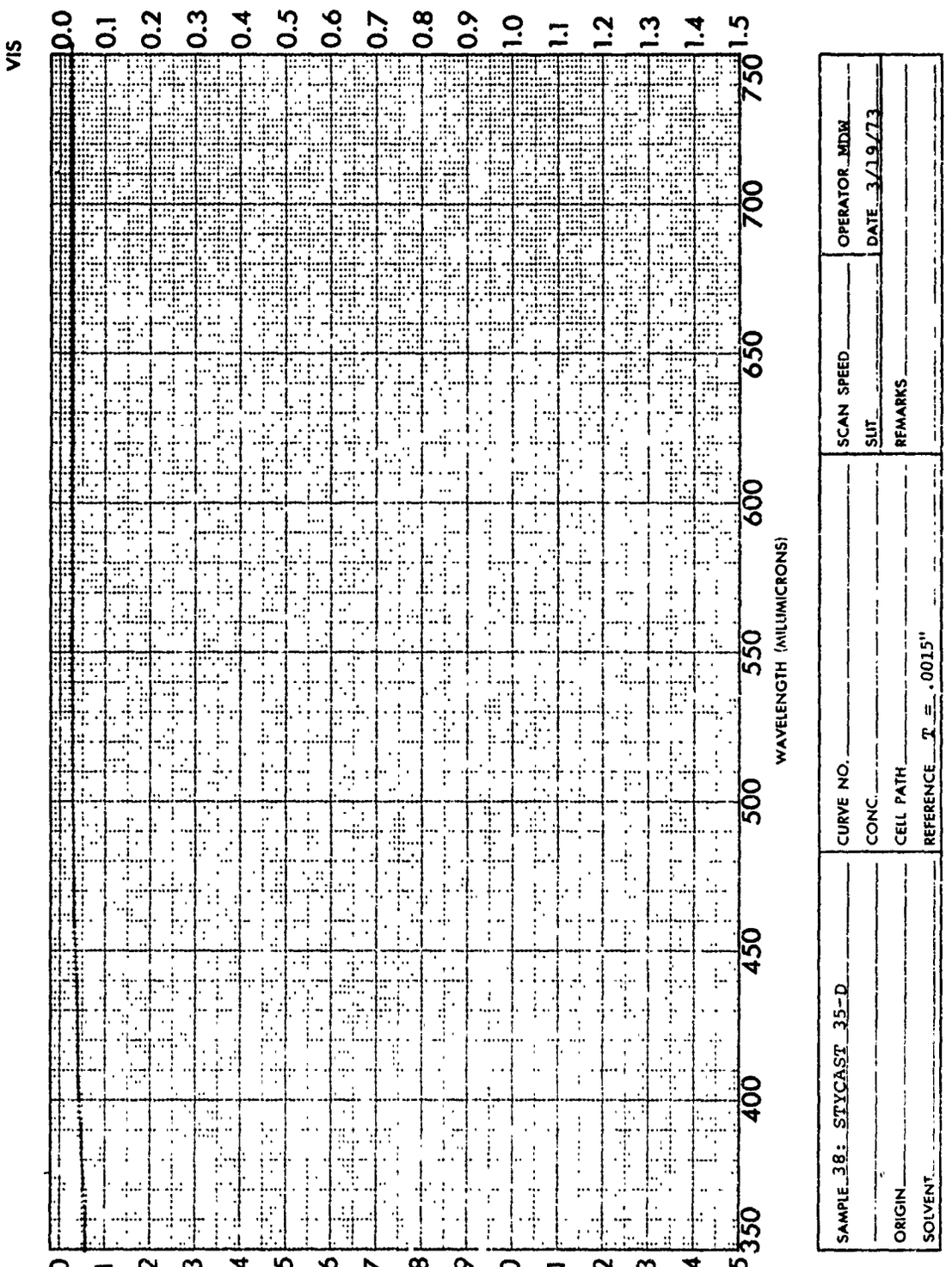
SAMPLE 35: LOCTITE IS-03	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0004"		

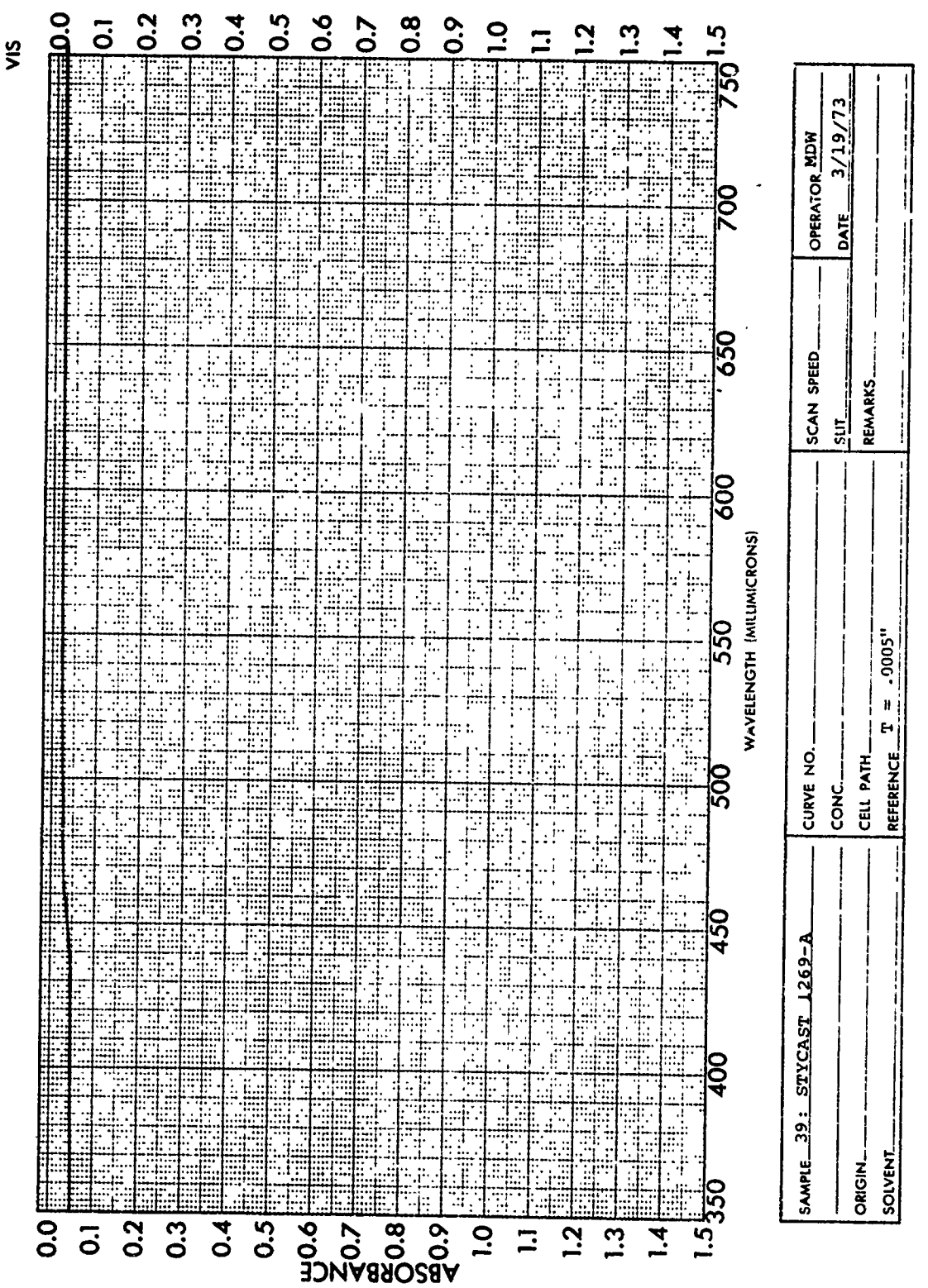
NWC TP 5583

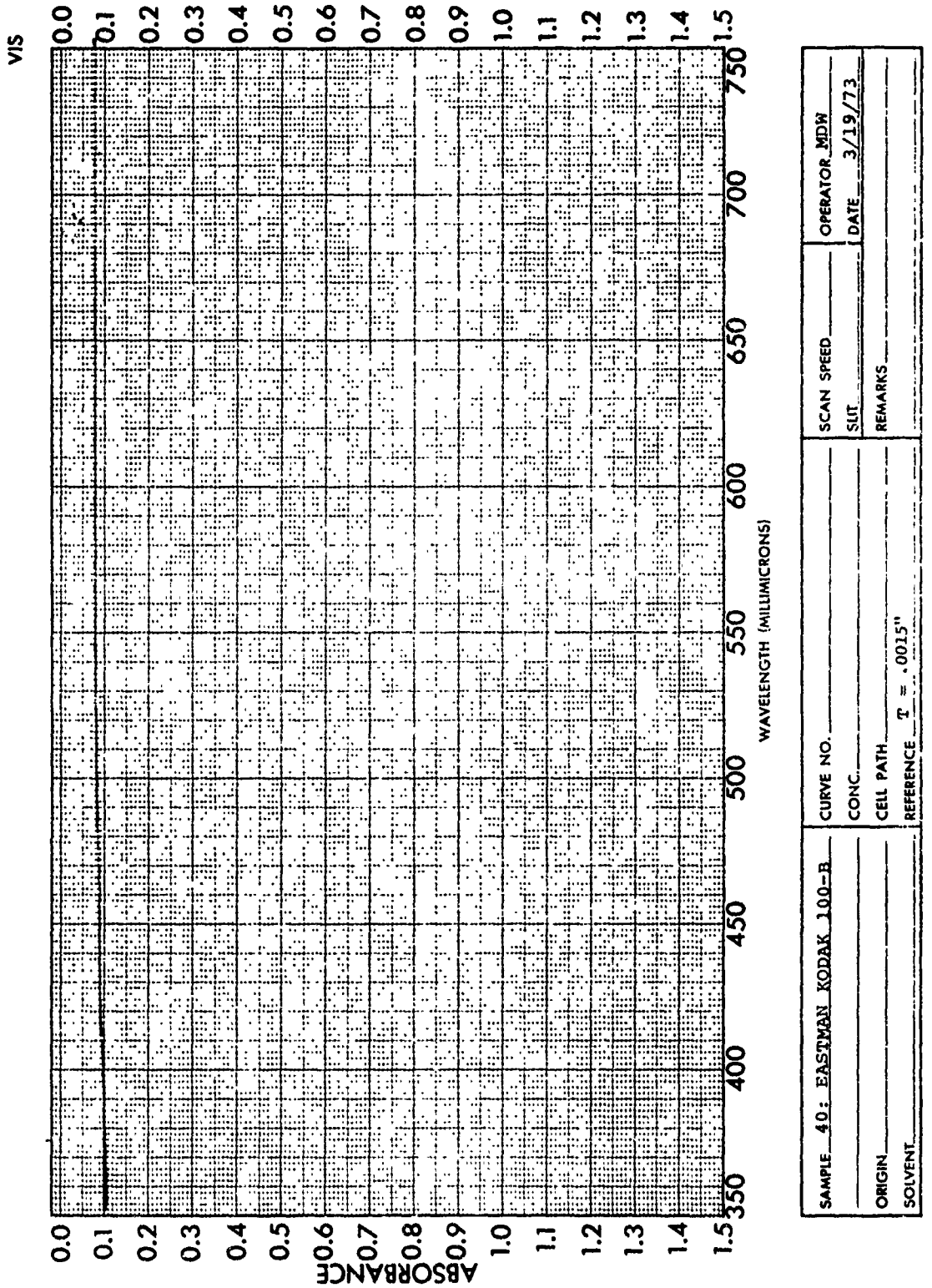


SAMPLE 36: LOCTITE IS-06	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0003"		

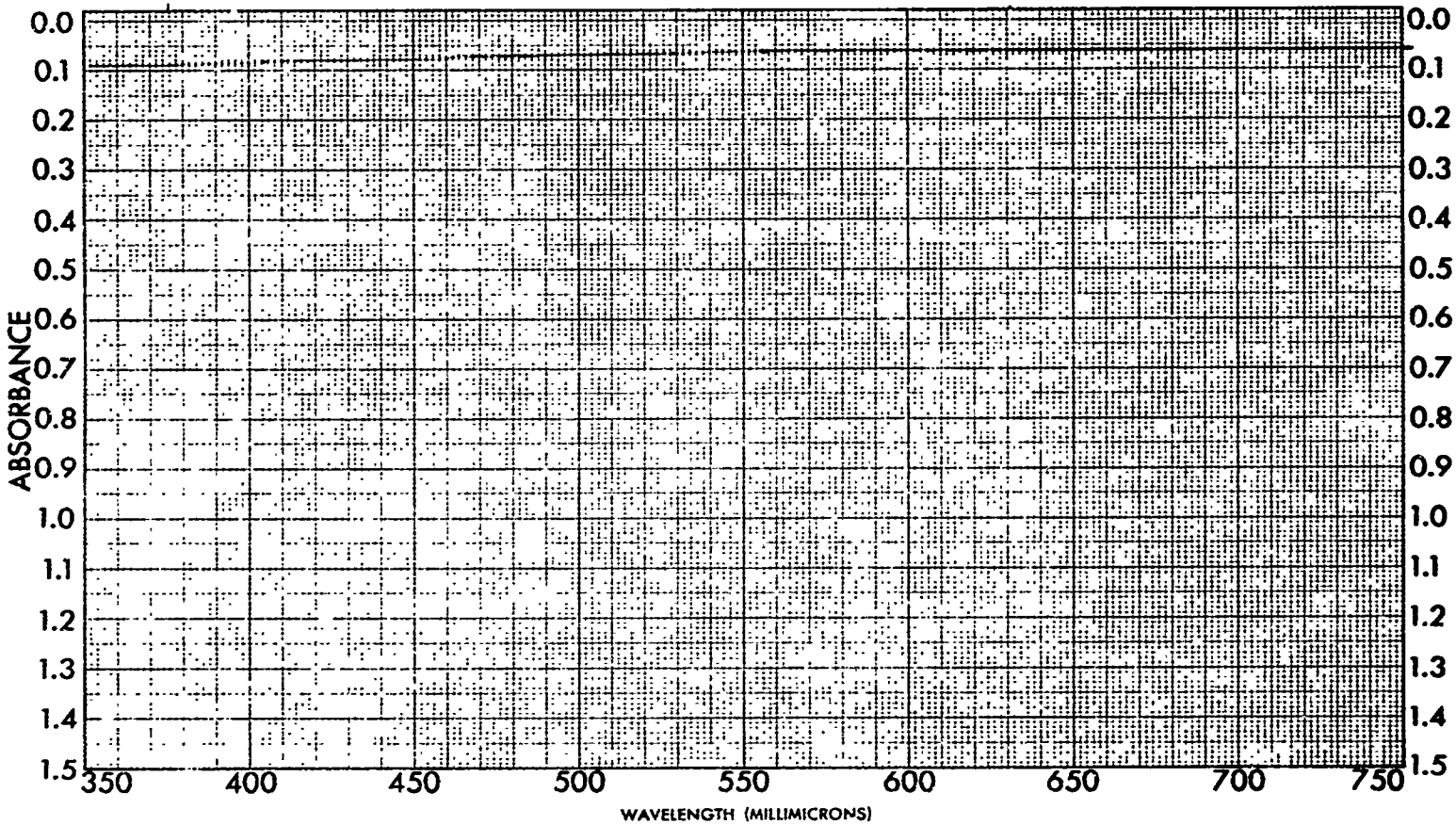

VIS
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
ABSORBANCE
350
400
450
500
550
600
650
700
750
WAVELENGTH (MILLIMICRONS)
SAMPLE 37: LOCTITE IS-04E
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0003"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73


VIS
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 38: STYCAST 35-D
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0015"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73


VIS
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5
350 400 450 500 550 600 650 700 750
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 39: STYCAST 1269-A
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73


VIS
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
350
400
450
500
550
600
650
700
750
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 40: EASTMAN KODAK 100-B
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0015"
ORIGIN
SOLVENT
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73

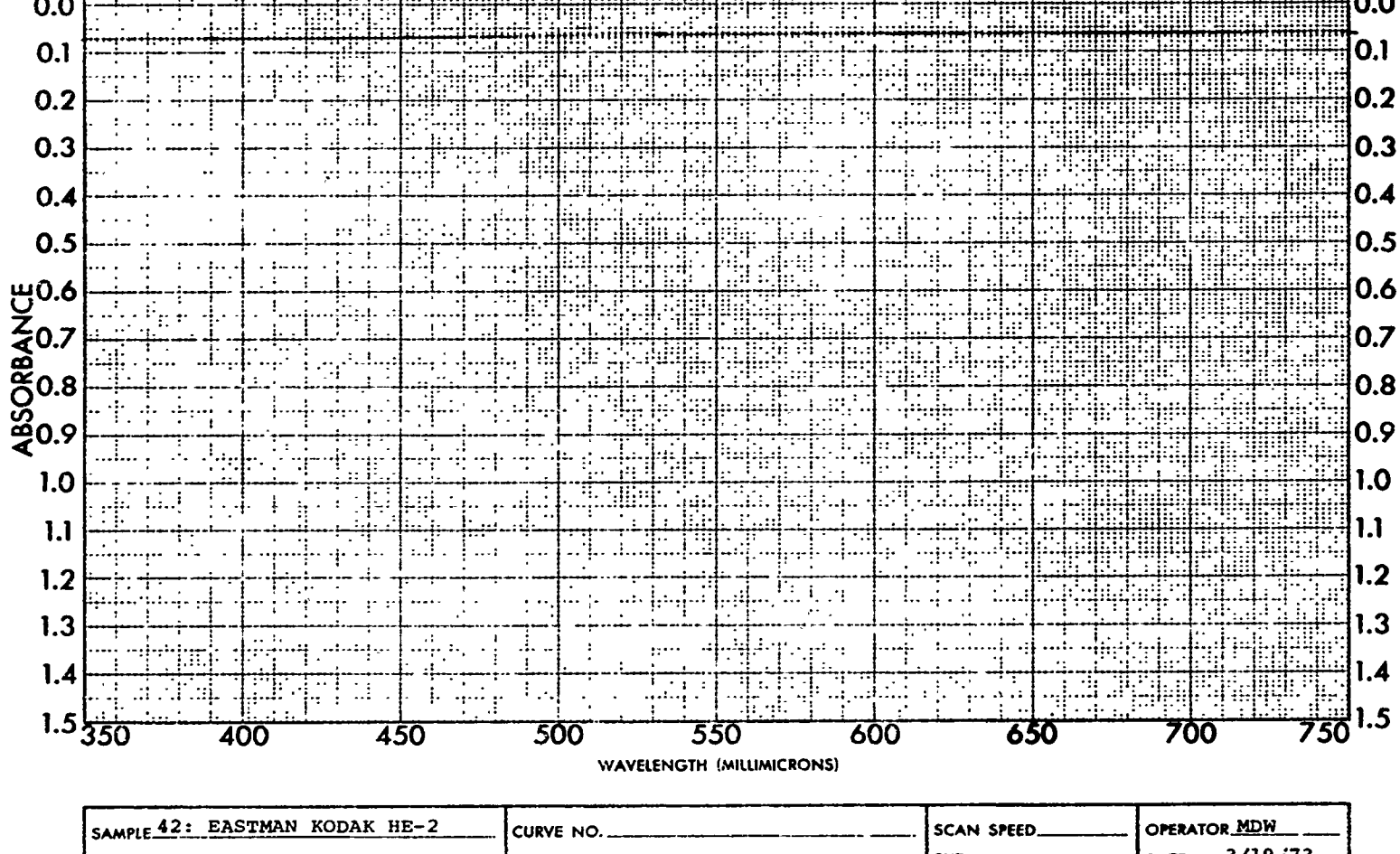
VIS



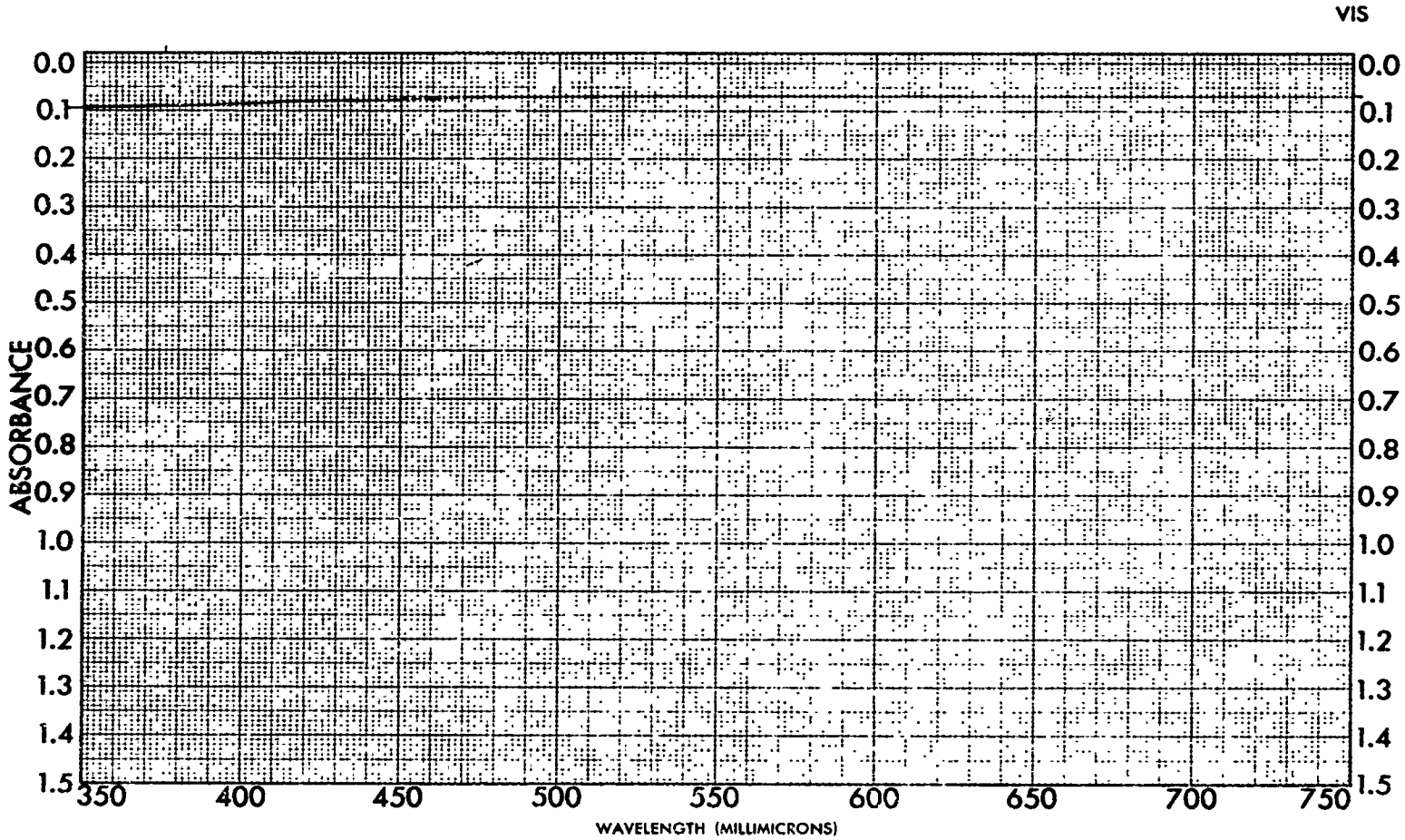
SAMPLE 41: EASTMAN KODAK 100 X	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .001"		

NMC TP 5583

VIS

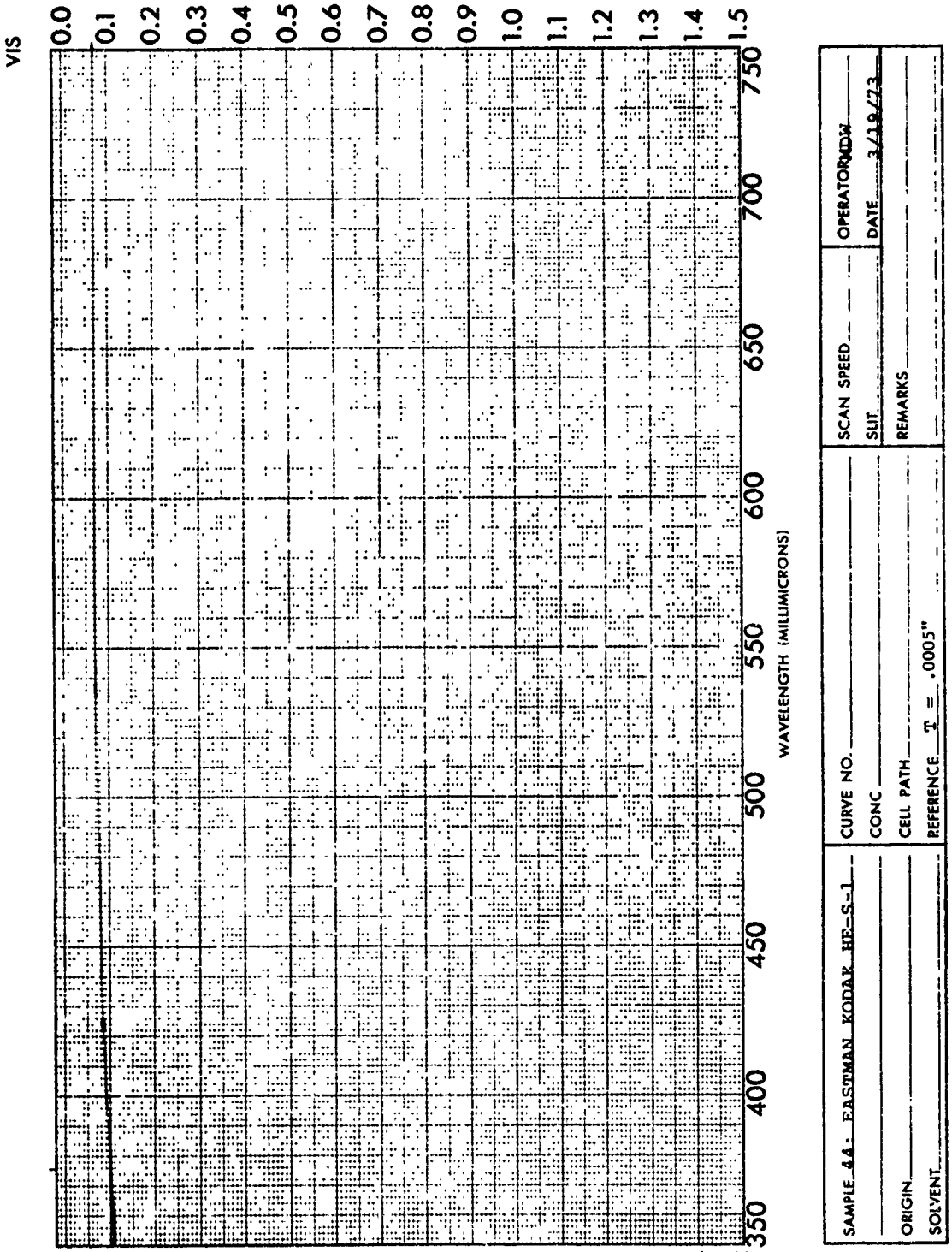


SAMPLE 42: EASTMAN KODAK HE-2	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0005"		

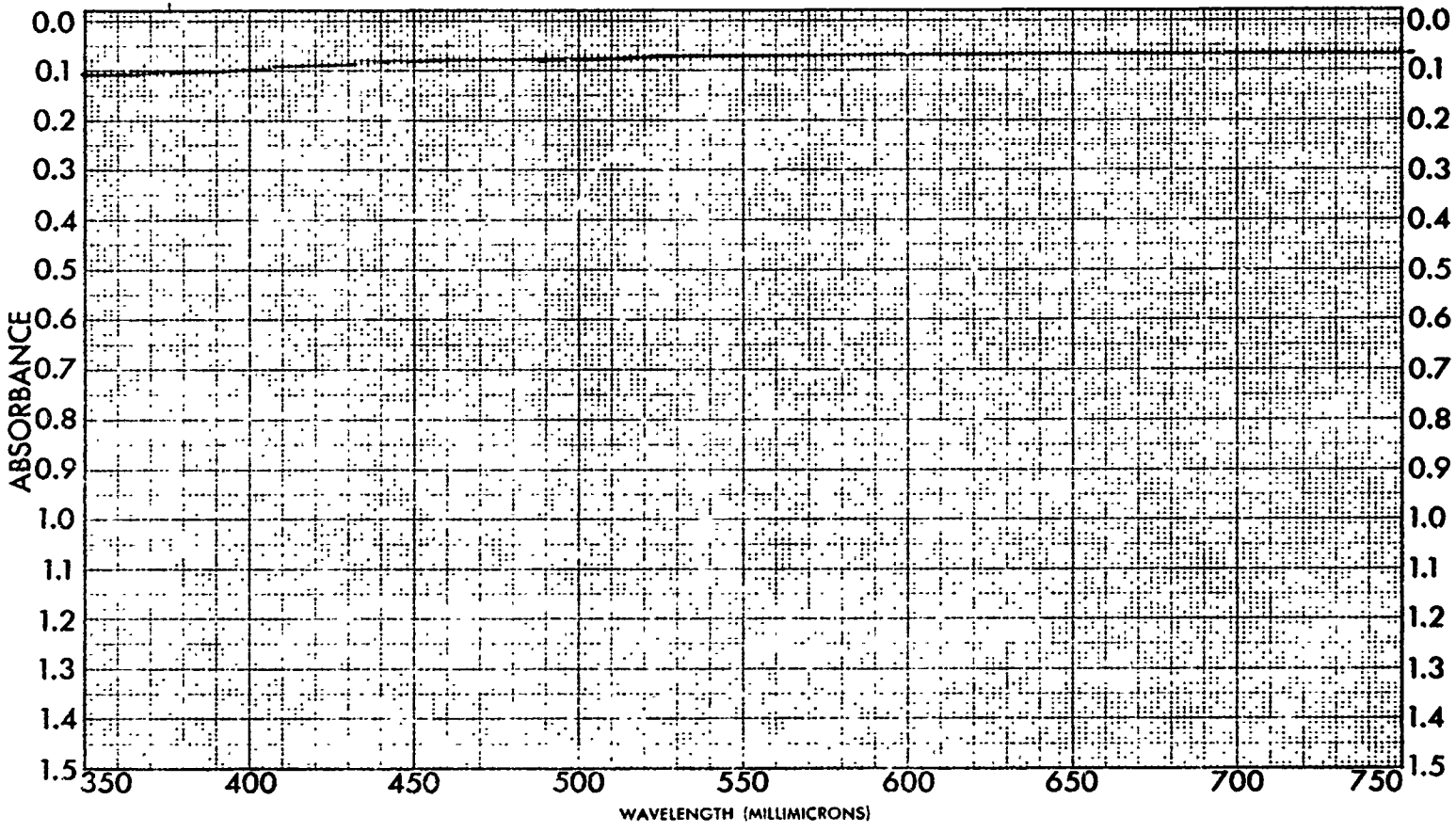


SAMPLE 43: EASTMAN KODAK HE-63	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0005"		

NMC TP 5583

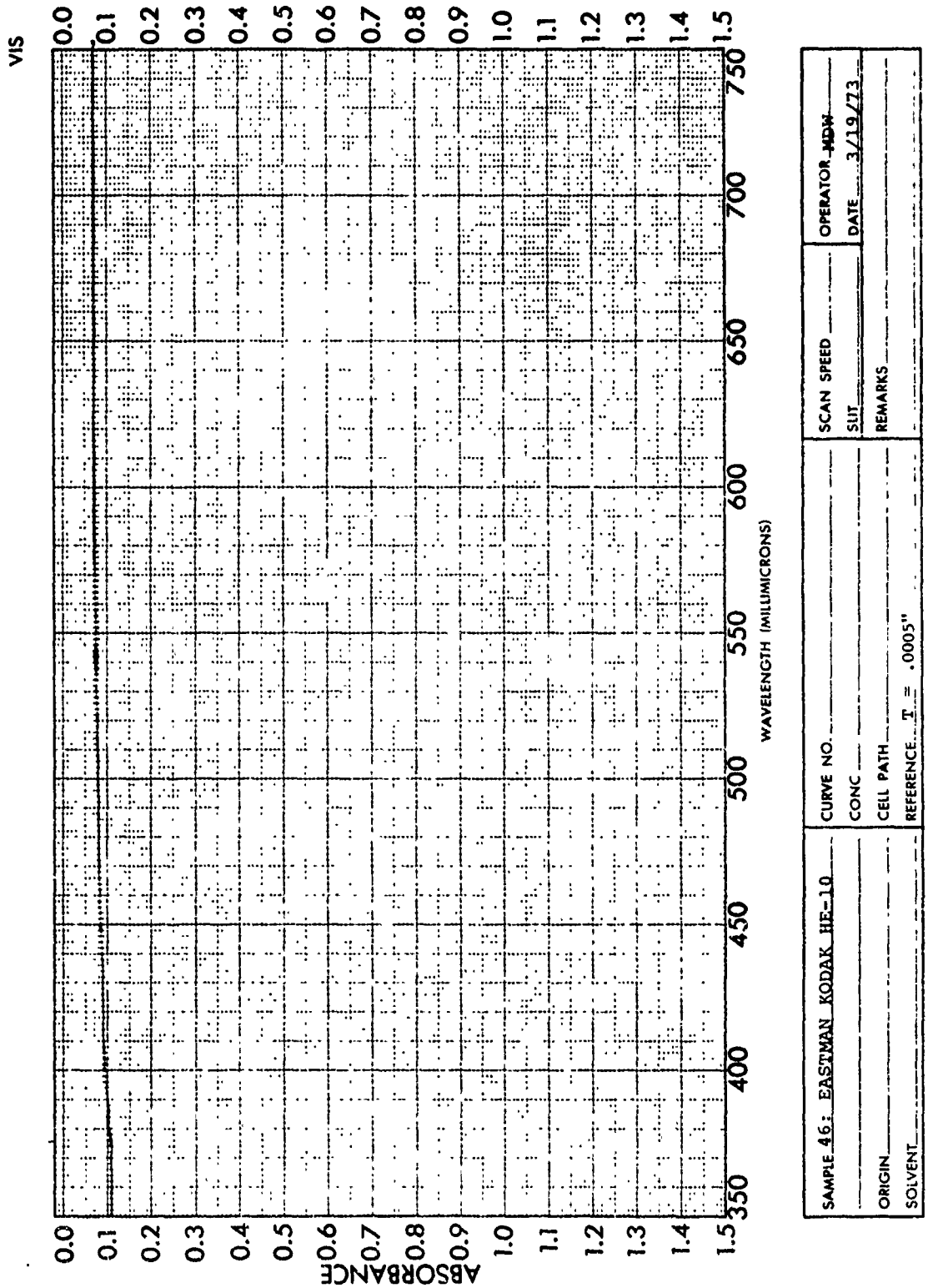

VIS
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5
350 400 450 500 550 600 650 700 750
WAVELENGTH (MILLIMICRONS)
ABSORBANCE
SAMPLE 44: EASTMAN KODAK HP-S-1
CURVE NO.
CONC
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73
ORIGIN
SOLVENT

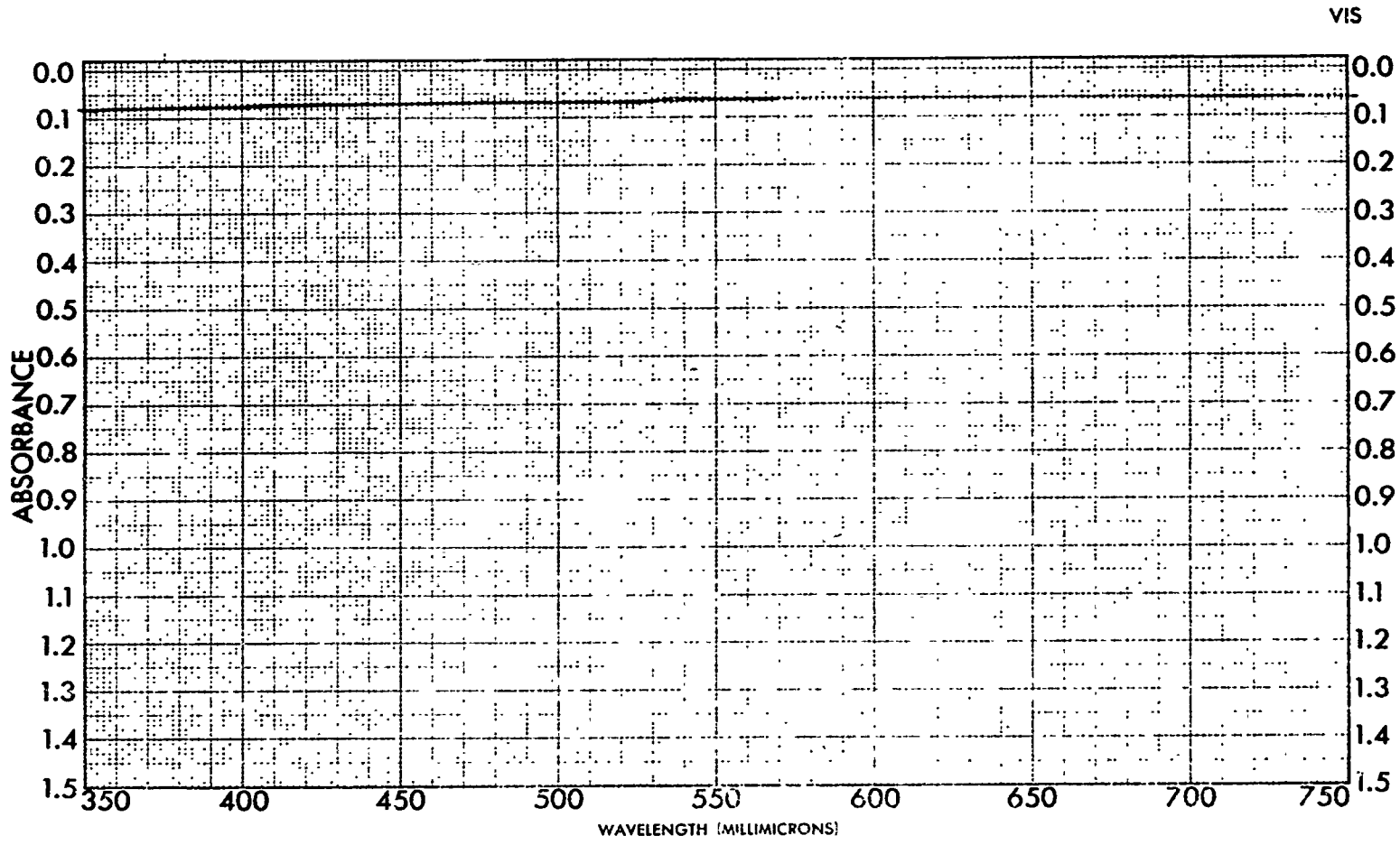
VIS



SAMPLE 45; EASTMAN KODAK HE-F-4	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0005"		

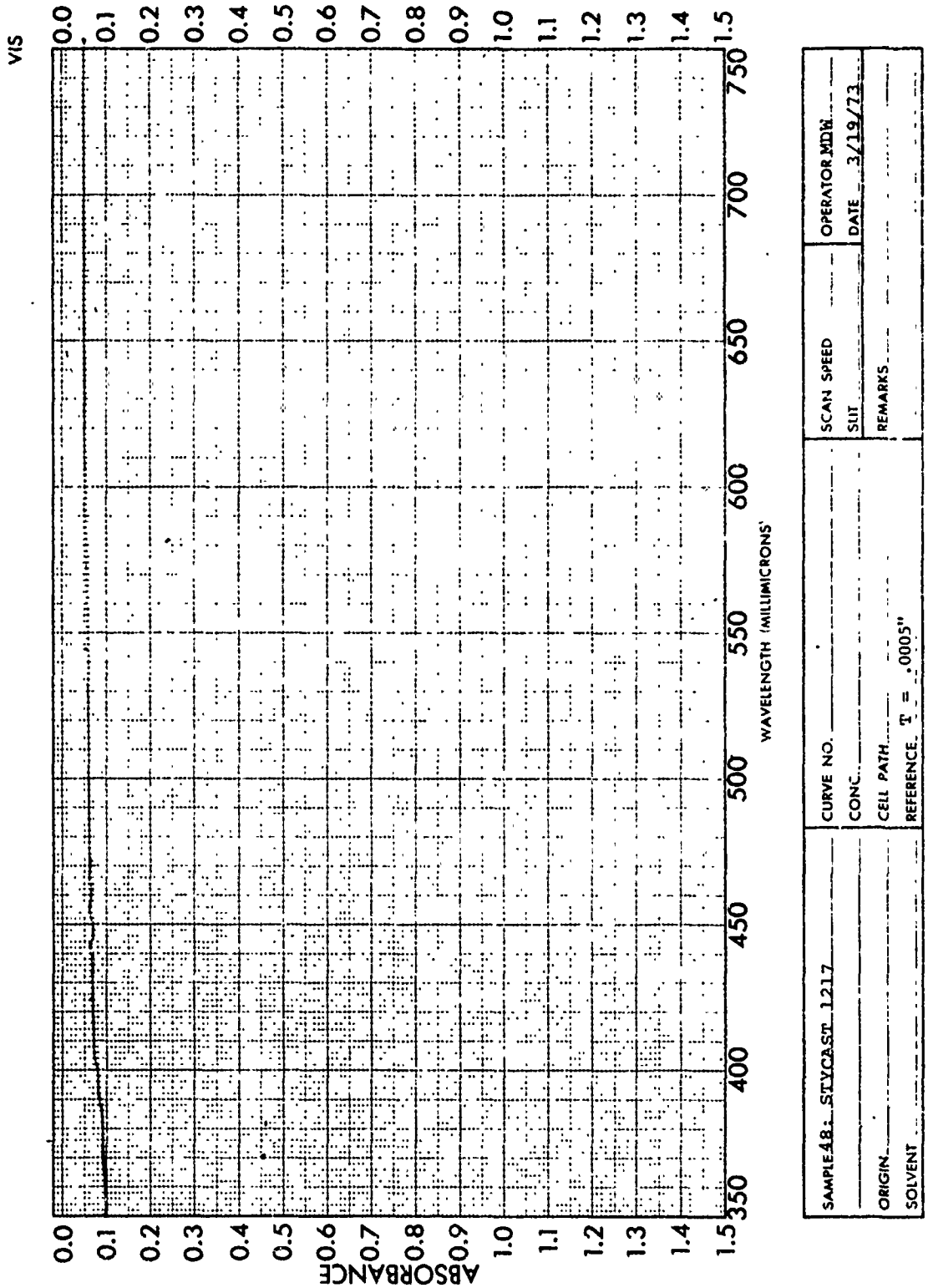
NMC TP 5583


VIS
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
350
400
450
500
550
600
650
700
750
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 46: EASTMAN KODAK HE-10
ORIGIN
SOLVENT
CURVE NO.
CONC
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73

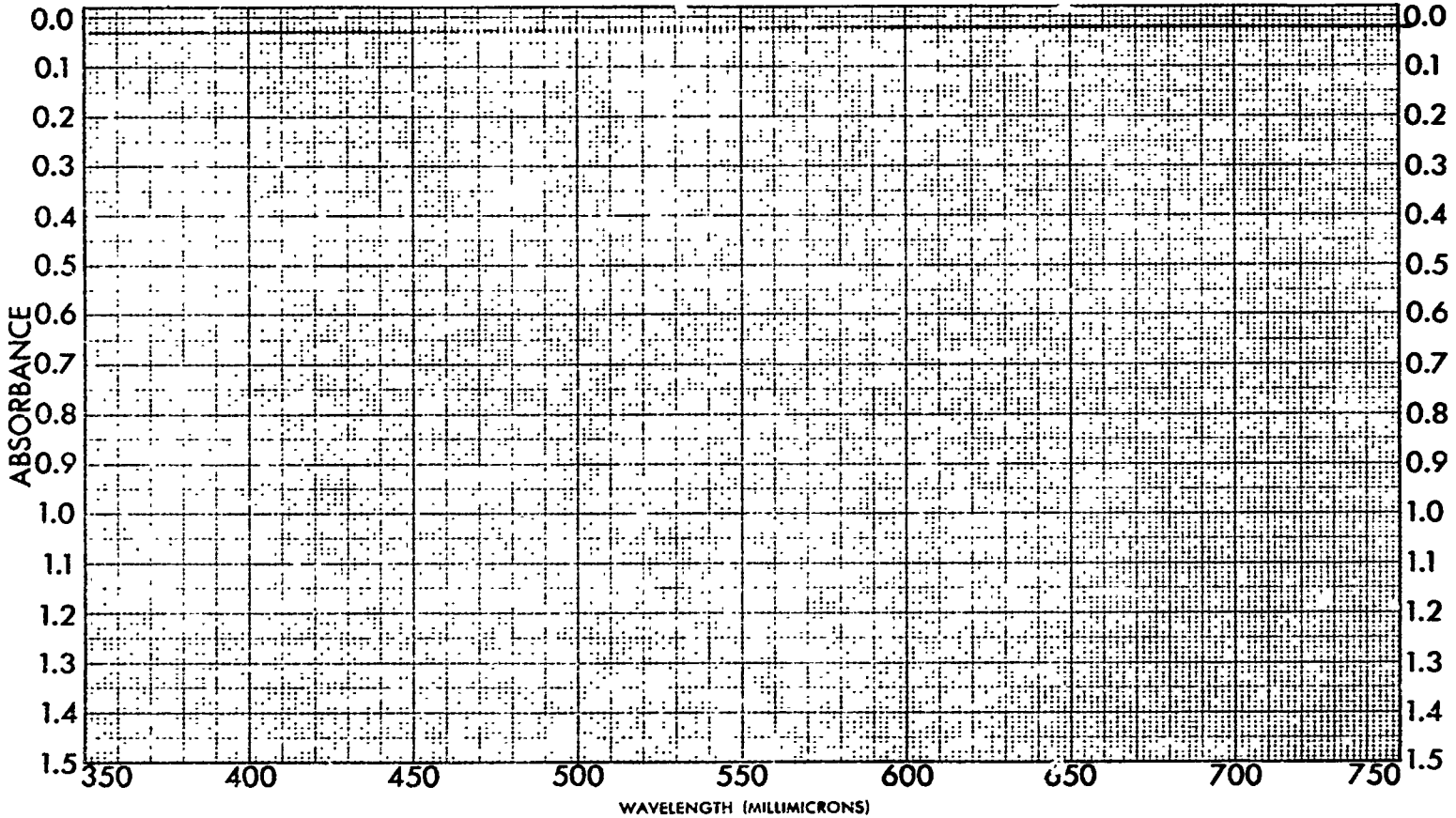


SAMPLE 47: EASTMAN KODAK HE-79	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0005"		

NWC TP 5583

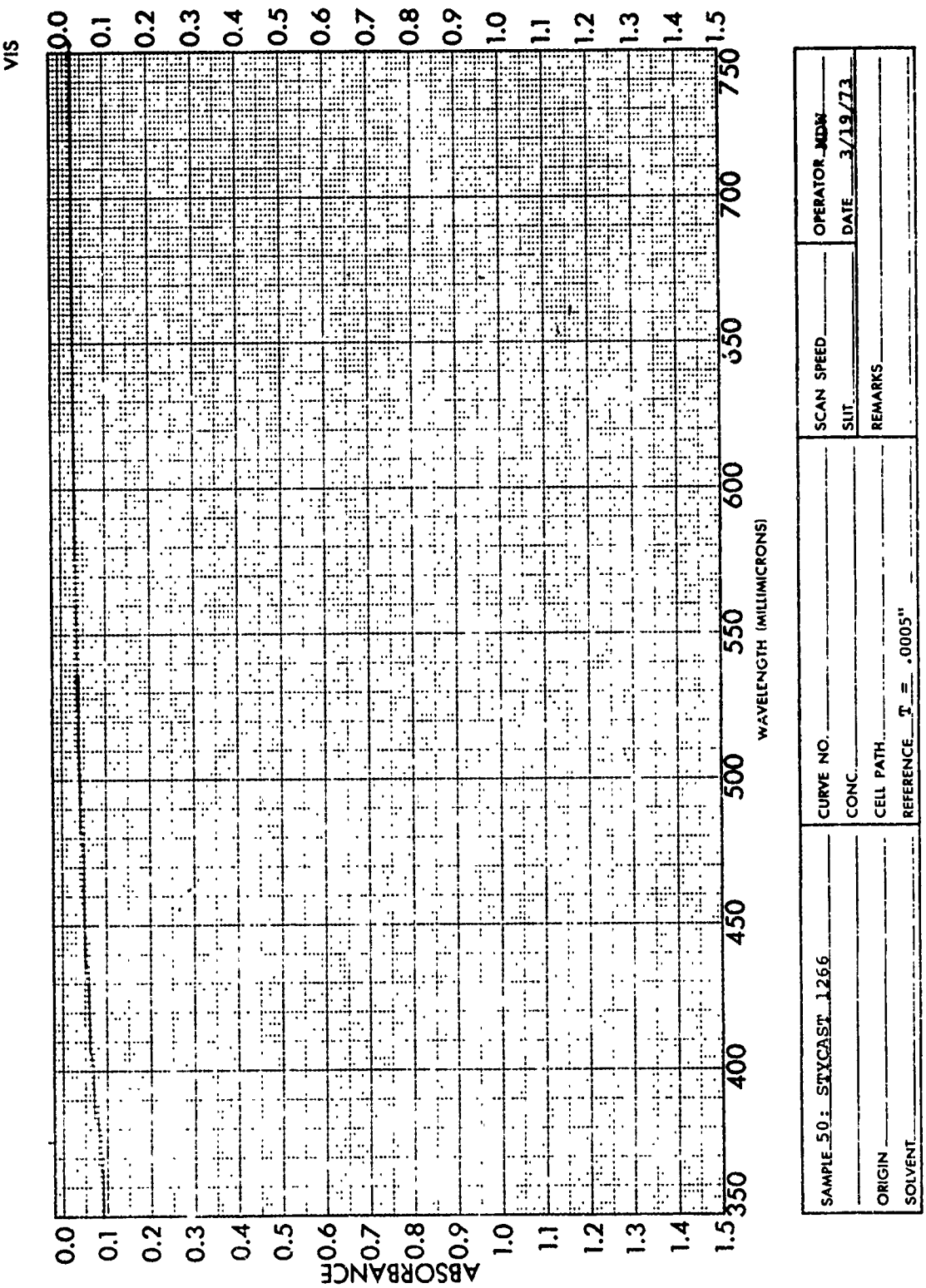

VIS
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
350
400
450
500
550
600
650
700
750
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 48: STYCAST 1217
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73

VIS

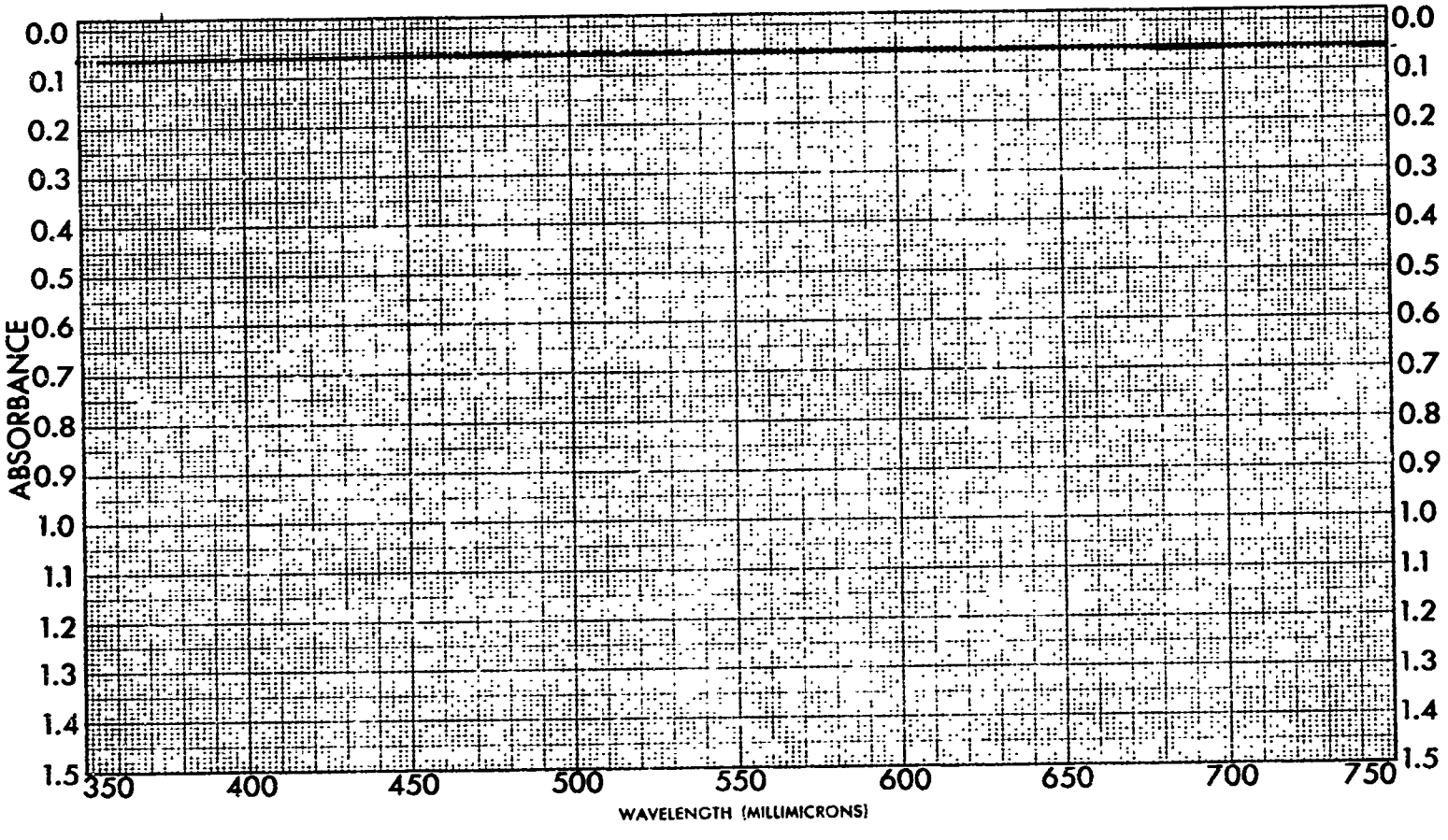


SAMPLE 49: STYCAST 1264	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0004"		

NWC TP 5583

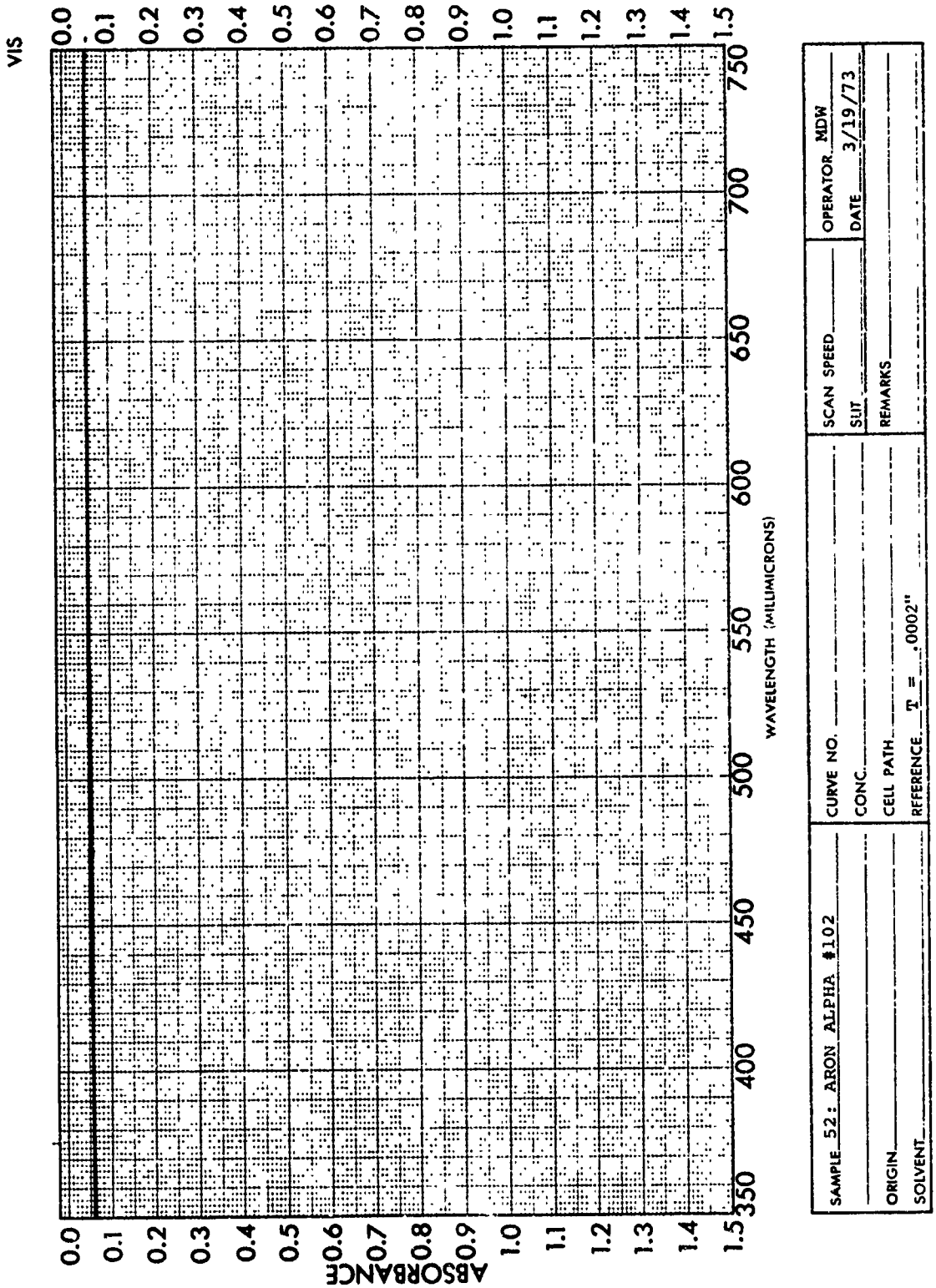

VIS
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5
350 400 450 500 550 600 650 700 750
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 50: STYCAST 1266
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0005"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73

VIS

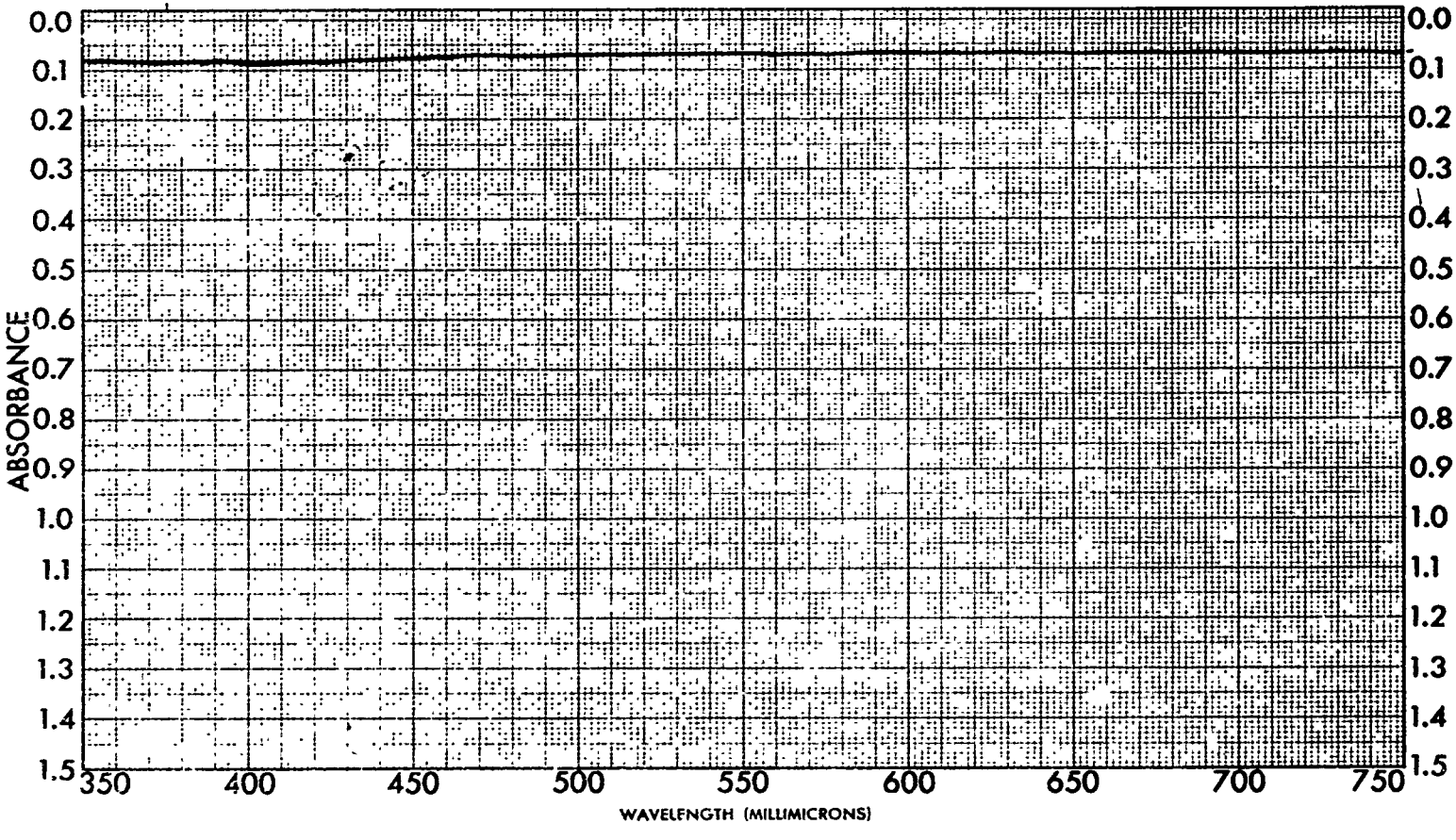


SAMPLE 51: ARON ALPHA #101	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0001"		

NWC TP 5583


VIS
ABSORBANCE
WAVELENGTH (MILLIMICRONS)
SAMPLE 52: ARON ALPHA #102
ORIGIN
SOLVENT
CURVE NO.
CONC.
CELL PATH
REFERENCE T = .0002"
SCAN SPEED
SLIT
REMARKS
OPERATOR MDW
DATE 3/19/73

VIS



SAMPLE 53: ARON ALPHA #202	CURVE NO.	SCAN SPEED	OPERATOR MDW
	CONC.	SLIT	DATE 3/19/73
ORIGIN	CELL PATH	REMARKS	
SOLVENT	REFERENCE T = .0002"		

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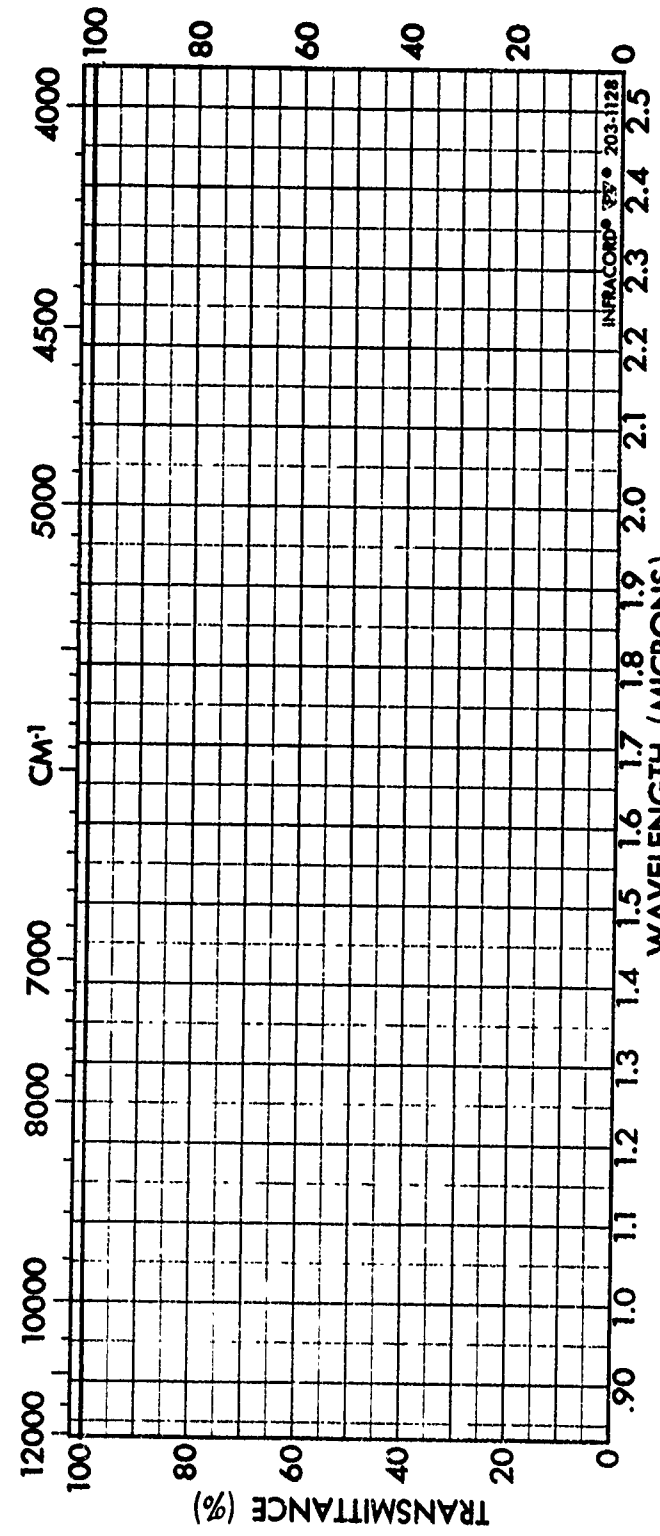
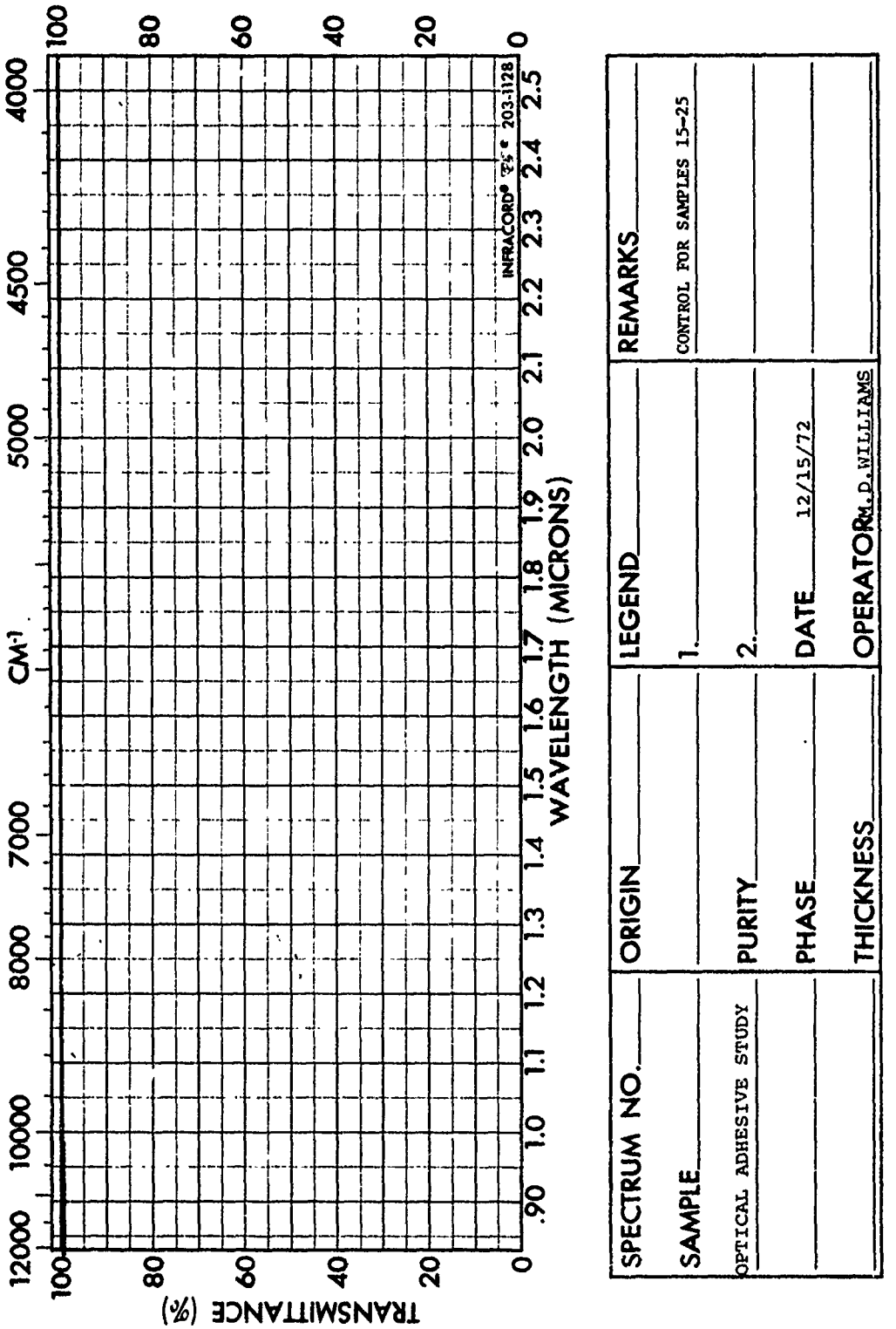
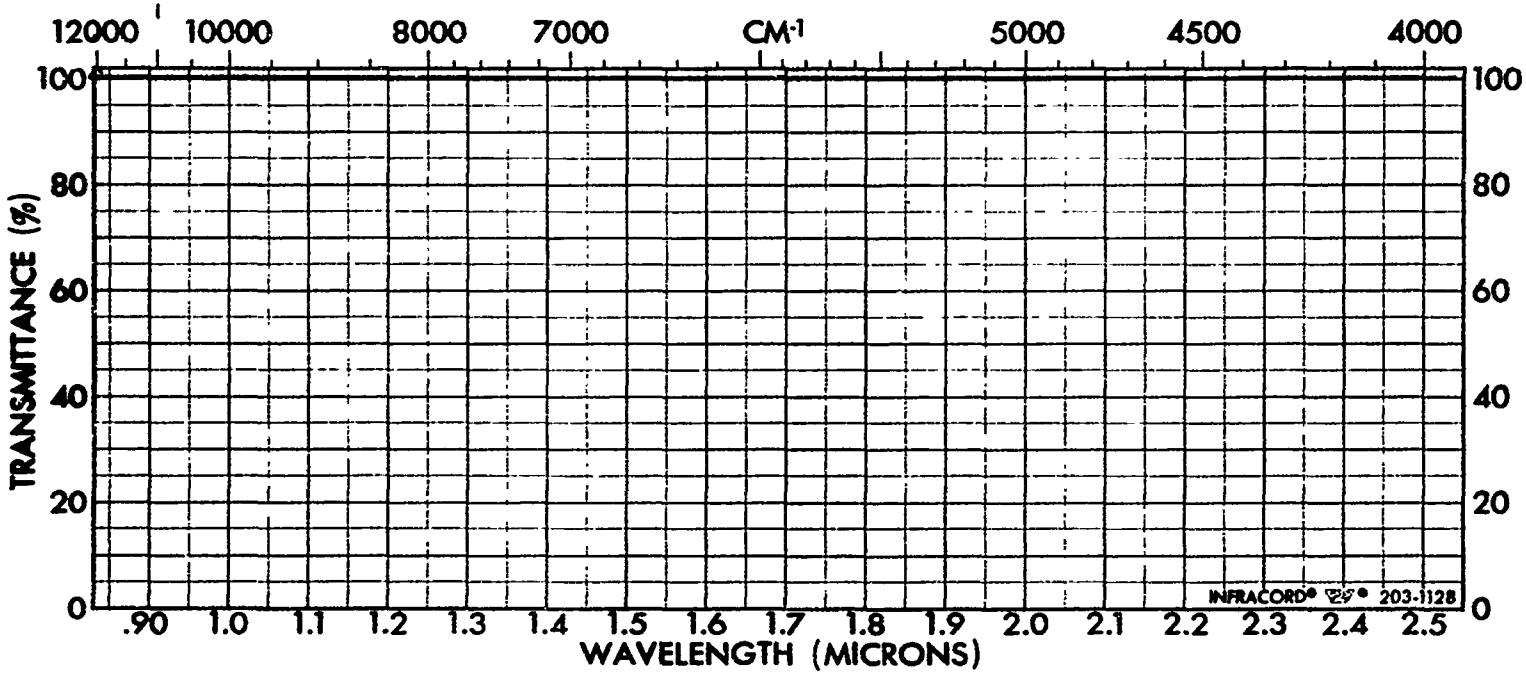
Appendix C
0.83- TO 2.5-MICRON RANGE

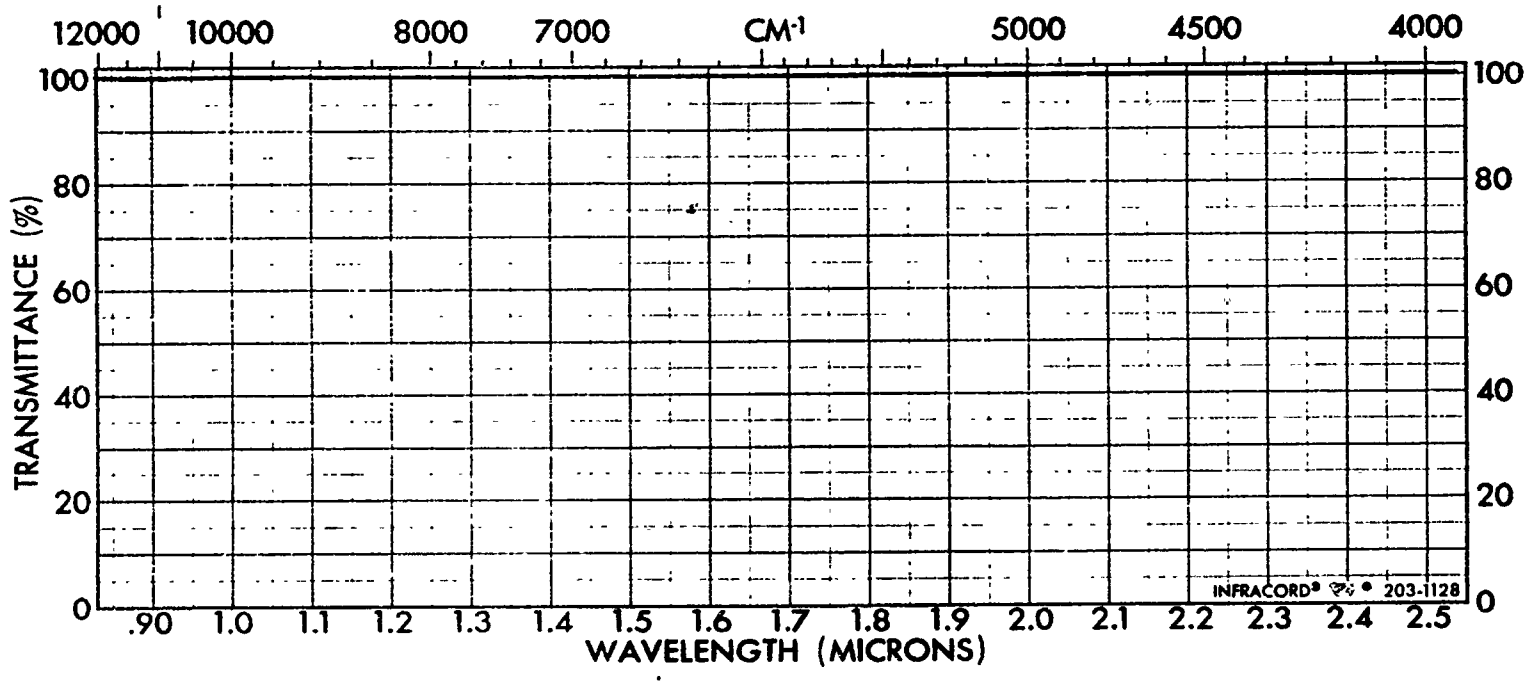


SPECTRUM NO.	ORIGIN	LEGEND	REMARKS
SAMPLE OPTICAL ADHESIVE STUDY	PURITY	1.	CONTROL FOR SAMPLES 1-14
	PHASE	2.	
	THICKNESS	DATE 12/14/72	
		OPERATOR M.D. WILLIAMS	

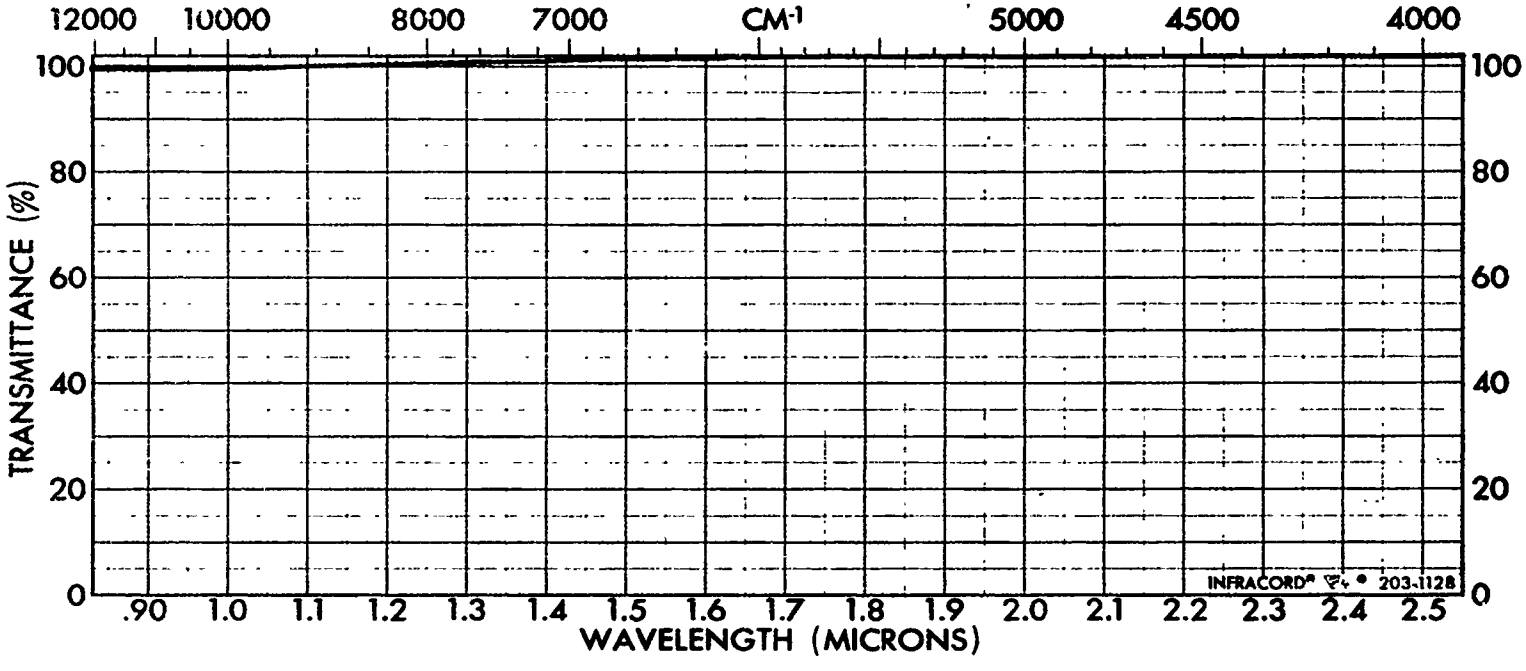

TRANSMITTANCE (%)
100
80
60
40
20
0
12000
10000
8000
7000
5000
4500
4000
CM-1
.90
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
WAVELENGTH (MICRONS)
INFRACORD® "S" • 203-1128
SPECTRUM NO.
SAMPLE
OPTICAL ADHESIVE STUDY
ORIGIN
PURITY
PHASE
THICKNESS
LEGEND
1.
2.
DATE 12/15/72
OPERATOR M.D.WILLIAMS
REMARKS
CONTROL FOR SAMPLES 15-25



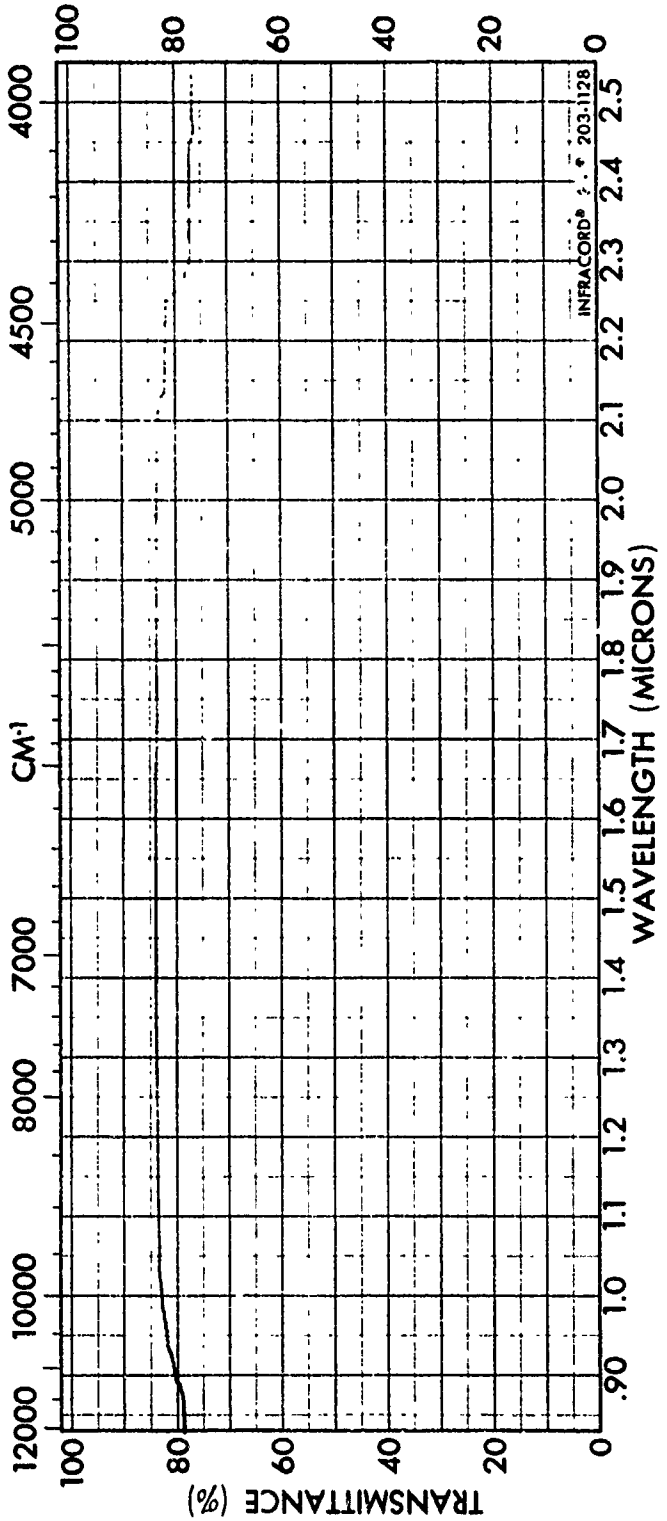
SPECTRUM NO.	ORIGIN	LEGEND	REMARKS
SAMPLE		1.	CONTROL FOR SAMPLES
OPTICAL ADHESIVE STUDY	PURITY	2.	26-37
	PHASE	DATE 12/19/72	
	THICKNESS	OPERATOR M.D.WILLIAMS	



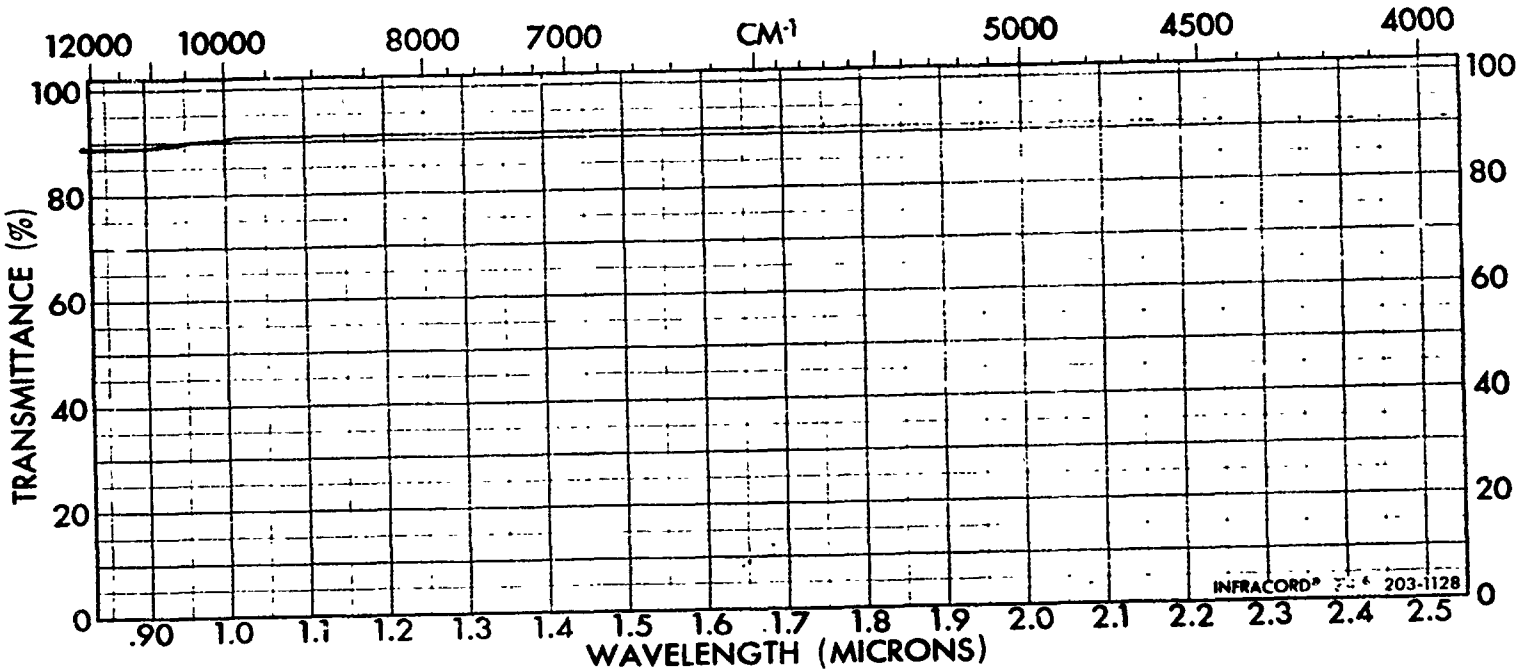
SPECTRUM NO.	ORIGIN	LEGEND	REMARKS
SAMPLE		1.	CONTROL FOR SAMPLES
OPTICAL ADHESIVE STUDY	PURITY	2.	38-50
	PHASE	DATE 1/4/73	
	THICKNESS	OPERATOR M.D.WILLIAMS	



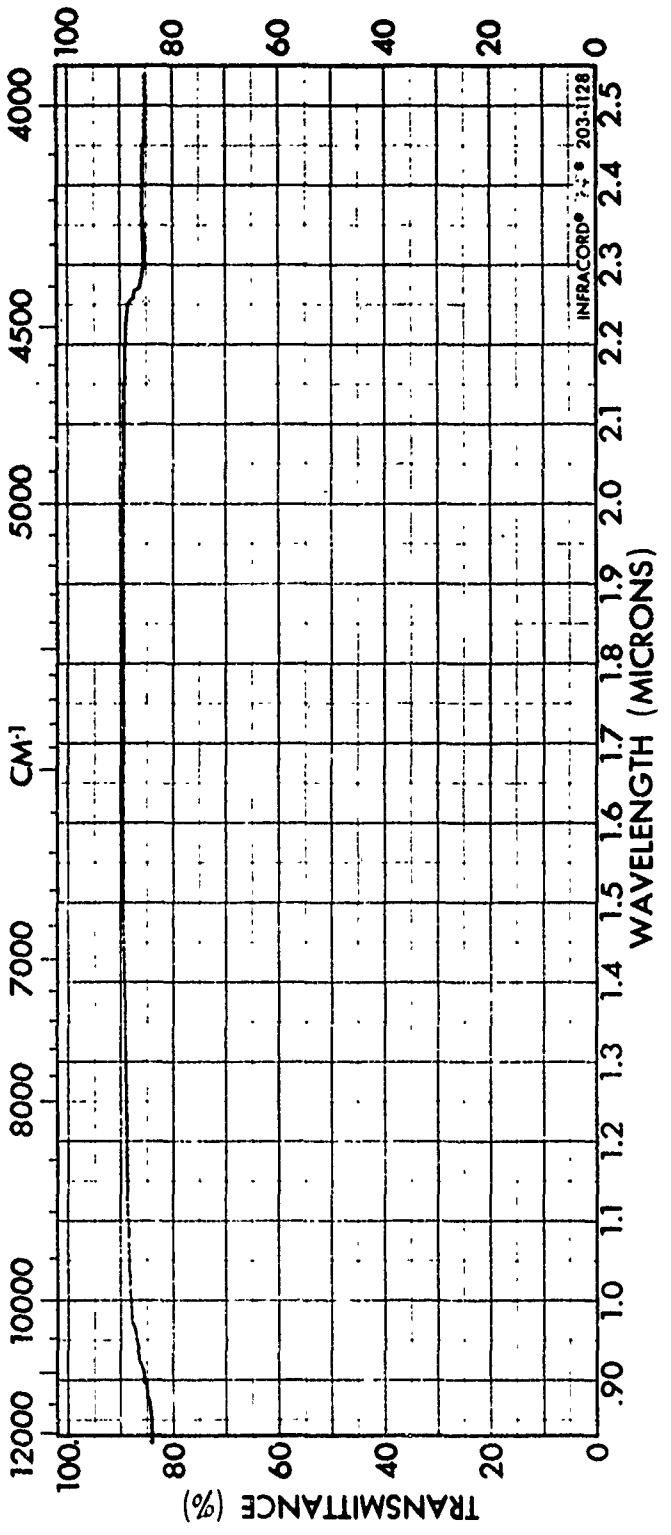
SPECTRUM NO.	ORIGIN	LEGEND	REMARKS
SAMPLE		1.	OPTICAL ADHESIVE STUDY
CONTROL FOR SAMPLES	PURITY	2.	
51-53	PHASE	DATE 2/20/73	
	THICKNESS	OPERATOR M.D.WILLIAMS	



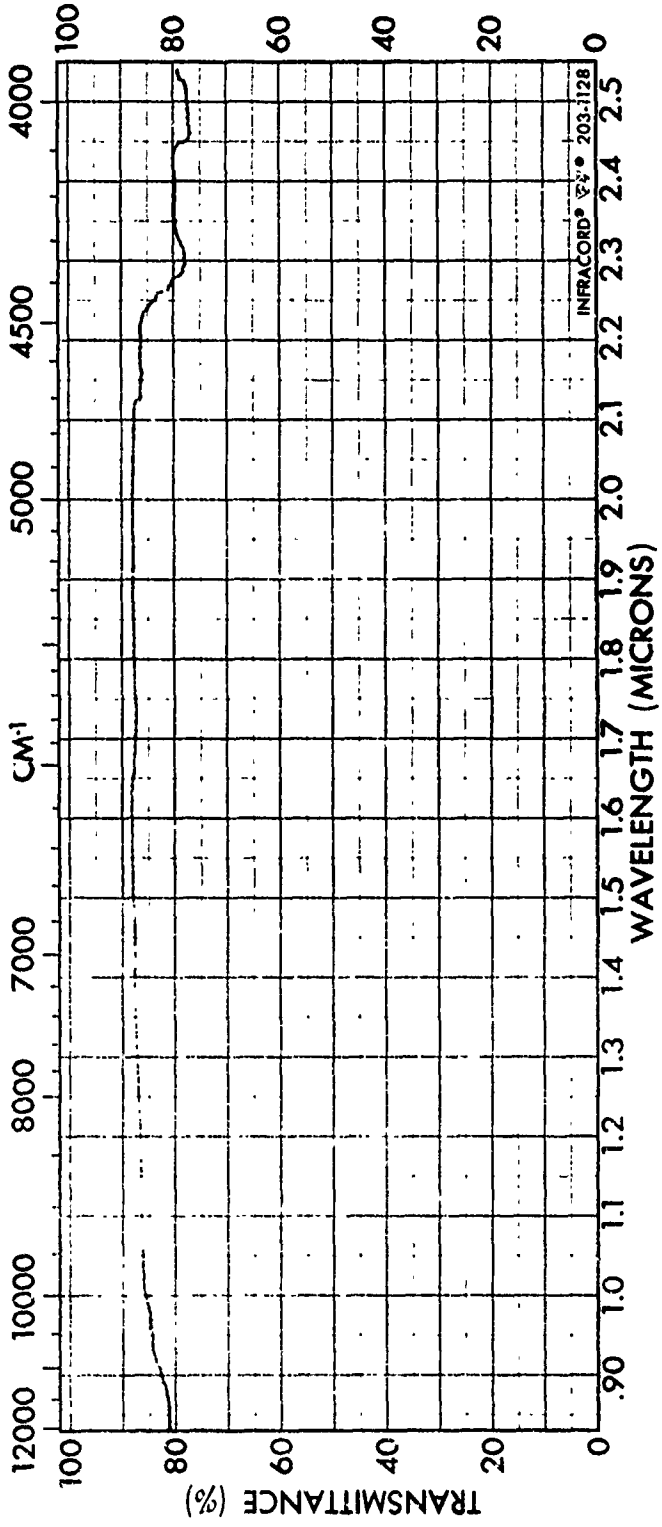
SPECTRUM NO. 1	ORIGIN	LEGEND	REMARKS
SAMPLE EPON 828 & V-25		1.	POLISHED SODIUM
OPTICAL ADHESIVE STUDY	PURITY	2.	CHLORIDE WINDOWS
	PHASE	DATE 12/14/72	1" diameter
	THICKNESS .0005"	OPERATOR M.D. WILLIAMS	



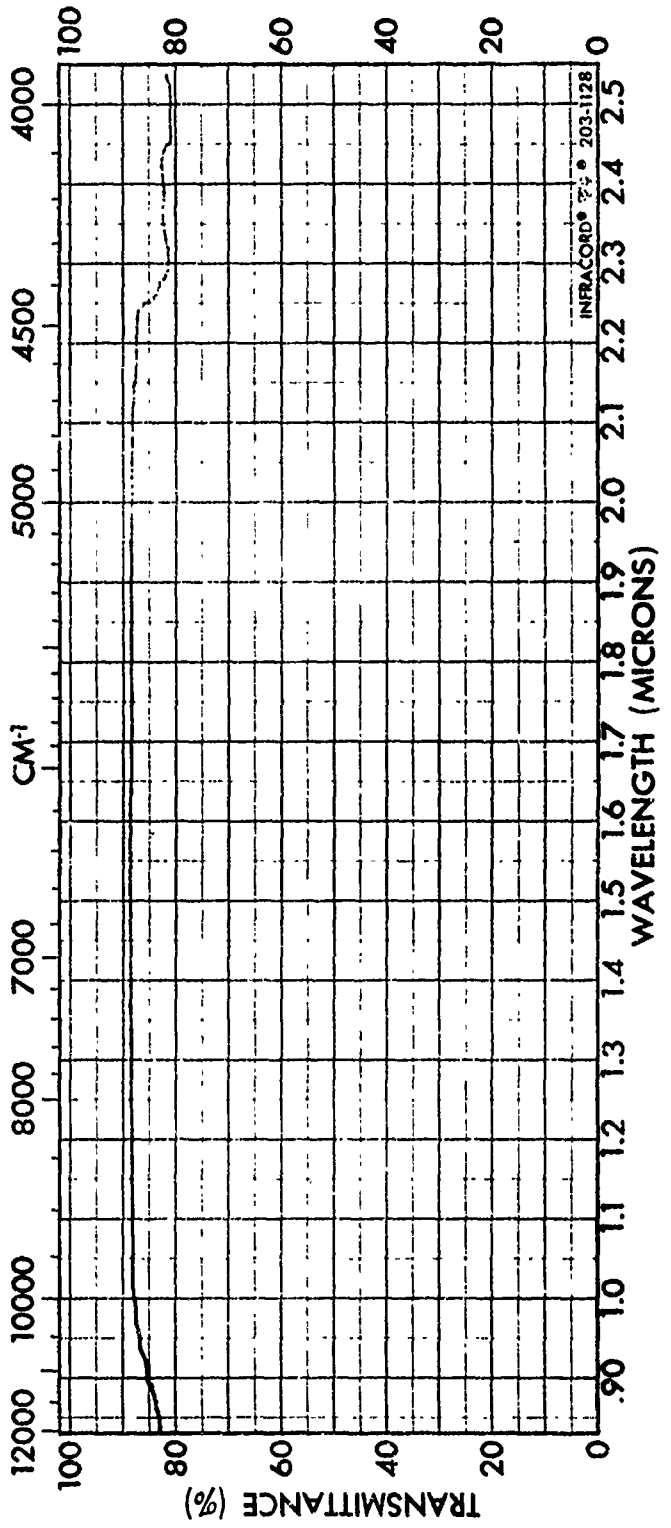
SPECTRUM NO. 2	ORIGIN	LEGEND	REMARKS
SAMPLE EPO-TEK 301		1.	POLISHED SODIUM
OPTICAL ADHESIVE STUDY	PURITY	2.	CHLORIDE WINDOWS,
	PHASE	DATE 12/14/72	1" diameter
	THICKNESS .001"	OPERATOR M.D.WILLIAMS	



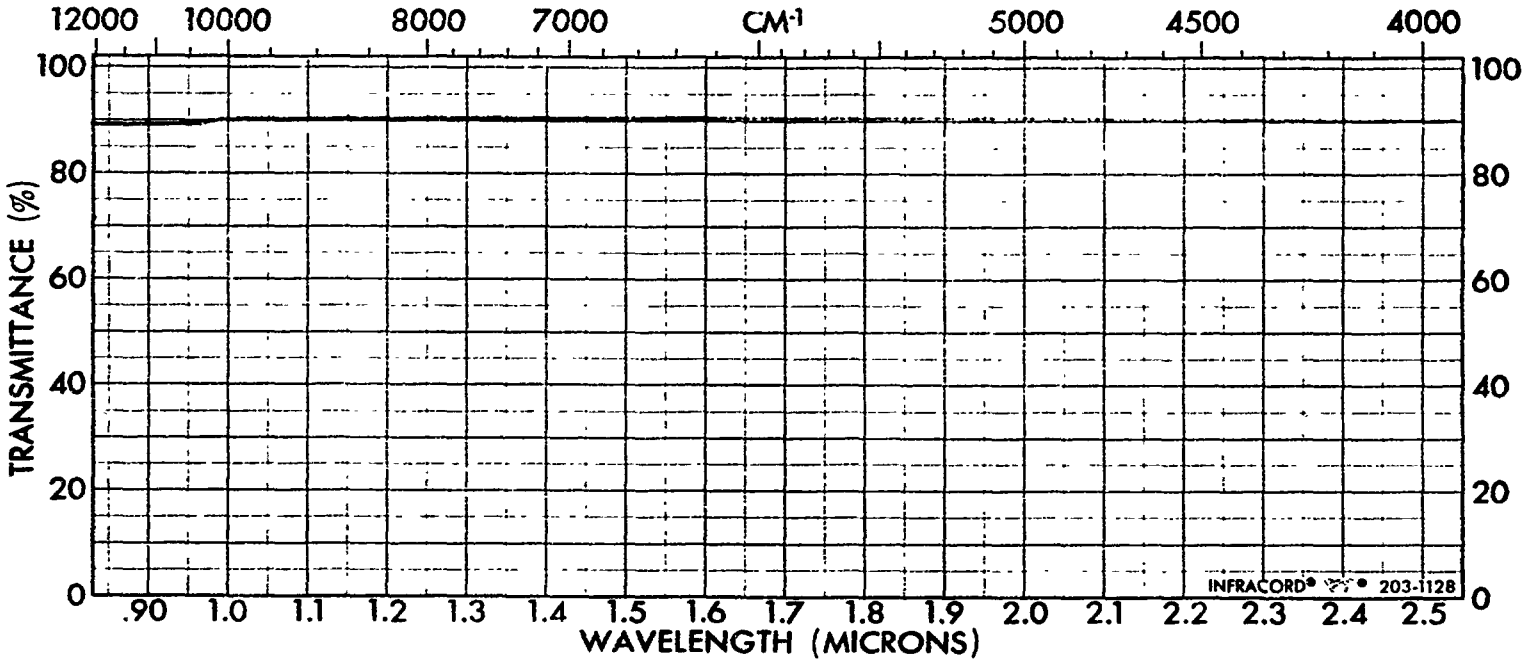
SPECTRUM NO. 3	ORIGIN	LEGEND	REMARKS
SAMPLE EPO-TEK 360		1.	POLISHED SODIUM
OPTICAL ADHESIVE STUDY	PURITY	2.	CHLORIDE WINDOWS,
	PHASE	DATE 12.14.72	1" diameter
	THICKNESS .0015"	OPERATOR M.D.WILLIAMS	



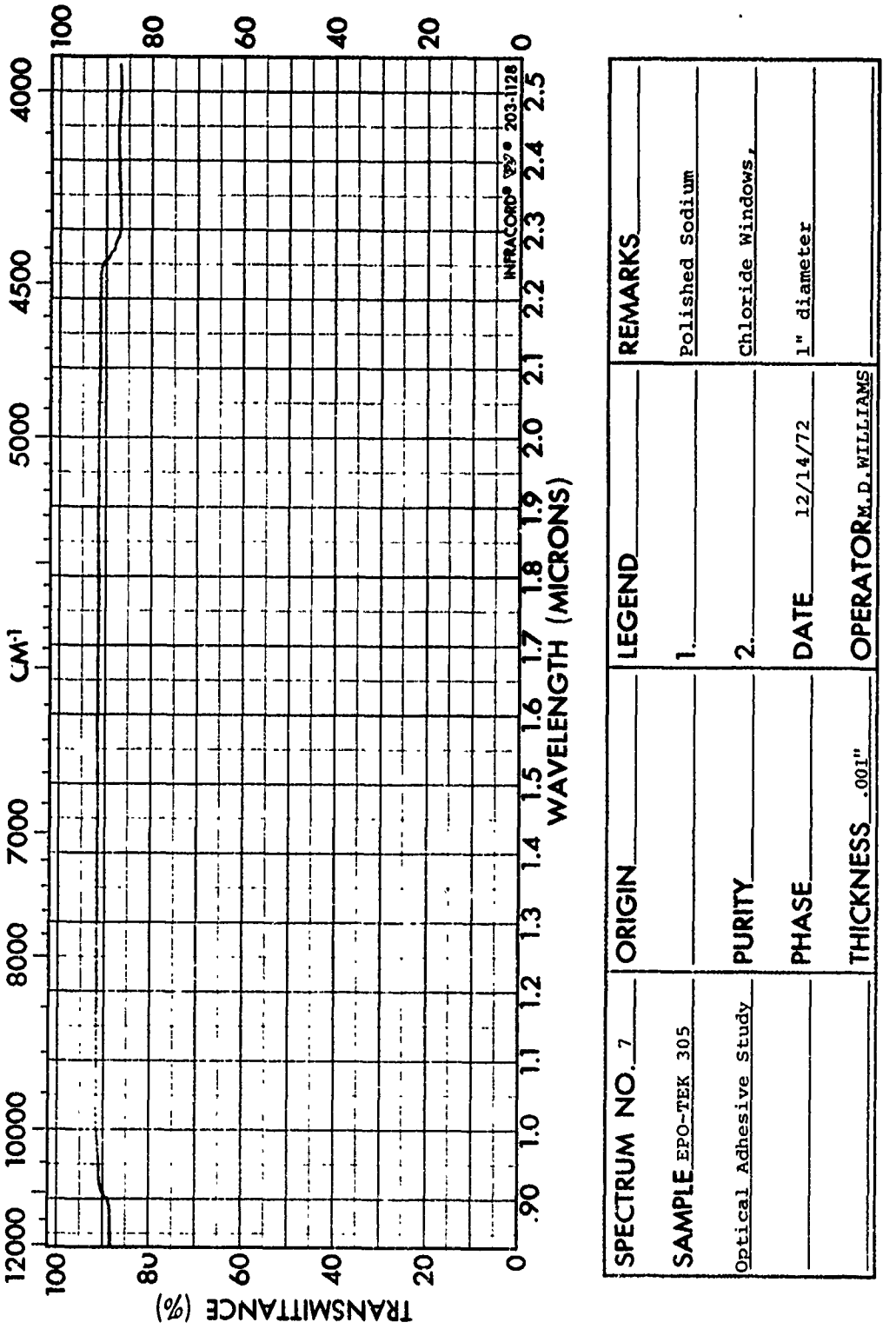
SPECTRUM NO. 4	ORIGIN	LEGEND	REMARKS
SAMPLE EPO-TEK 360T Optical Adhesive Study		1.	Polished Sodium Chloride Windows
	PURITY	2.	1" diameter
	PHASE	DATE 12/14/72	
	THICKNESS .001"	OPERATOR M.D. WILLIAMS	

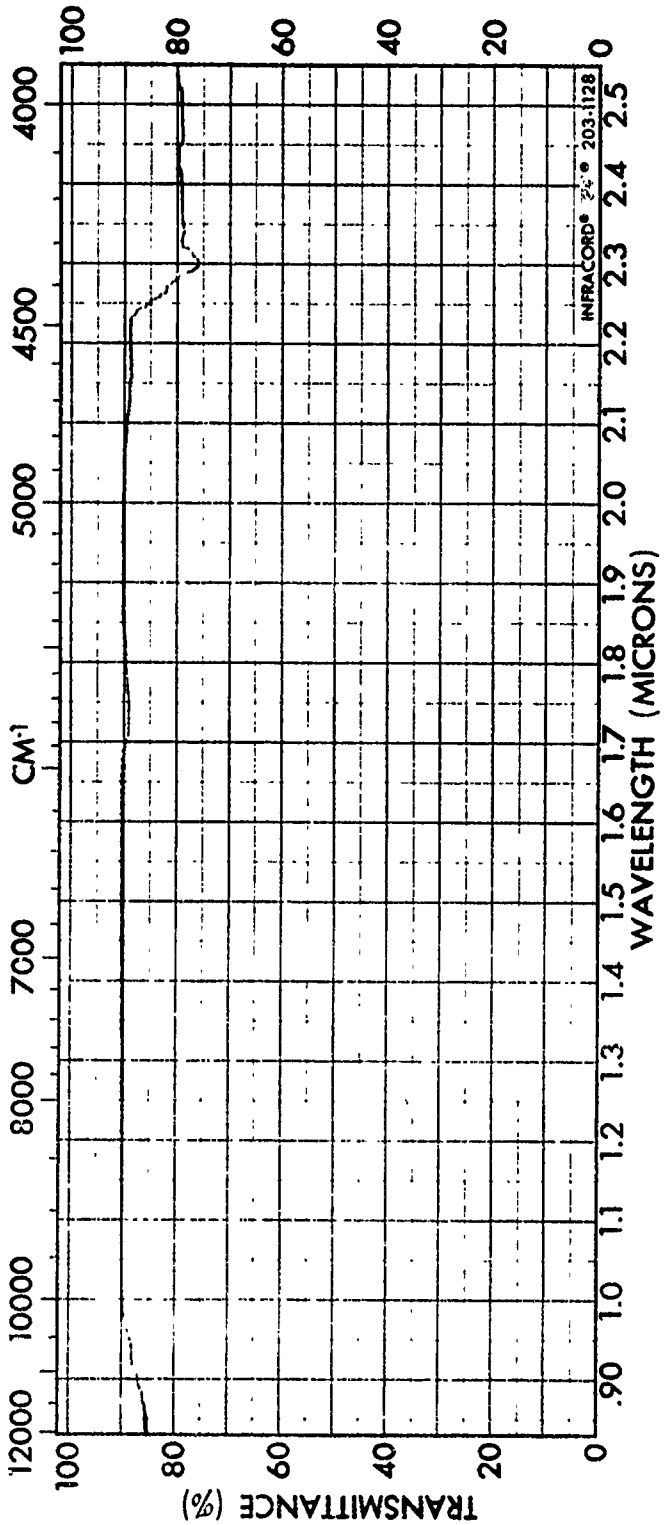


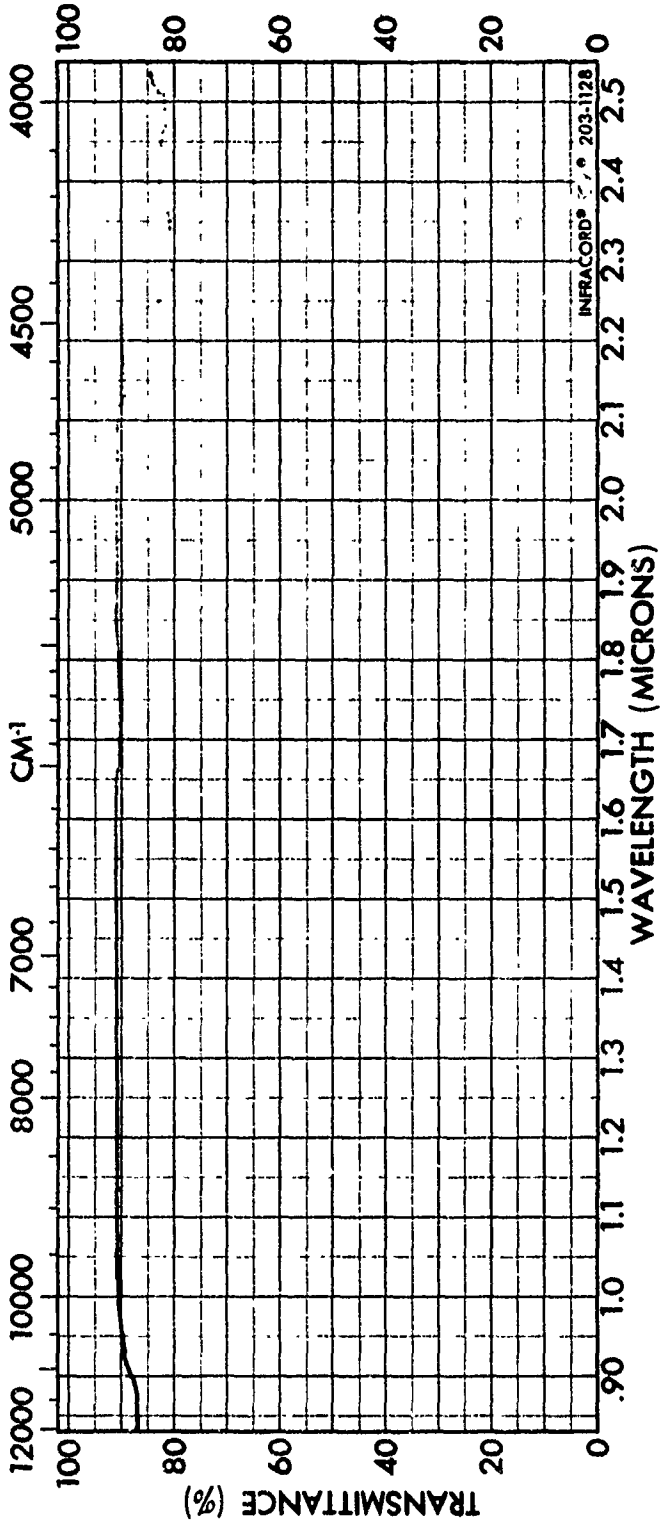
SPECTRUM NO. 5	ORIGIN	LEGEND	REMARKS
SAMPLE EPO-TEK 360ST Optical Adhesive Study	PURITY	1.	Polished Sodium Chloride Windows, 1" diameter
	PHASE	2.	
	THICKNESS .0015"	DATE 12/14/72	
		OPERATOR M.D. WILLIAMS	



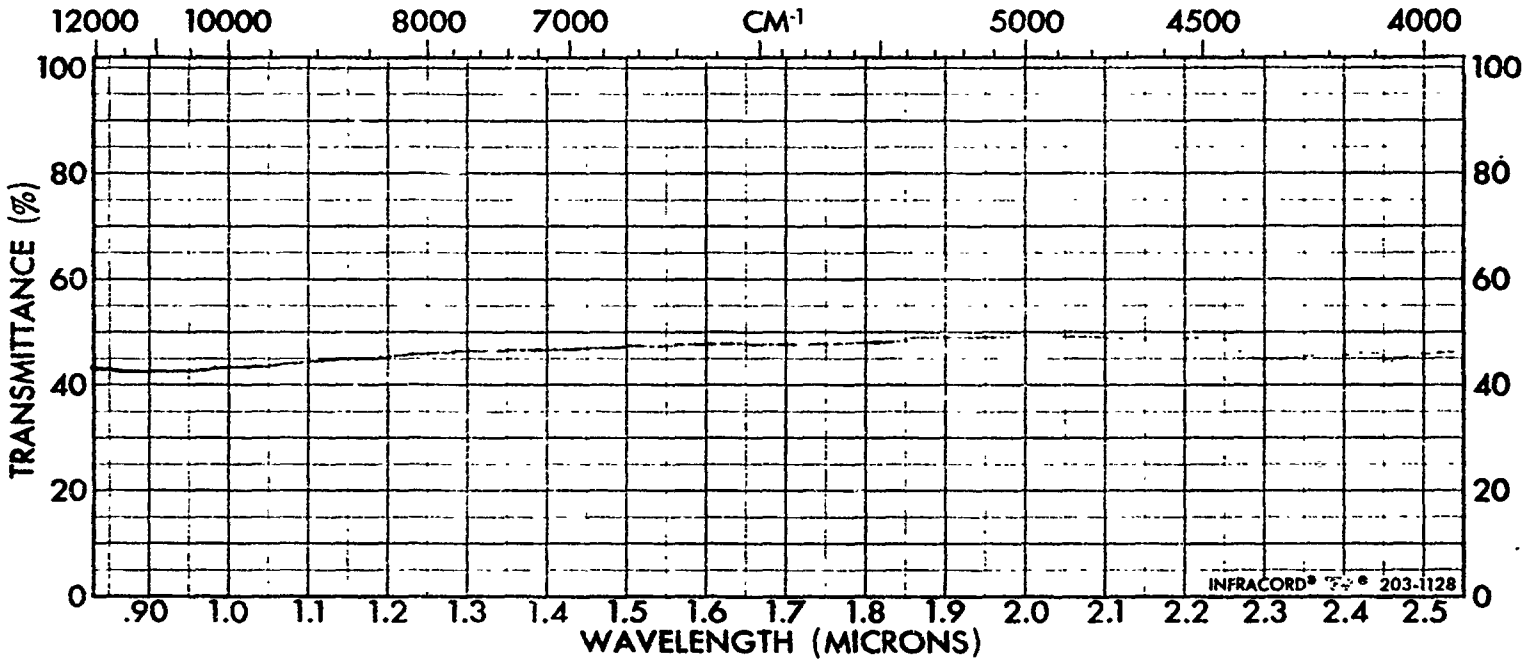
SPECTRUM NO. 6	ORIGIN	LEGEND	REMARKS
SAMPLE ARON ALPHA #201		1.	Polished Sodium
	PURITY	2.	Chloride Windows,
Optical Adhesive Study	PHASE	DATE 12/14/72	1" diameter
	THICKNESS .0001"	OPERATOR M.D.WILLIAMS	


TRANSMITTANCE (%)
CM-1
WAVELENGTH (MICRONS)
INFRACORD 203-1128
SPECTRUM NO. 7
SAMPLE EPO-TEK 305
Optical Adhesive Study
ORIGIN
PURITY
PHASE
THICKNESS .001"
LEGEND
1.
2.
DATE 12/14/72
OPERATOR M.D. WILLIAMS
REMARKS
Polished Sodium
Chloride Windows,
1" diameter


TRANSMITTANCE (%)
WAVELENGTH (MICRONS)
CM-1
INFRACORD® 203-1128
SPECTRUM NO. 8
SAMPLE OPTICON FMP-13
Optical Adhesive Study
ORIGIN
PURITY
PHASE
THICKNESS .001"
LEGEND
1.
2.
DATE 12/14/72
OPERATOR M.D.WILLIAMS
REMARKS
Polished Sodium
Chloride Windows,
1" diameter

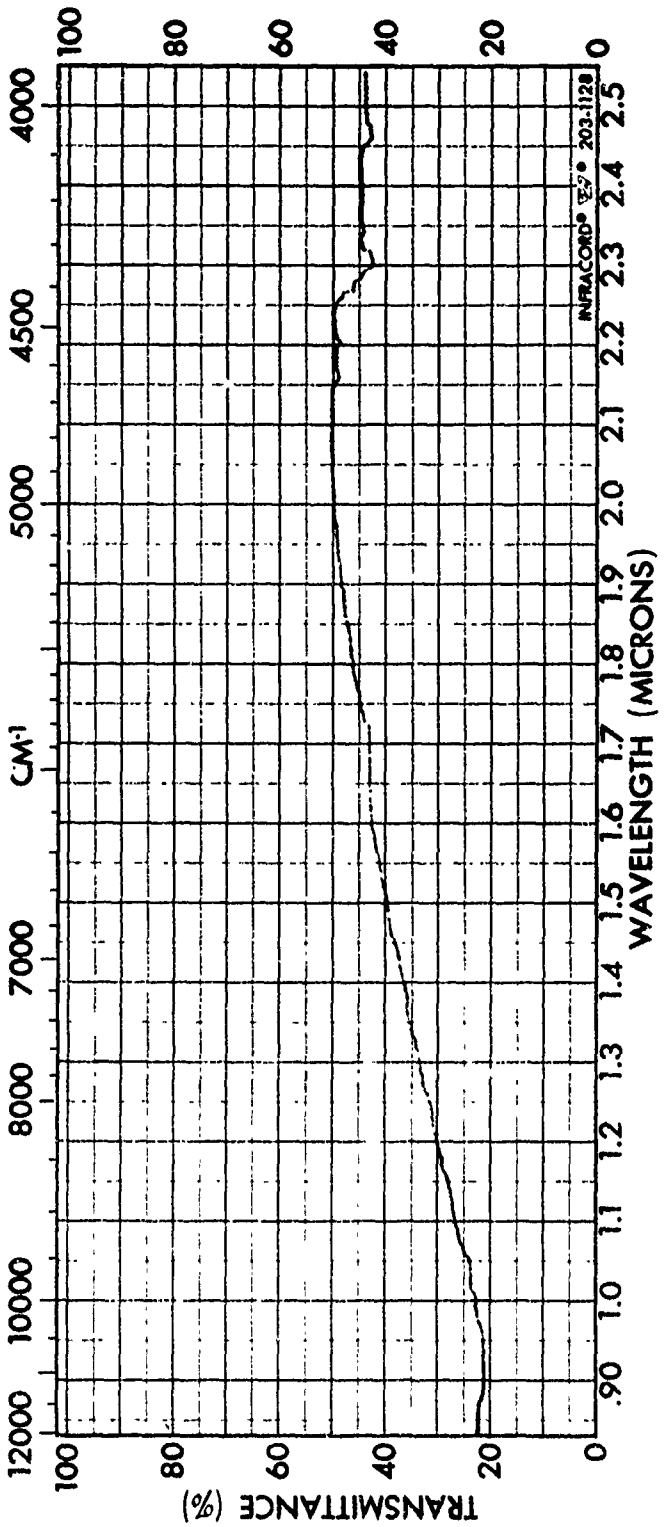


SPECTRUM NO. 9	ORIGIN	LEGEND	REMARKS
SAMPLE OPTICON UV-57		1.	Polished Sodium
Optical Adhesive Study	PURITY	2.	Chloride Windows,
	PHASE	DATE 12/14/72	1" diameter
	THICKNESS .002"	OPERATOR M.D.WILLIAMS	

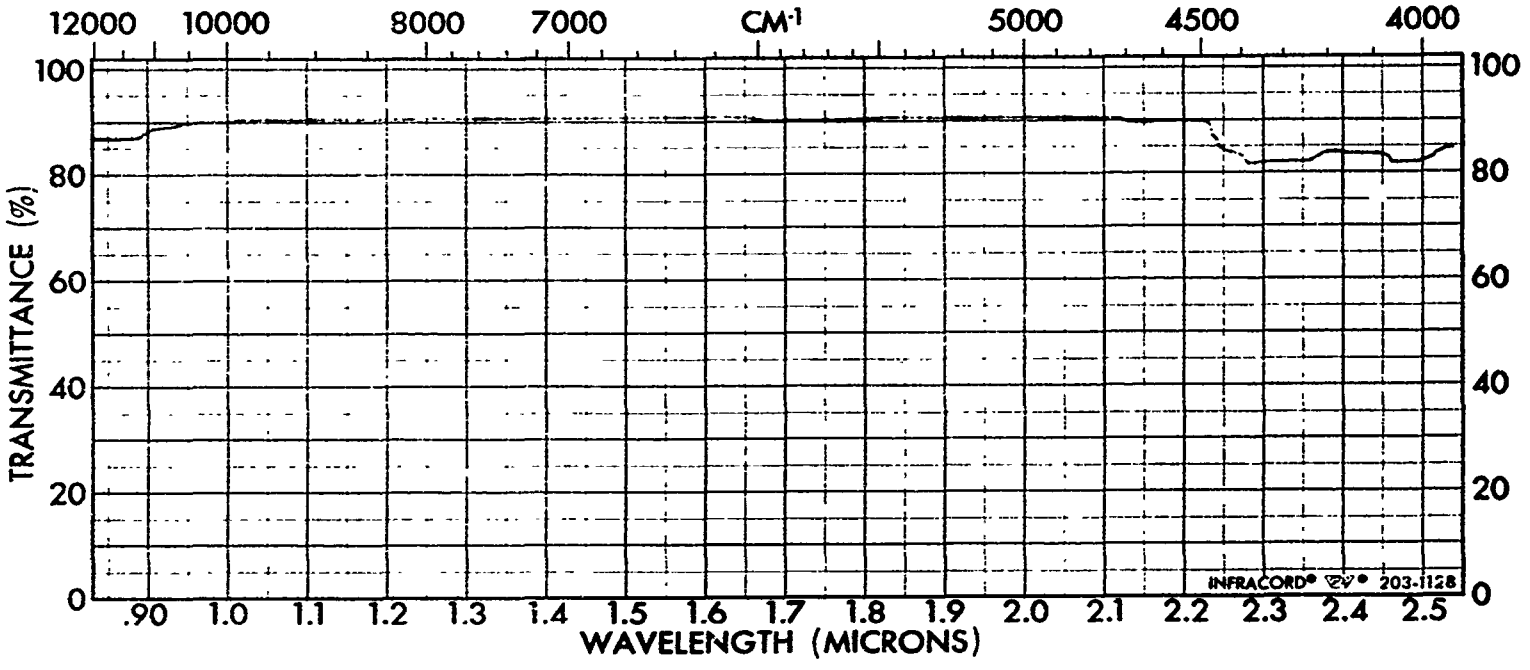


SPECTRUM NO. 10	ORIGIN	LEGEND	REMARKS
SAMPLE HYSOL		1.	Polished Sodium
Optical Adhesive Study	PURITY	2.	Chloride Windows,
	PHASE	DATE 12/14/72	1" diameter
	THICKNESS .005"	OPERATOR M.D.WILLIAMS	

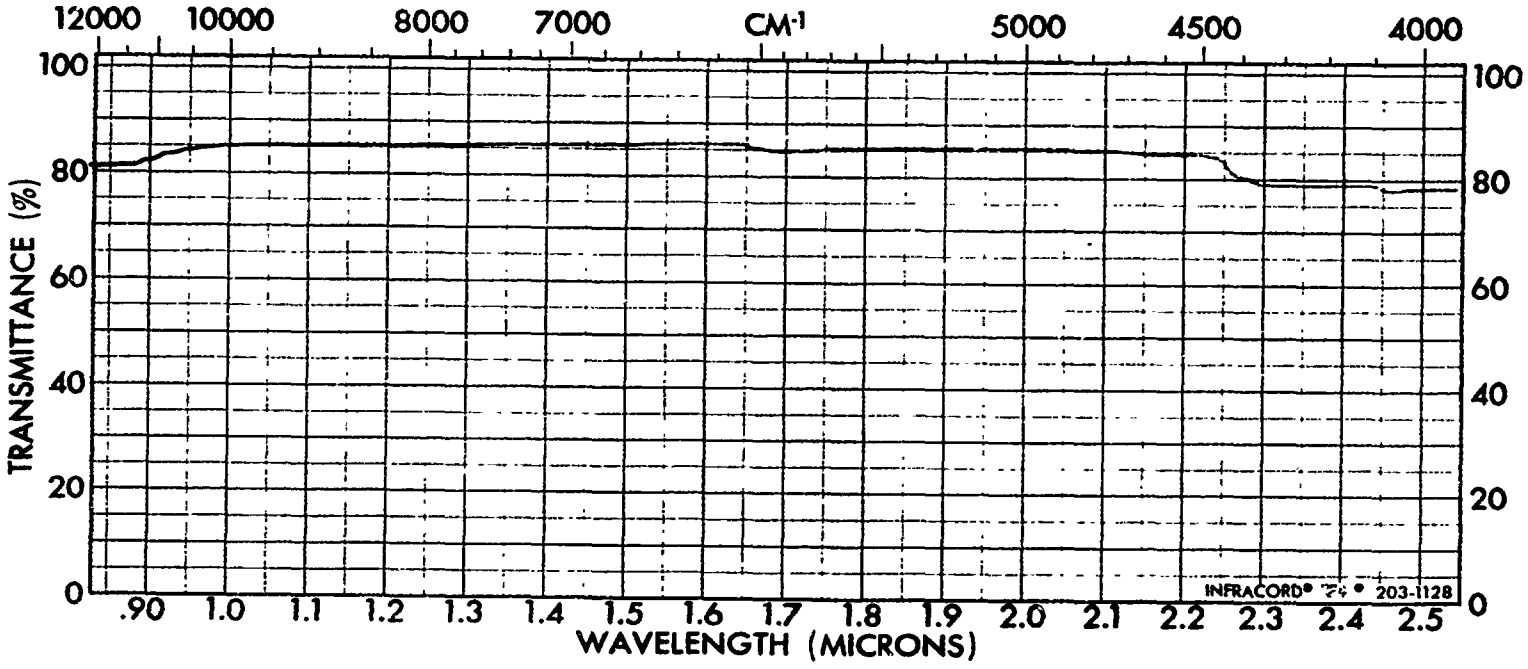
NWC TP 5583



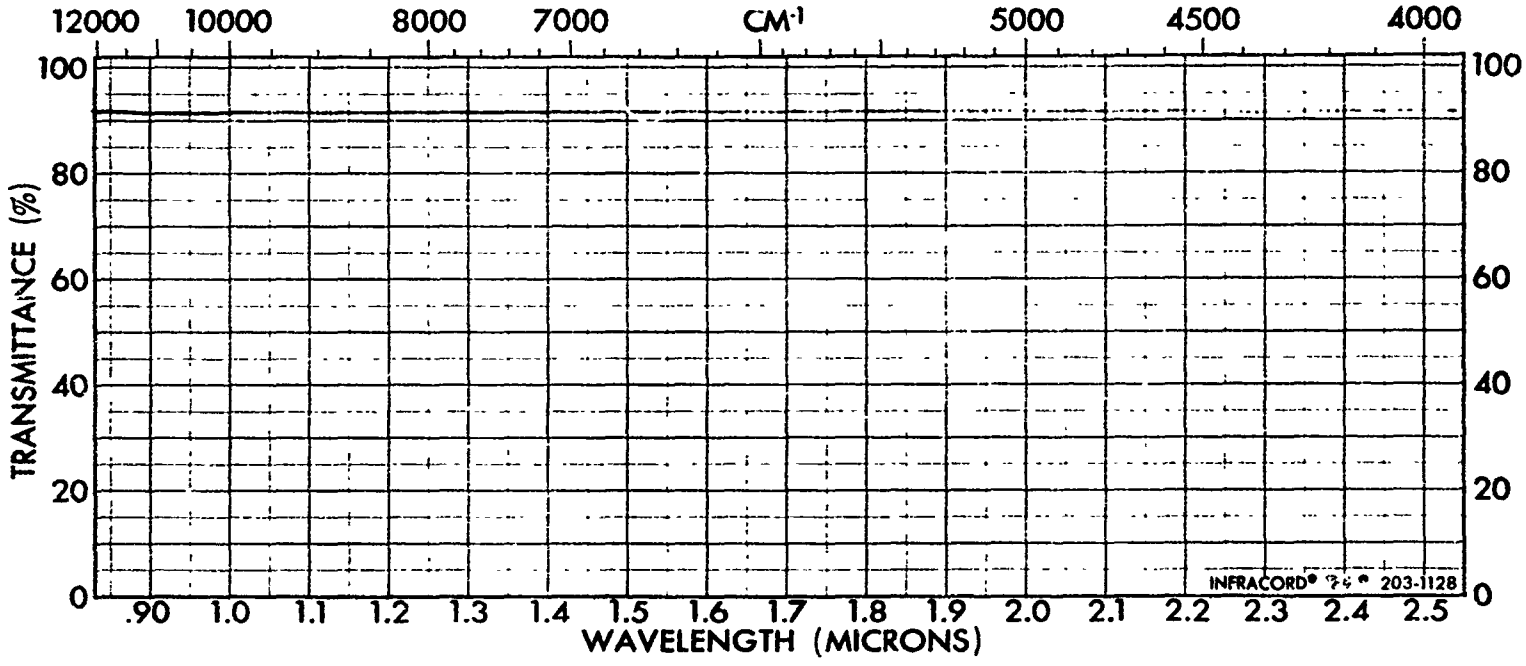
SPECTRUM NO. 11	ORIGIN	LEGEND	REMARKS
SAMPLE 3M		1.	Polished Sodium
Optical Adhesive Study	PURITY	2.	Chloride Windows,
	PHASE	DATE 12/14/72	1" diameter
	THICKNESS .0035"	OPERATOR M.D. WILLIAMS	



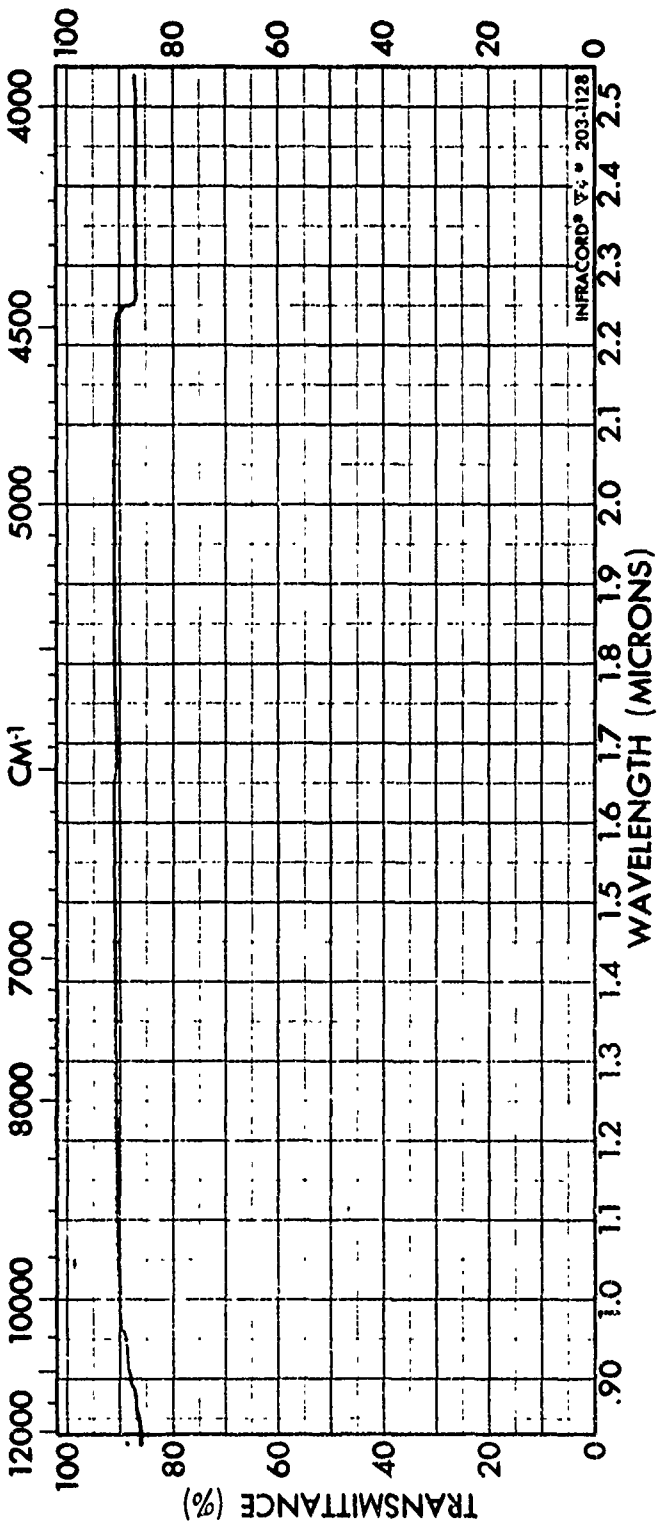
SPECTRUM NO. 12	ORIGIN	LEGEND	REMARKS
SAMPLE OPTICON UVF-171		1.	Polished Sodium
Optical Adhesive Study	PURITY	2.	Chloride Windows,
	PHASE	DATE 12/14/72	1" diameter
	THICKNESS .0005"	OPERATOR M.D. WILLIAMS	



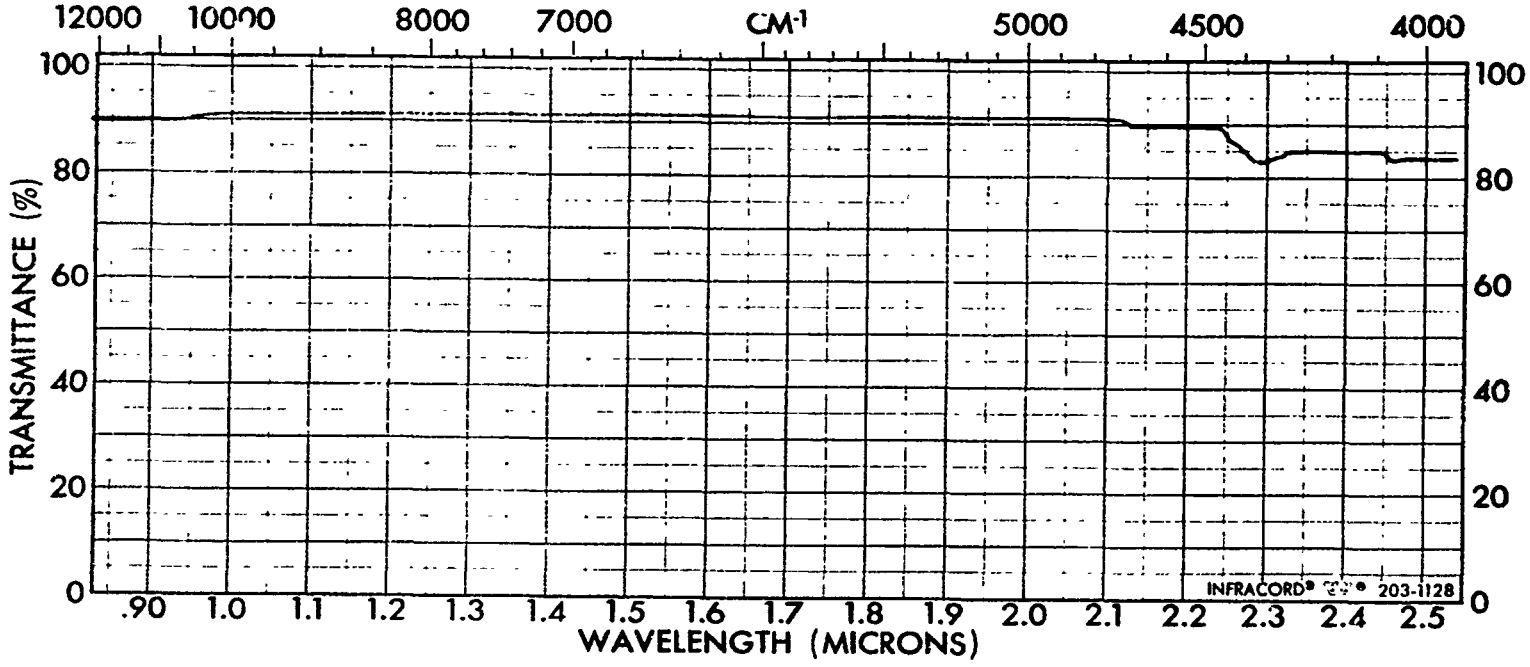
SPECTRUM NO. 13	ORIGIN	LEGEND	REMARKS
SAMPLE OPTICON SFA-23		1.	Polished Sodium
Optical Adhesive Study	PURITY	2.	Chloride Windows,
	PHASE	DATE 12/14/72	1" diameter
	THICKNESS .001"	OPERATOR M.D.WILLIAMS	



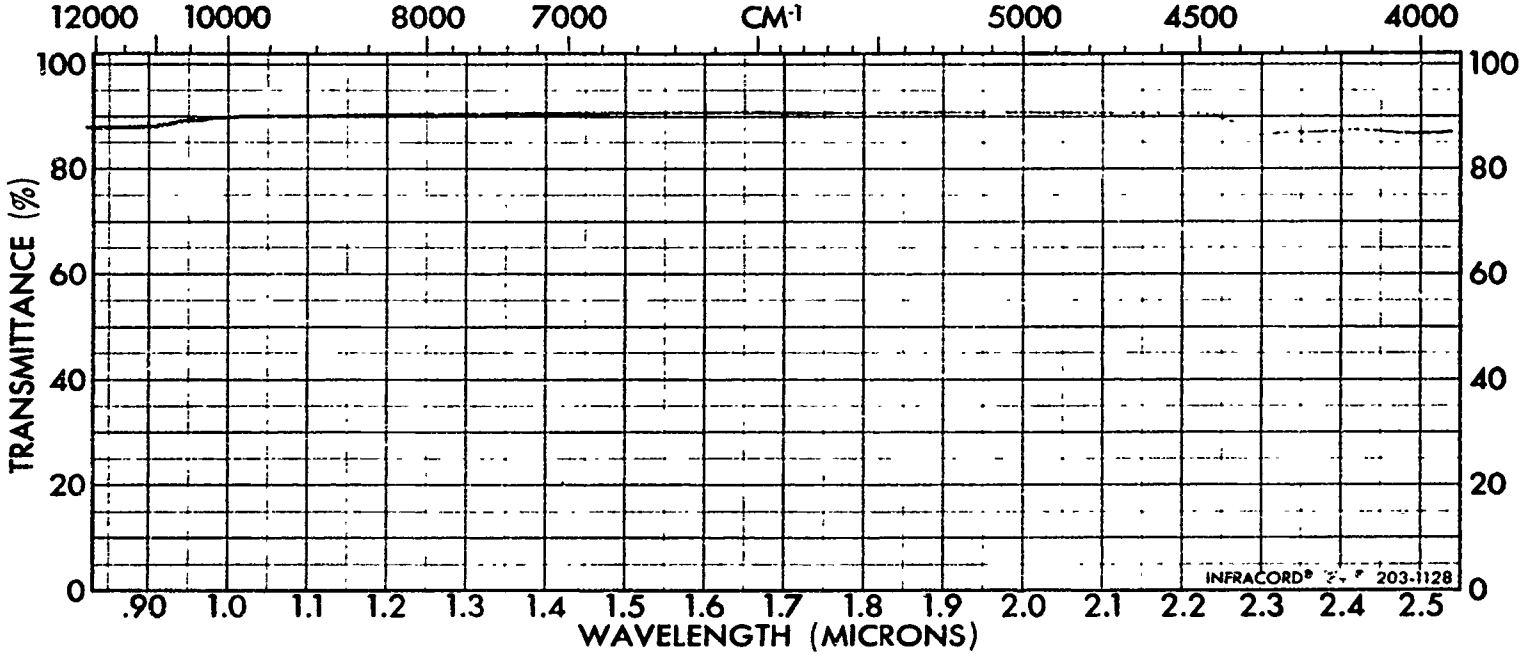
SPECTRUM NO. 14	ORIGIN	LEGEND	REMARKS
SAMPLE ZIPBOND CON-		1.	Polished Sodium
TACT CEMENT	PURITY	2.	Chloride Windows,
Optical Adhesive Study	PHASE	DATE 12/14/72	1" diameter
	THICKNESS .0005"	OPERATOR M.D.WILLIAMS	



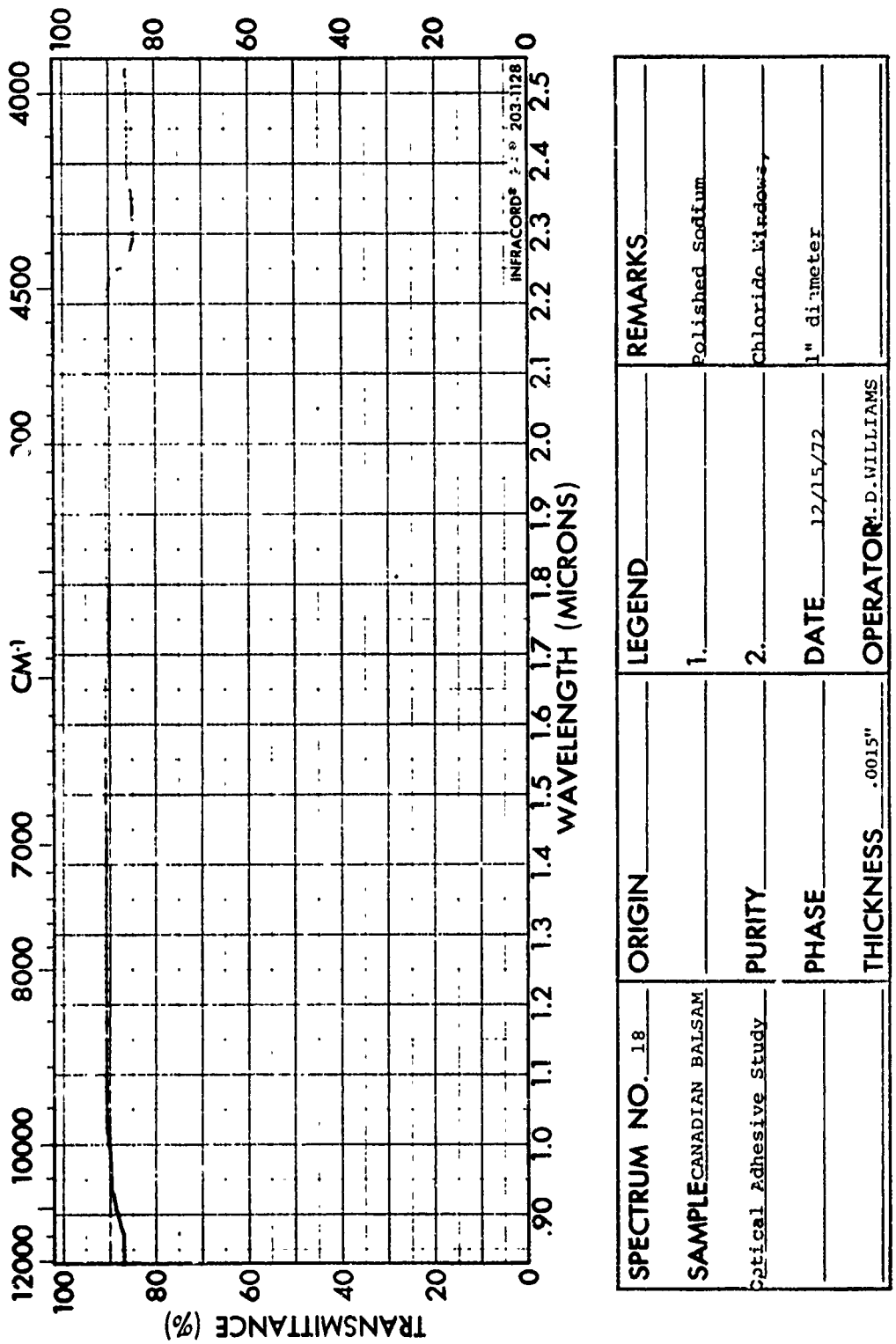
SPECTRUM NO. 15	ORIGIN	LEGEND	REMARKS
SAMPLE LENS BOND M-62		1.	Polished Sodium
Optical Adhesive Study	PURITY	2.	Chloride Windows,
	PHASE	DATE 12/15/72	1" diameter
	THICKNESS .001"	OPERATOR M.D.WILLIAMS	

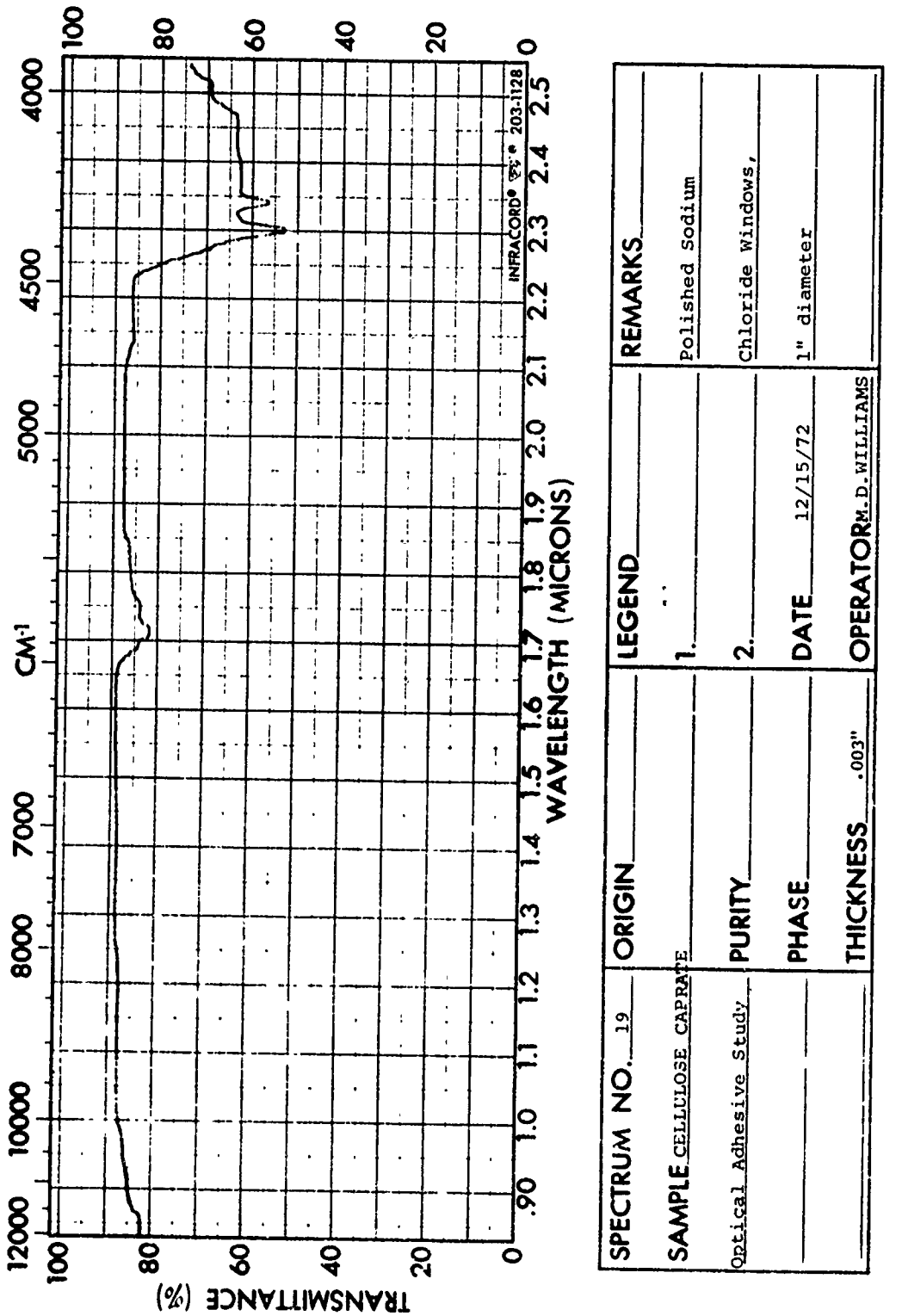


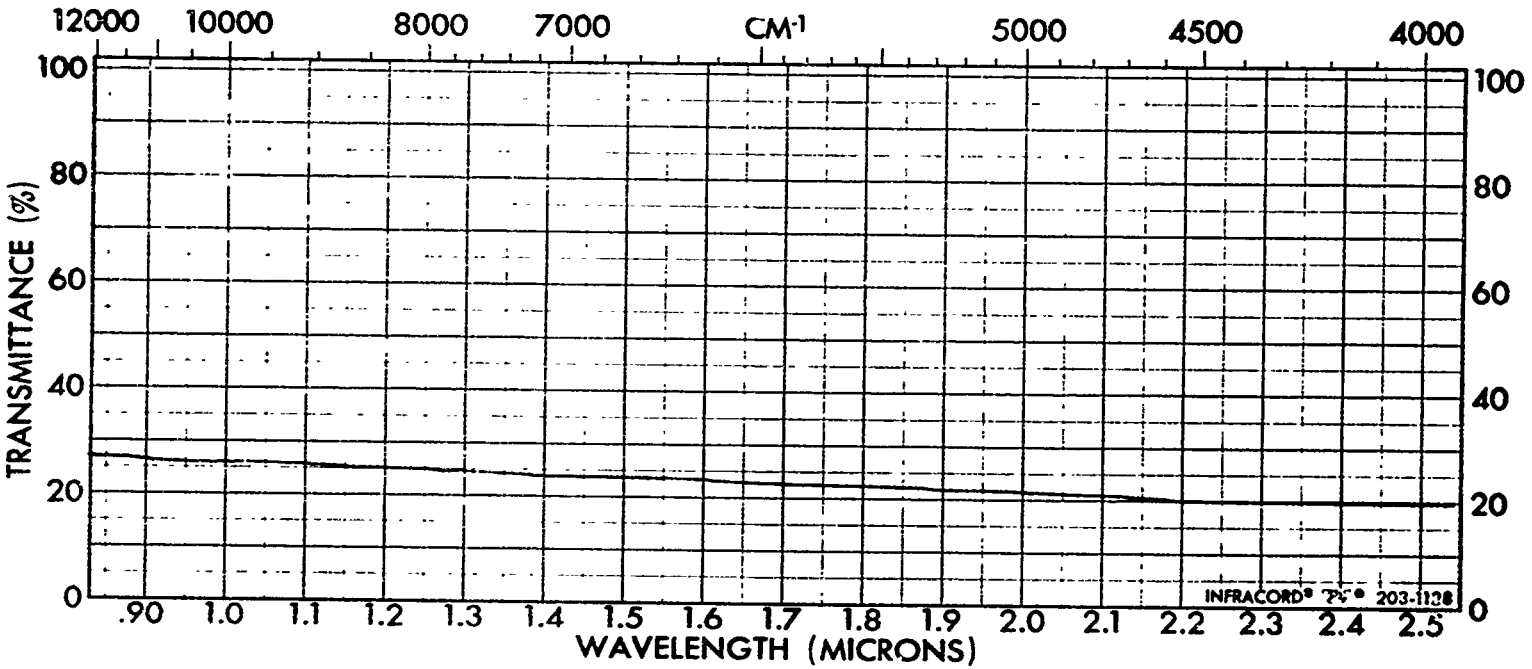
SPECTRUM NO. 16	ORIGIN	LEGEND	REMARKS
SAMPLE EPO-TEK 201		1.	Polished Sodium
Optical Adhesive Study	PURITY	2.	Chloride Windows,
	PHASE	DATE 12/15/72	1" diameter
	THICKNESS .0025"	OPERATOR M.D.WILLIAMS	



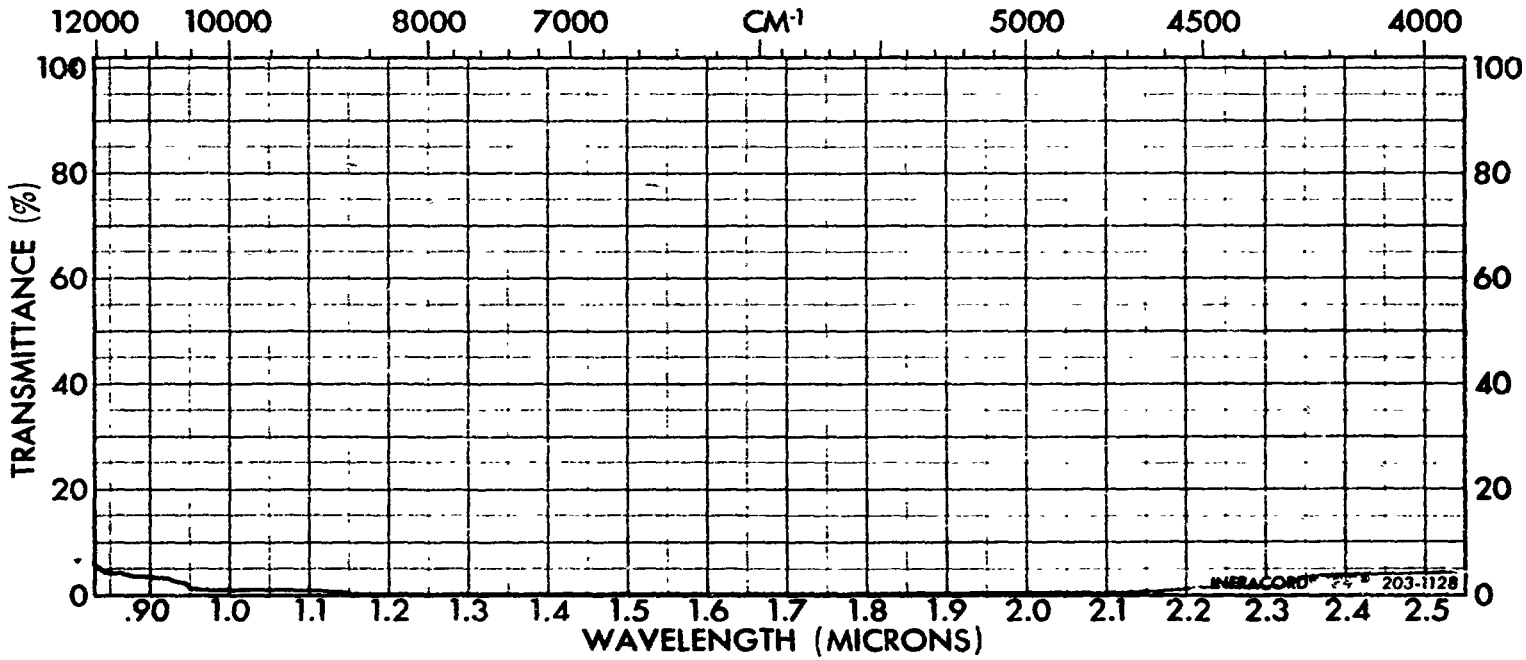
SPECTRUM NO. 17	ORIGIN	LEGEND	REMARKS
SAMPLE EPO-TEK 310		1.	Polished Sodium
Optical Adhesive Study	PURITY	2.	Chloride Windows,
	PHASE	DATE 12/15/72	1" diameter
	THICKNESS .003"	OPERATOR M.D.WILLIAMS	


TRANSMITTANCE (%)
WAVELENGTH (MICRONS)
CM-1
INFRACORD® 203-1128
SPECTRUM NO. 18
SAMPLE CANADIAN BALSAM
Optical Adhesive Study
ORIGIN
PURITY
PHASE
THICKNESS .0015"
LEGEND
1.
2.
DATE 12/15/72
OPERATOR R. D. WILLIAMS
REMARKS
Polished Sodium
Chloride Windows,
1" diameter

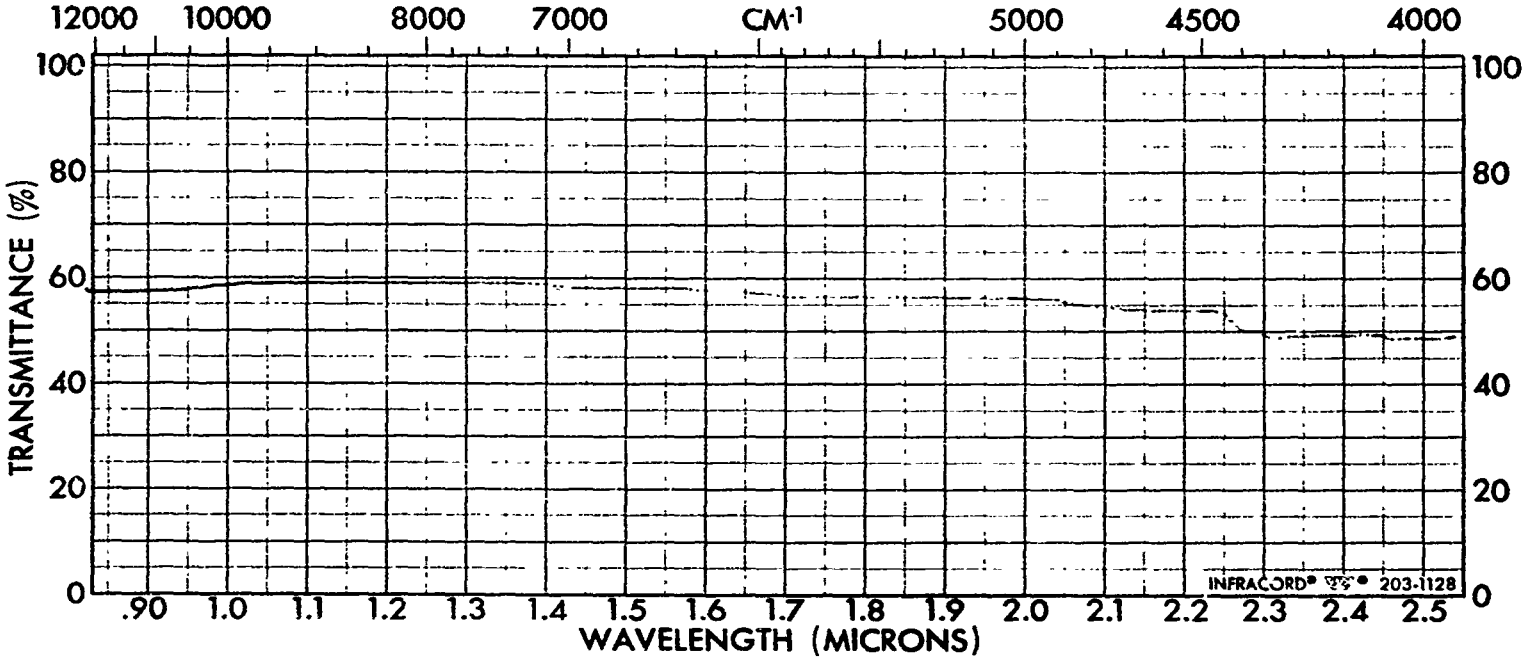

TRANSMITTANCE (%)
WAVELENGTH (MICRONS)
CM-1
INFRACORD® 203-1128
SPECTRUM NO. 19
ORIGIN
LEGEND
REMARKS
SAMPLE CELLULOSE CAPRATE
Optical Adhesive Study
1.
Polished Sodium
Chloride Windows,
1" diameter
PURITY
2.
PHASE
DATE 12/15/72
THICKNESS .003"
OPERATOR M.D.WILLIAMS



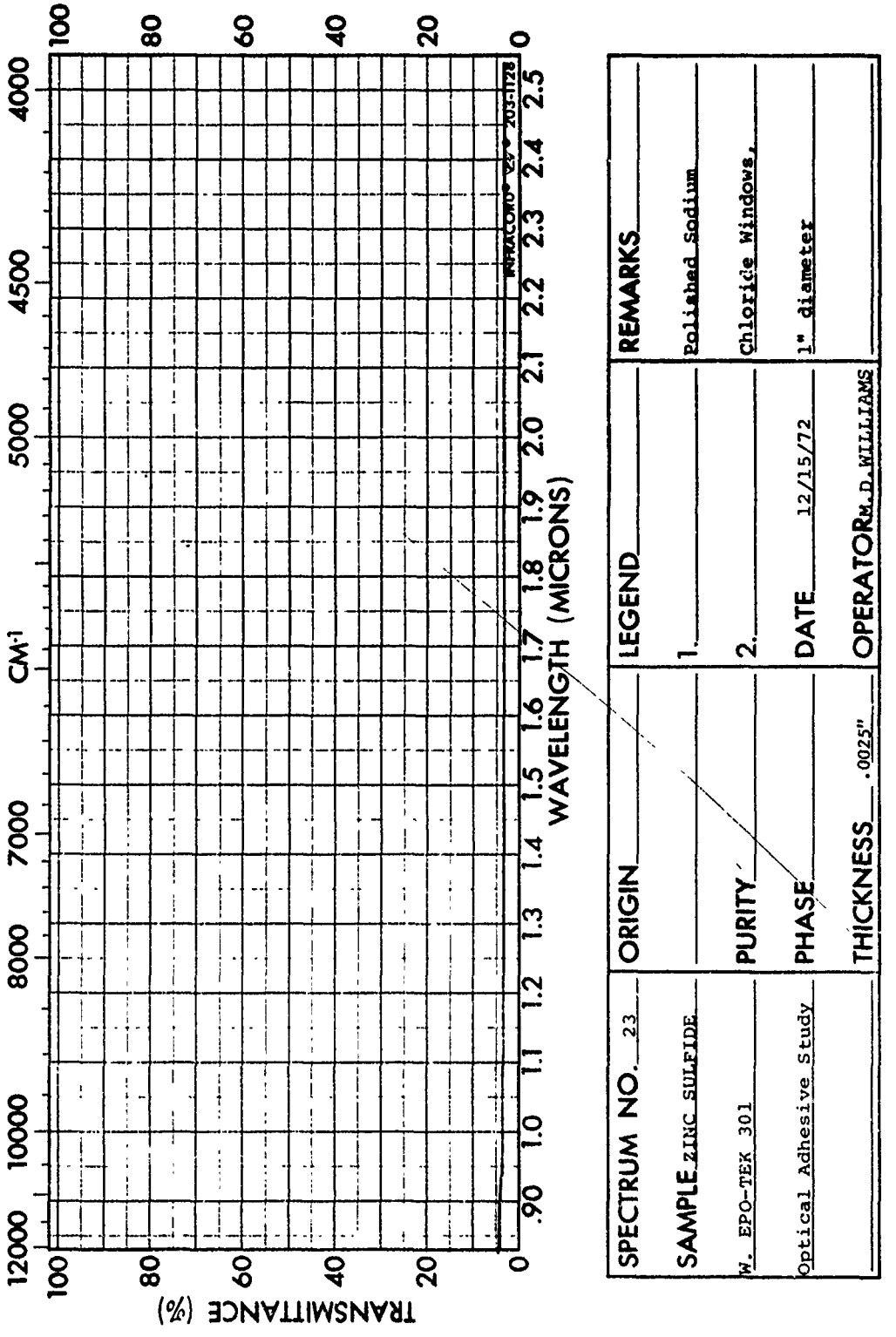
SPECTRUM NO. 20	ORIGIN	LEGEND	REMARKS
SAMPLE ZINC SELENIDE		1.	Polished Sodium
W. ZIPBOND CONTACT	PURITY	2.	Chloride Windows,
CEMENT	PHASE	DATE 12/15/72	1" diameter
Optical Adhesive Study	THICKNESS .003"	OPERATOR M.D.WILLIAMS	

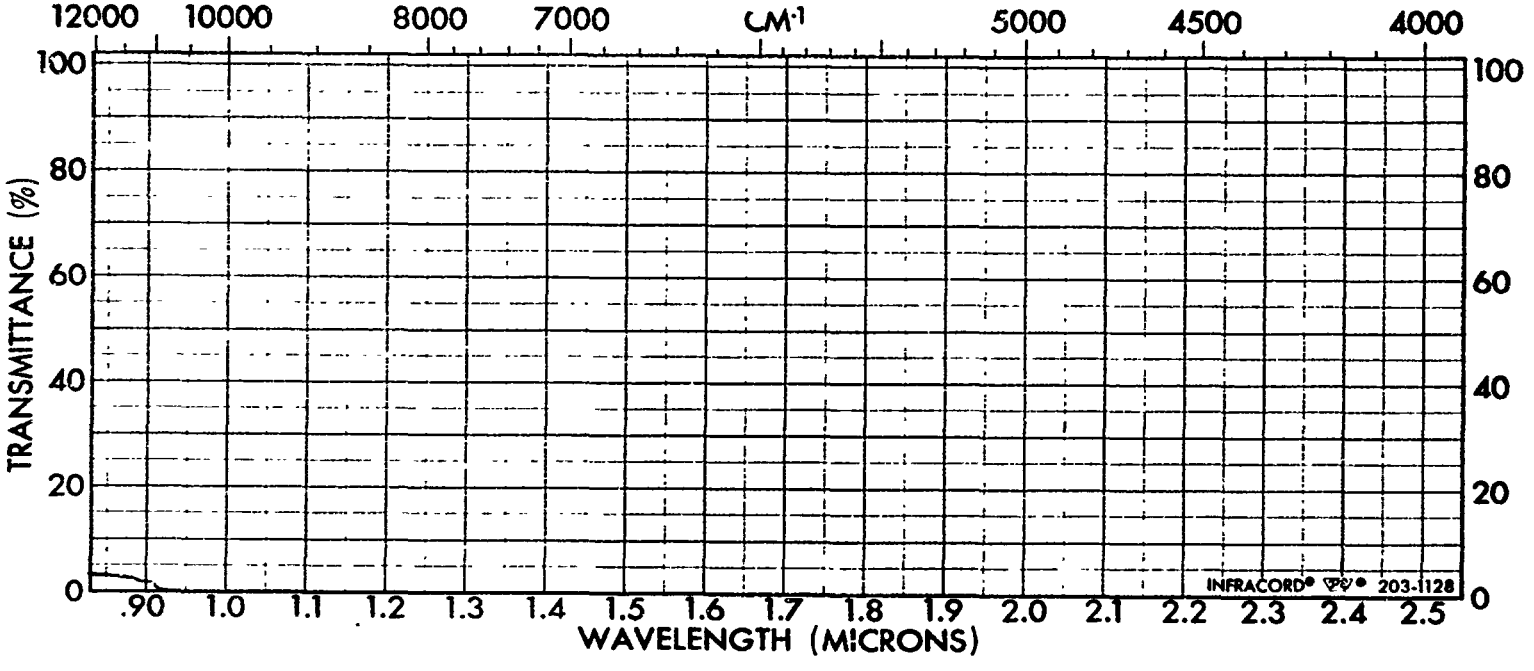


SPECTRUM NO. 21	ORIGIN	LEGEND	REMARKS
SAMPLE ZINC SULFIDE W.		1.	Polished Sodium
ZIPBOND CONTACT CEMENT	PURITY	2.	Chloride Windows,
Optical Adhesive Study	PHASE	DATE 12/15/72	1" diameter
	THICKNESS .001"	OPERATOR M. D. WILLIAMS	



SPECTRUM NO. 22	ORIGIN	LEGEND	REMARKS
SAMPLE ZINC SELENIDE W.		1.	Polished Sodium
EPO-TEK 301	PURITY	2.	Chloride Windows,
Optical Adhesive Study	PHASE	DATE 12/15/72	1" diameter
	THICKNESS .002"	OPERATOR M.D.WILLIAMS	


TRANSMITTANCE (%)
100
80
60
40
20
0
12000
10000
8000
7000
5000
4500
4000
CM-1
.90
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
WAVELENGTH (MICRONS)
PERKIN-ELMER 203-IR
SPECTRUM NO. 23
SAMPLE ZINC SULFIDE
W. EPO-TEK 301
Optical Adhesive Study
ORIGIN
PURITY
PHASE
THICKNESS .0025"
LEGEND
1.
2.
DATE 12/15/72
OPERATOR M.D. WILLIAMS
REMARKS
Polished Sodium
Chloride Windows.
1" diameter



SPECTRUM NO. 24	ORIGIN	LEGEND	REMARKS
SAMPLE		1.	1" DIA. EPOXY PLUG W.
Optical Adhesive Study	PURITY	2.	EPO-TEK 301 & Zinc
	PHASE	DATE 12/15/72	Selenide
	THICKNESS .040"	OPERATOR M.D.WILLIAMS	

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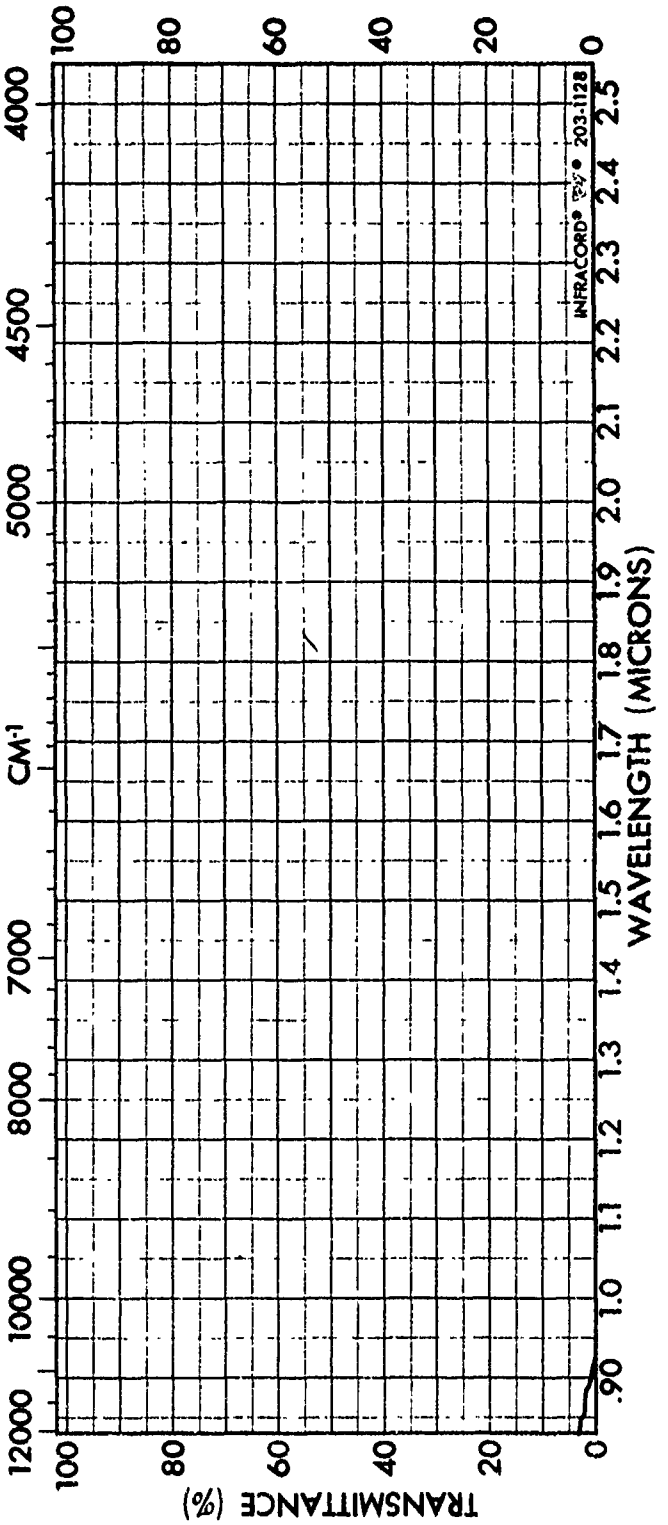
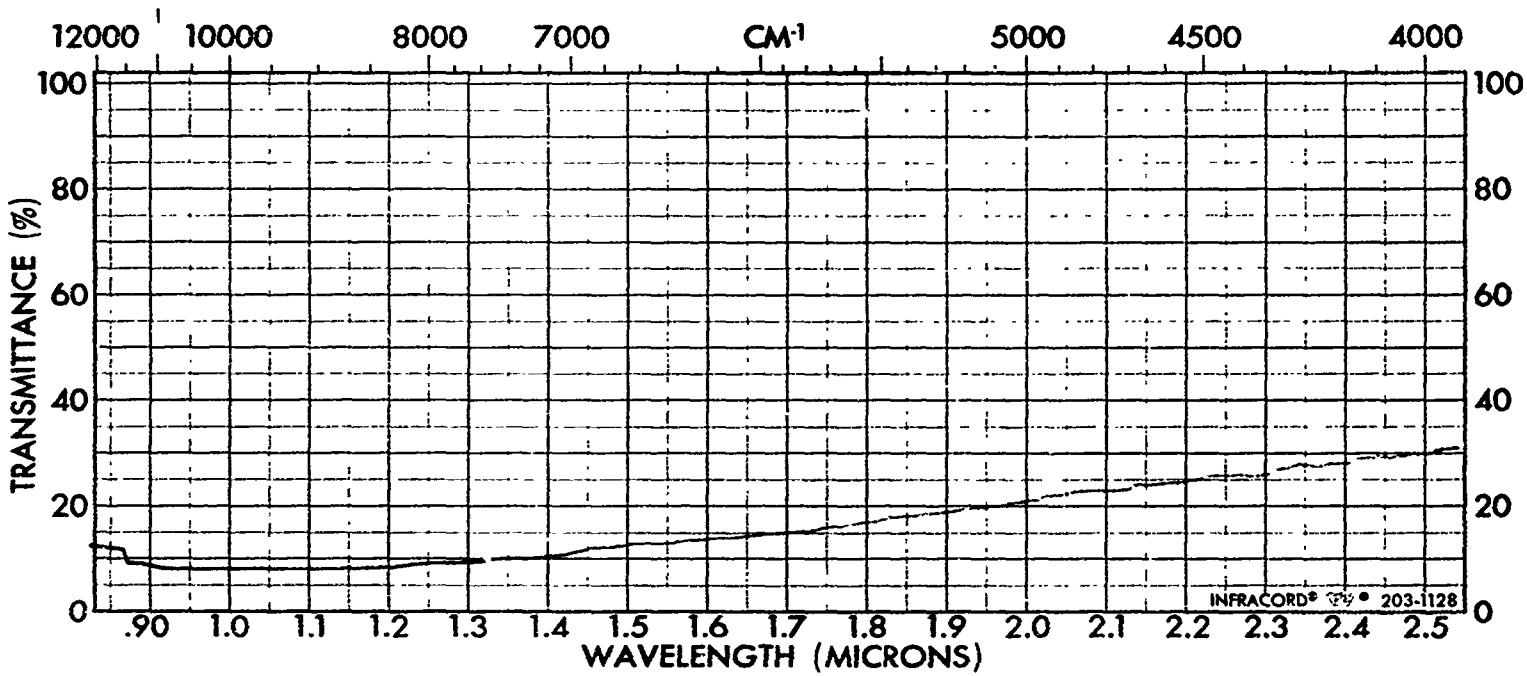
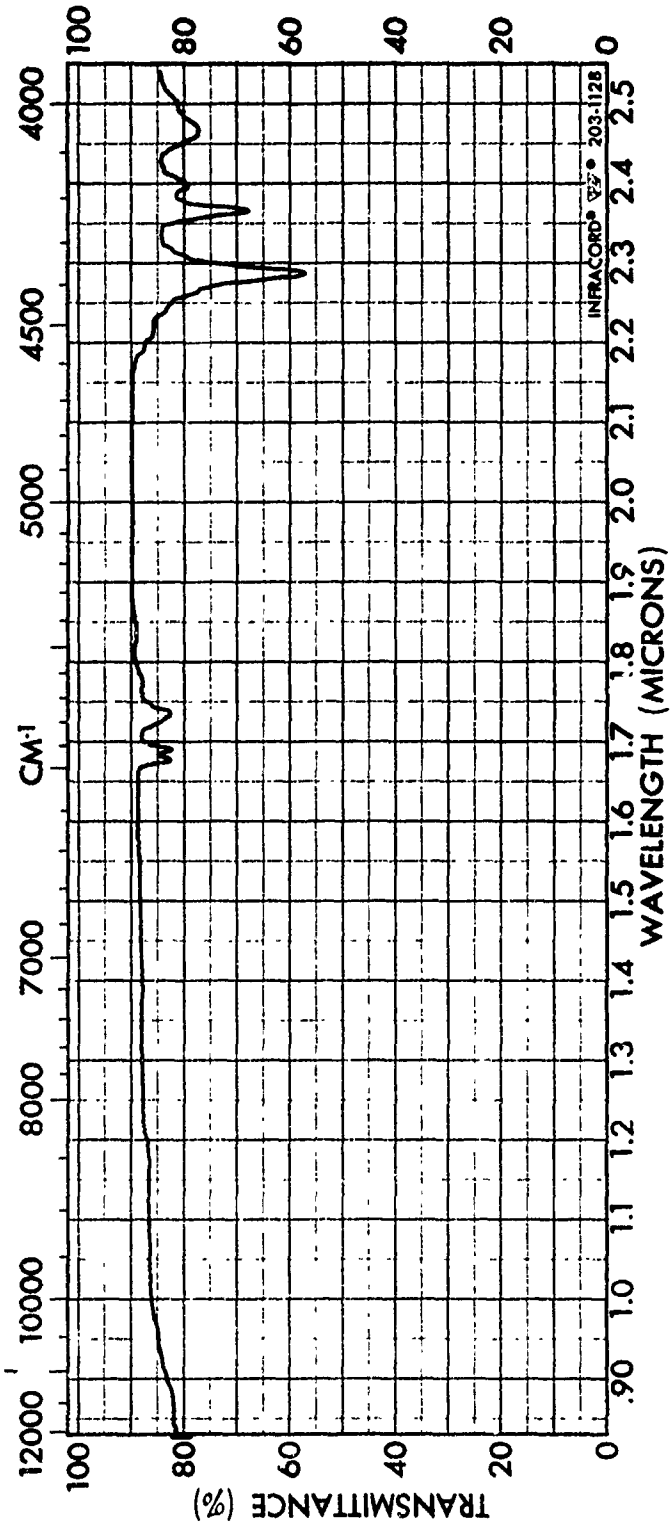


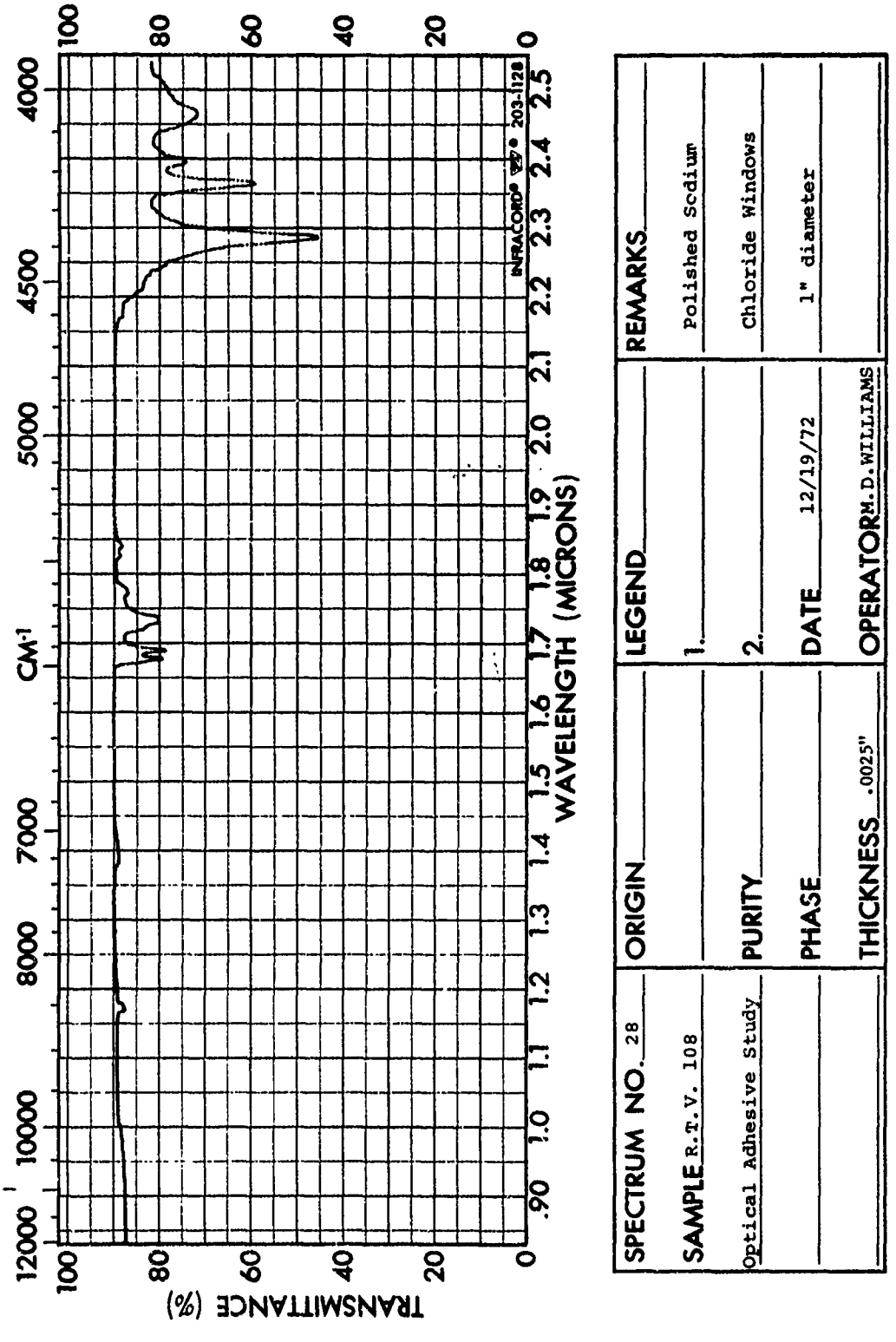
SPECTRUM NO. 25	ORIGIN	LEGEND	REMARKS
SAMPLE		1.	1" DIA. EPOXY PLUG W.
Optical Adhesive Study	PURITY	2.	EPO-TEK 301 & ZINC
	PHASE	DATE 12/15/72	SULFIDE
	THICKNESS .049"	OPERATOR M.D.WILLIAMS	

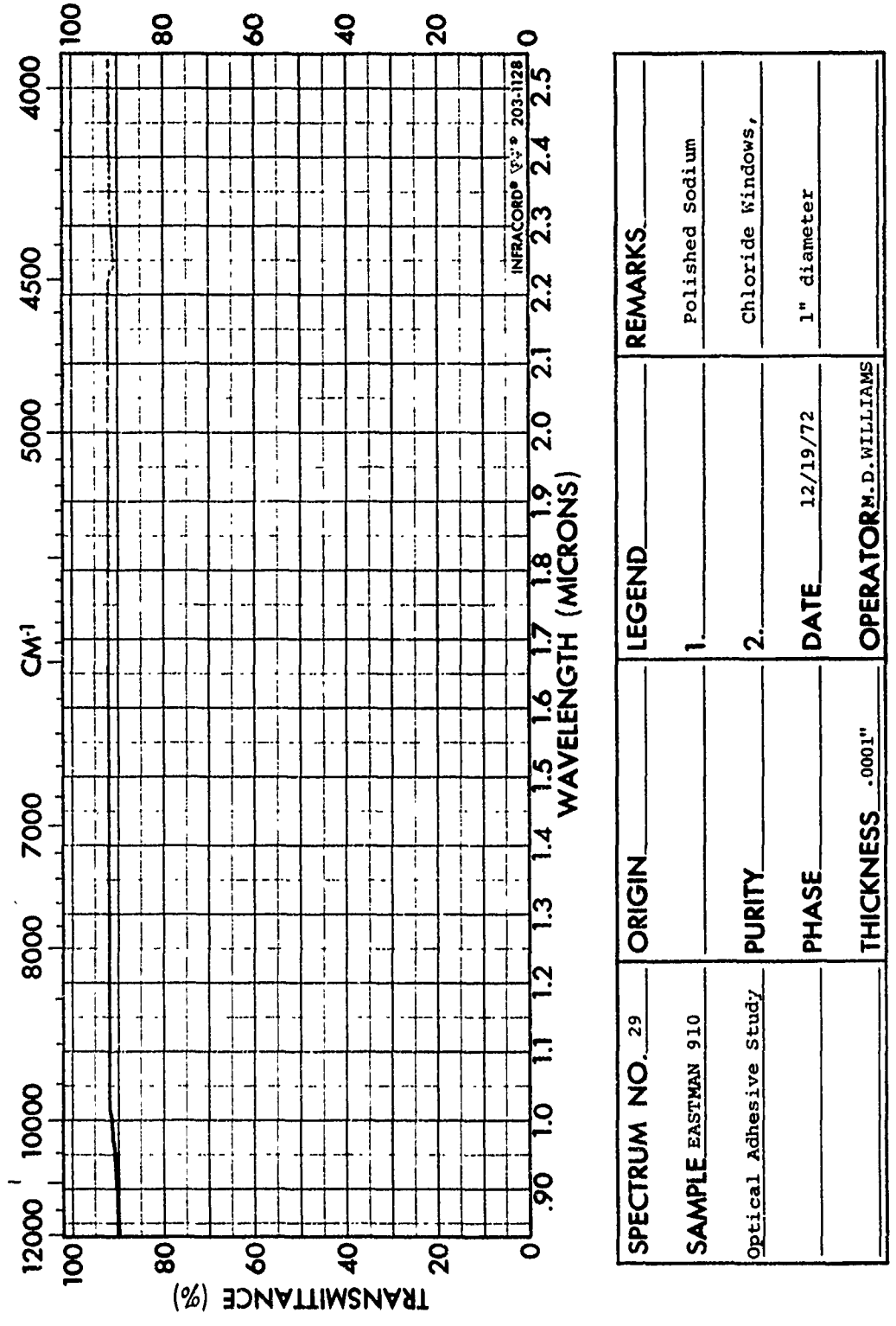


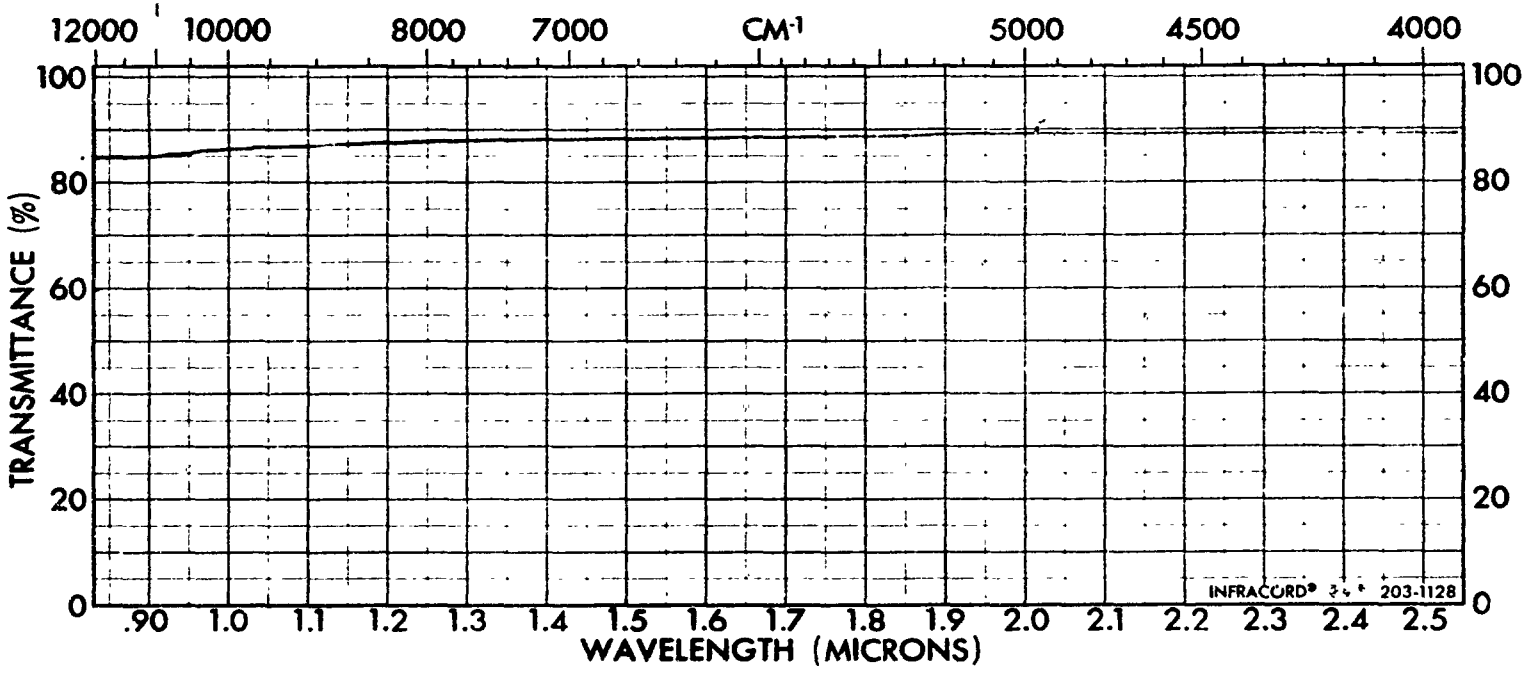
SPECTRUM NO. 26	ORIGIN	LEGEND	REMARKS
SAMPLE DOW CORNING		1.	Polished Sodium
3118	PURITY	2.	Chloride Windows,
Optical Adhesive Study	PHASE	DATE 12/19/72	1" diameter
	THICKNESS .0005"	OPERATOR M.D.WILLIAMS	



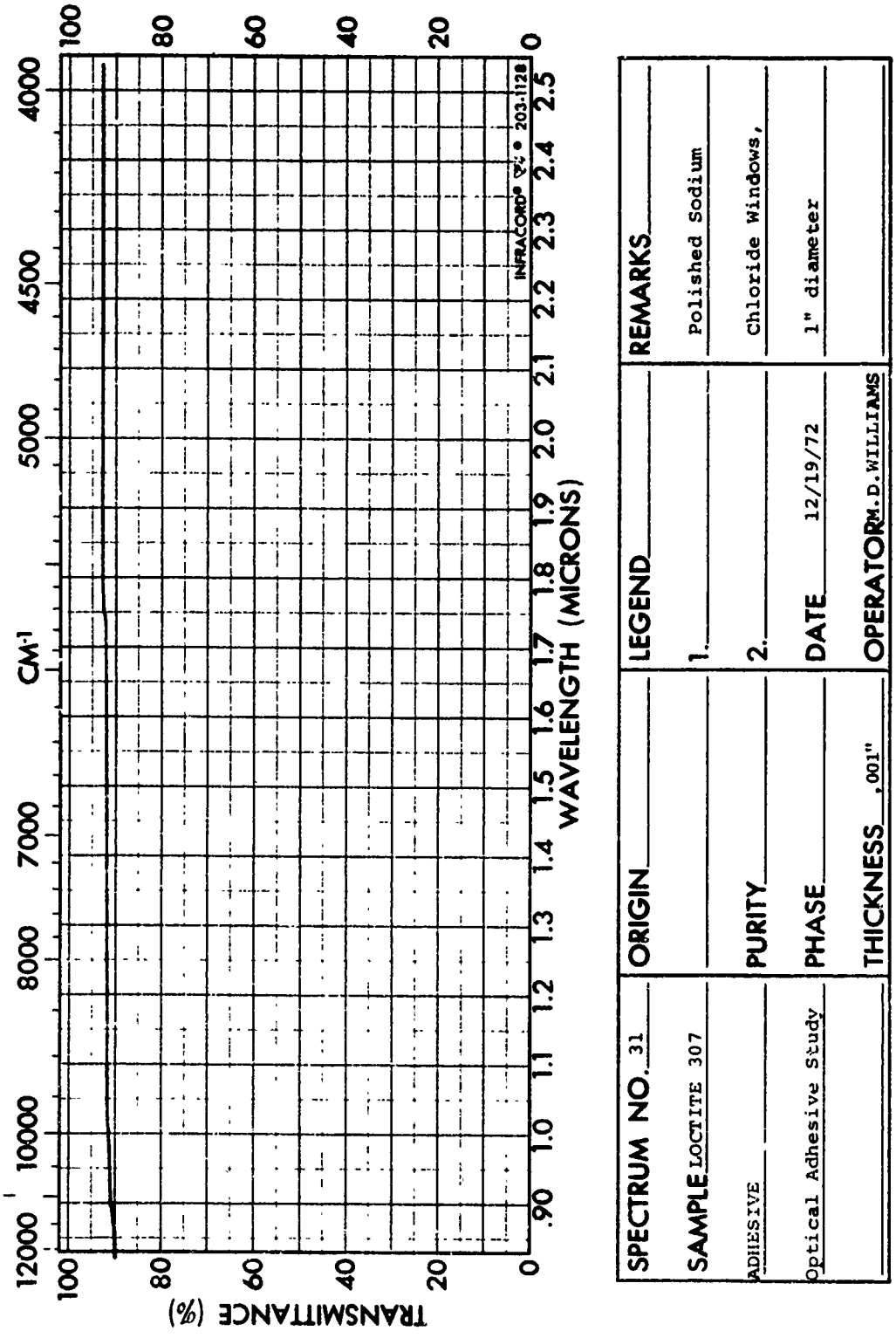
SPECTRUM NO. 27	ORIGIN	LEGEND	REMARKS
SAMPLE STIASTIC 140 (R.T.V.) Optical Adhesive Study		1.	Polished Sodium Chloride Windows, 1" diameter
	PURITY	2.	
	PHASE	DATE 12/19/72	
	THICKNESS .0015"	OPERATOR M.D. WILLIAMS	

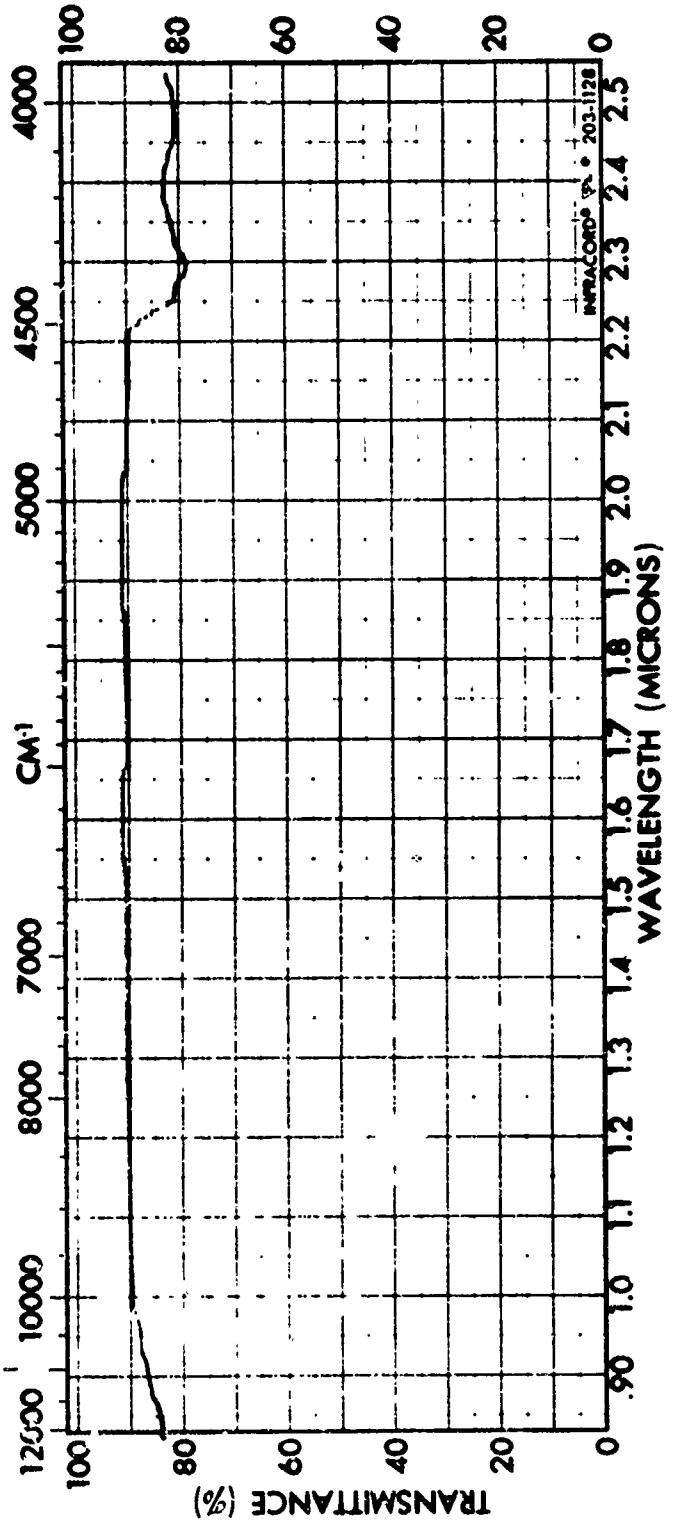

TRANSMITTANCE (%)
WAVELENGTH (MICRONS)
CM-1
INFRACORD 203-1128
SPECTRUM NO. 28
SAMPLE R.T.V. 108
Optical Adhesive Study
ORIGIN
PURITY
PHASE
THICKNESS .0025"
LEGEND
1.
2.
DATE 12/19/72
OPERATOR M.D.WILLIAMS
REMARKS
Polished Sodium Chloride Windows
1" diameter

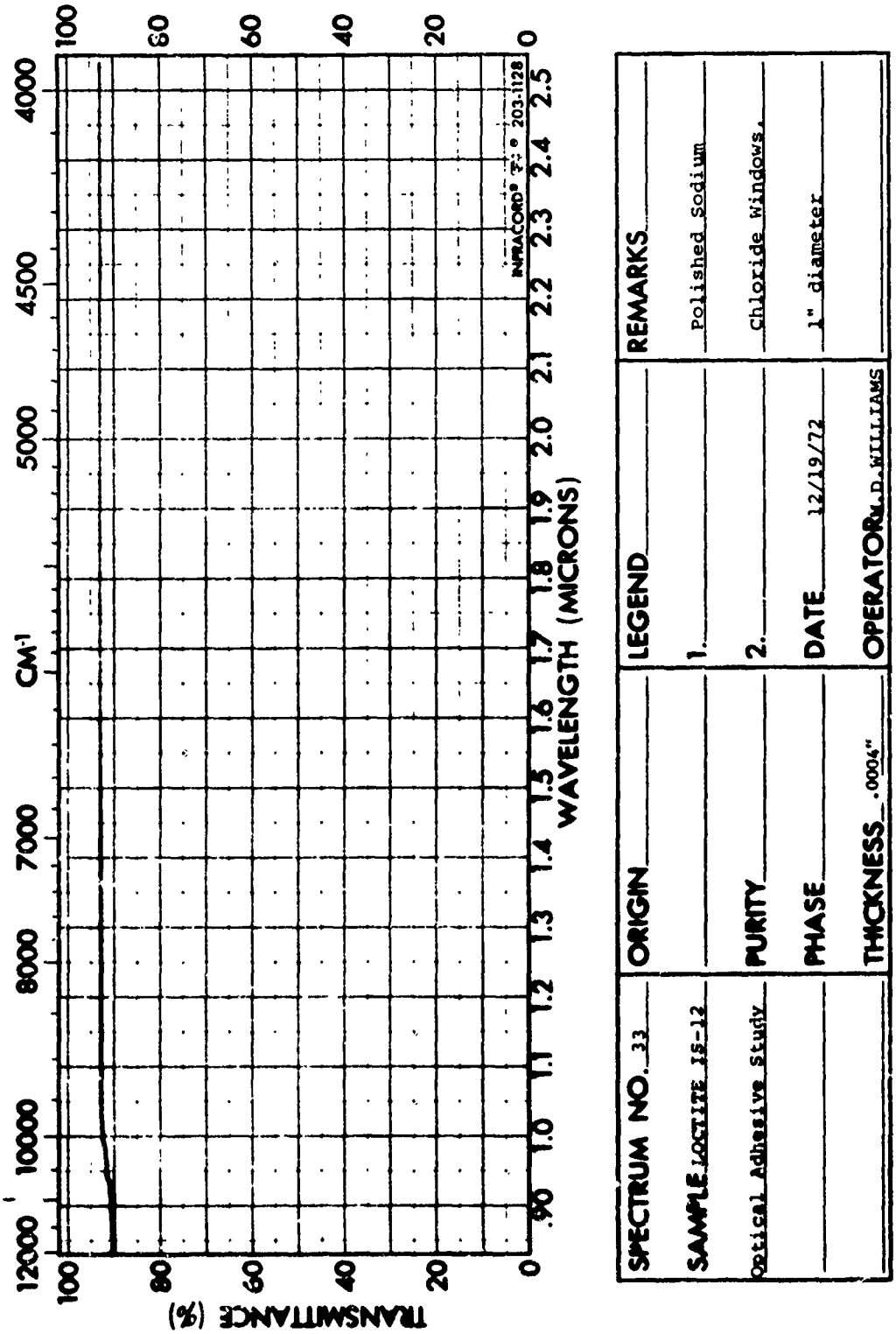

TRANSMITTANCE (%)
WAVELENGTH (MICRONS)
CM-1
INFRACORD® Type 203-1128
SPECTRUM NO. 29
SAMPLE EASTMAN 910
Optical Adhesive Study
ORIGIN
PURITY
PHASE
THICKNESS .0001"
LEGEND
1.
2.
DATE 12/19/72
OPERATOR M.D.WILLIAMS
REMARKS
Polished Sodium
Chloride Windows,
1" diameter

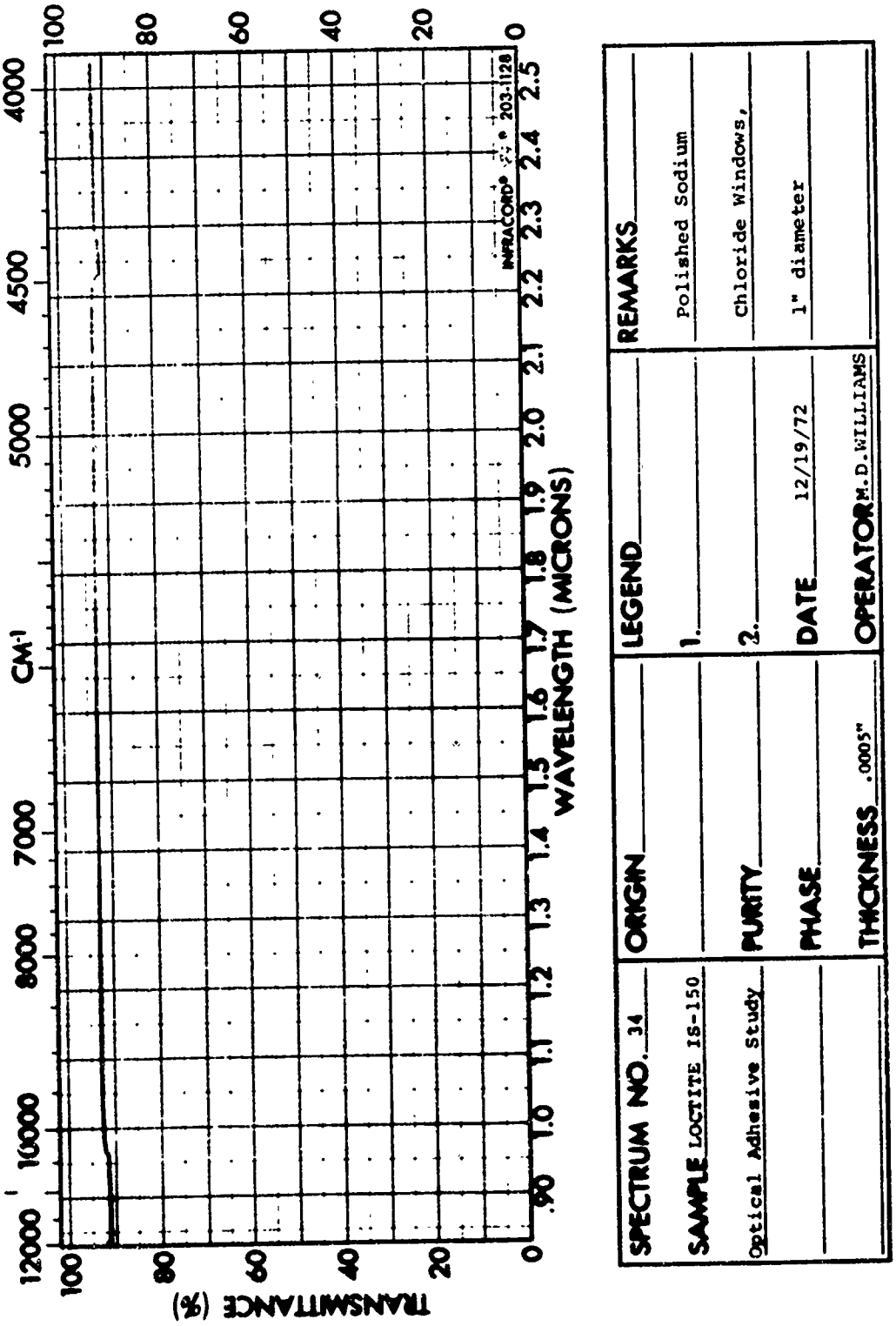


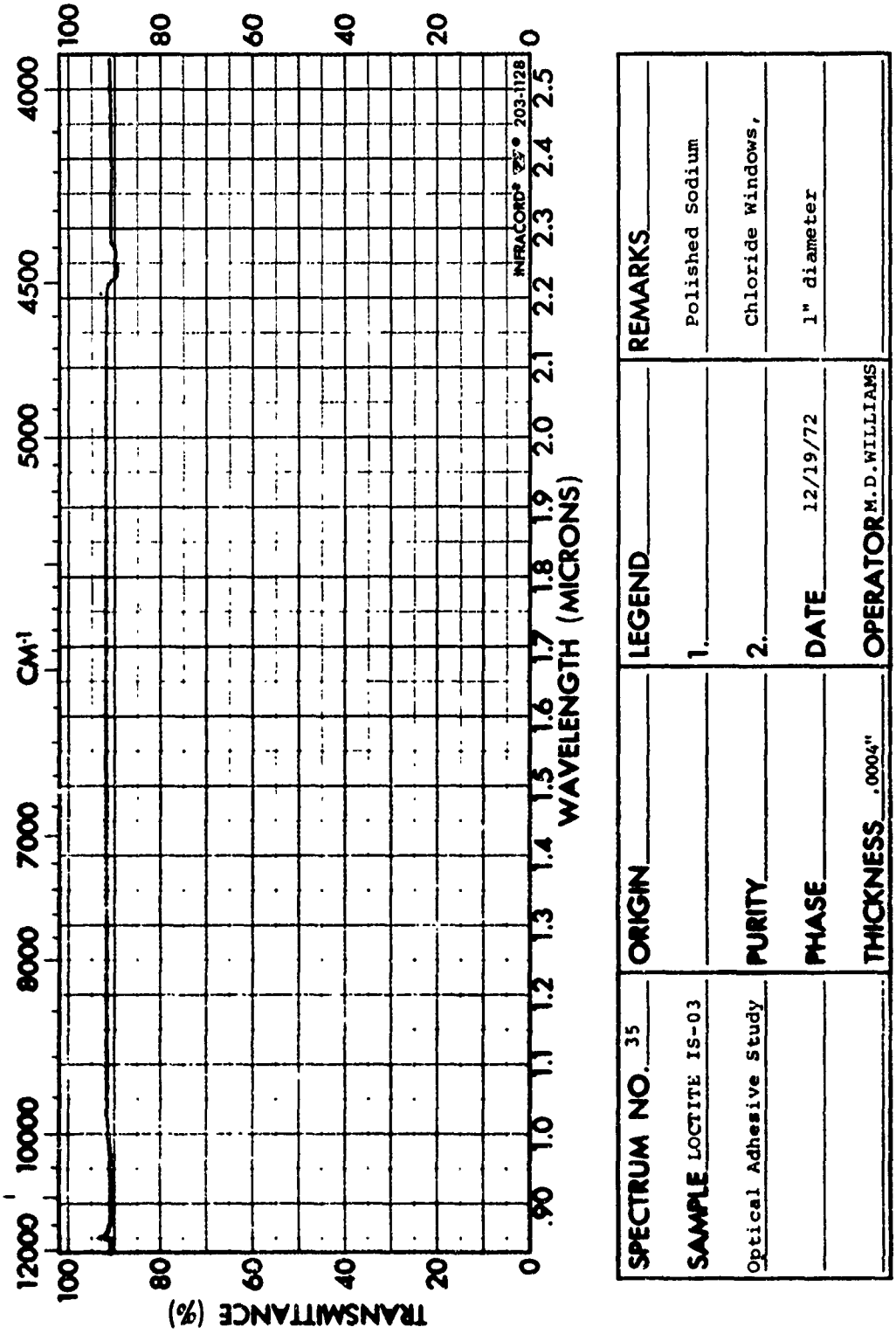
SPECTRUM NO. 30	ORIGIN	LEGEND	REMARKS
SAMPLE M-BOND 610		1.	Polished Sodium
Optical Adhesive Study	PURITY	2.	Chloride Windows,
	PHASE	DATE 12/19/72	1" diameter
	THICKNESS .0001"	OPERATOR M.D.WILLIAMS	

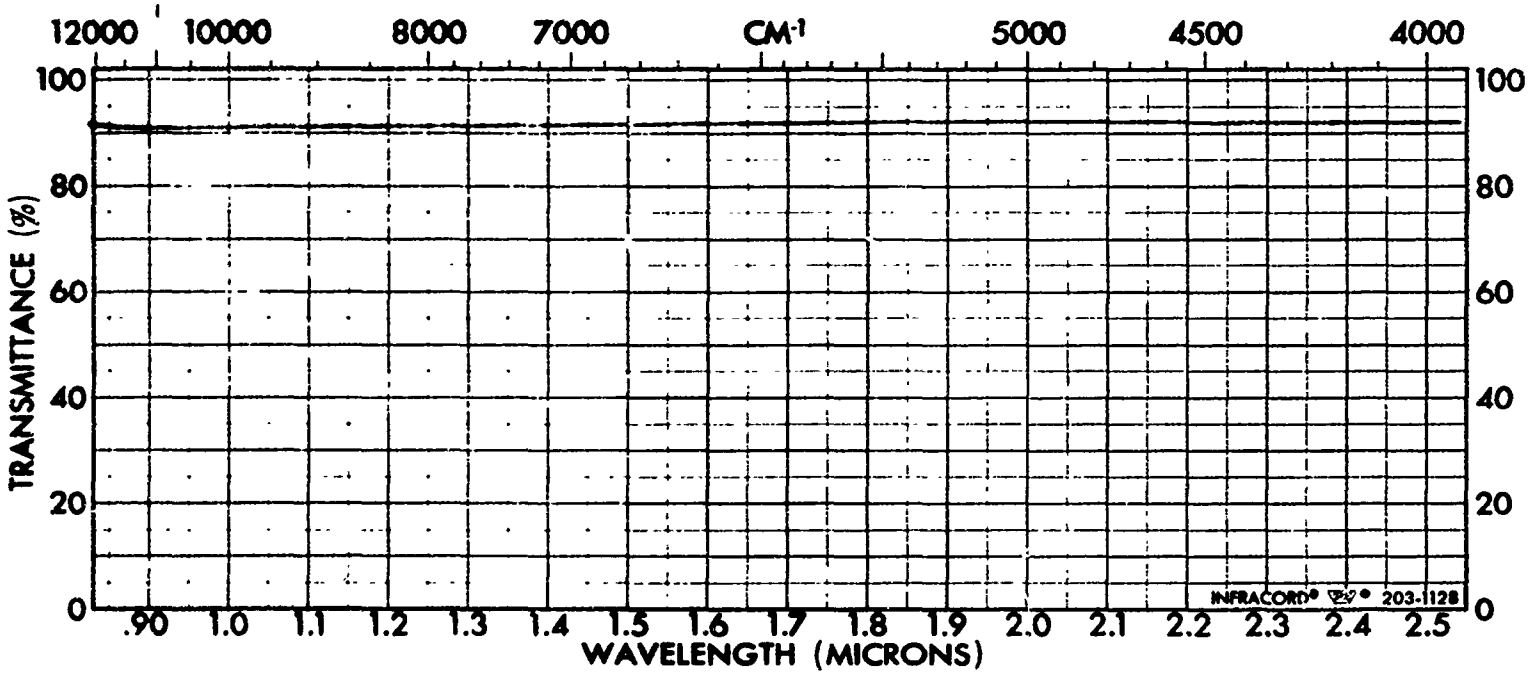

TRANSMITTANCE (%)
WAVELENGTH (MICRONS)
CM-1
INFRACORD® 203-1128
SPECTRUM NO. 31
SAMPLE LOCTITE 307
ADHESIVE
Optical Adhesive Study
ORIGIN
PURITY
PHASE
THICKNESS .001"
LEGEND
1.
2.
DATE 12/19/72
OPERATOR M.D.WILLIAMS
REMARKS
Polished Sodium
Chloride Windows,
1" diameter


TRANSMITTANCE (%)
WAVELENGTH (MICRONS)
CM-1
NICOLET 7199 • 203-1128
SPECTRUM NO. 32
SAMPLE LOCTITE MINUTE BOND 312 Optical Adhesive Study
ORIGIN
PURITY
PHASE
THICKNESS .0001"
LEGEND
1.
2.
DATE 12/19/72
OPERATOR M.D. WILLIAMS
REMARKS
Polished Sodium Chloride Windows, 1" diameter

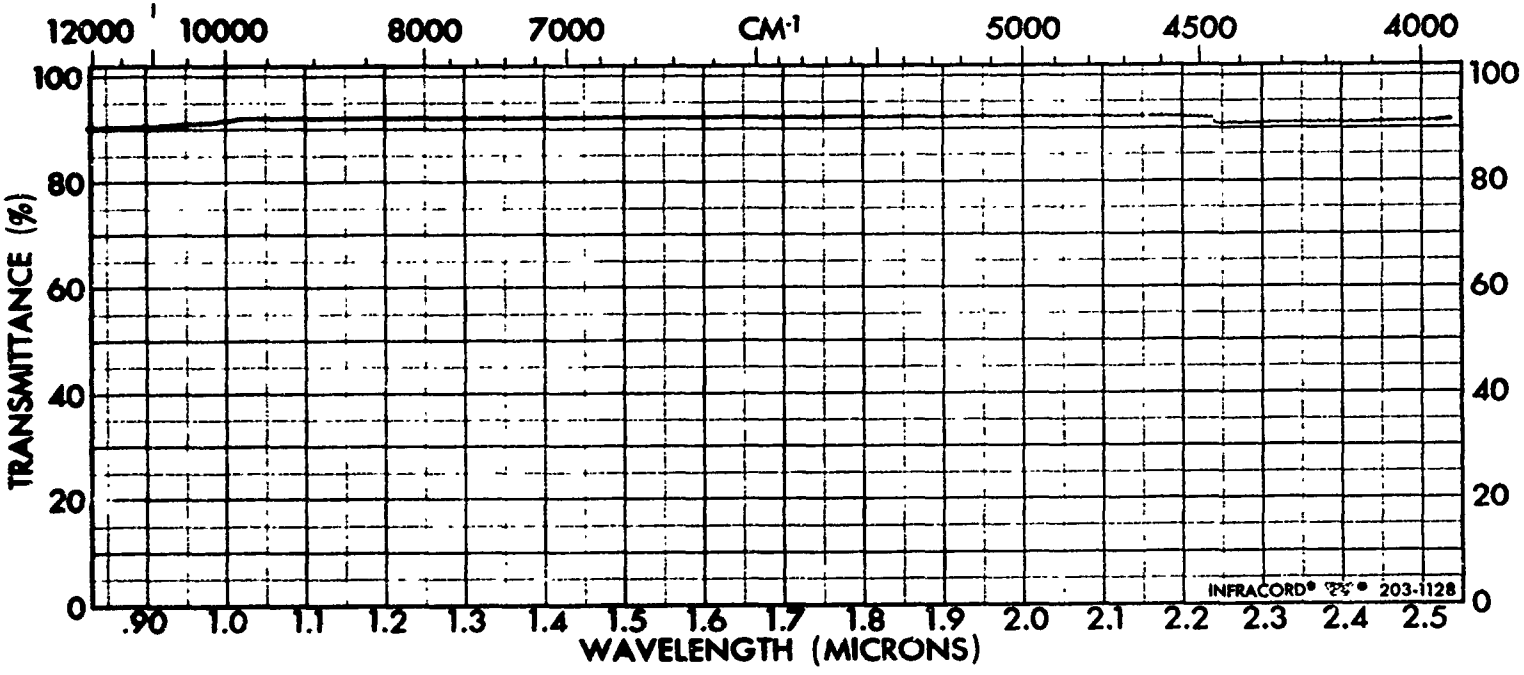

TRANSMITTANCE (%)
WAVELENGTH (MICRONS)
CM-1
NIRACORD® T. ® 203-1128
SPECTRUM NO. 33
SAMPLE LOCTITE 15-12
Optical Adhesive Study
ORIGIN
PURITY
PHASE
THICKNESS .0004"
LEGEND
1.
2.
DATE 12/19/72
OPERATOR M.D.WILLIAMS
REMARKS
Polished Sodium
Chloride Windows.
1" diameter


TRANSMITTANCE (%)
WAVELENGTH (MICRONS)
CM-1
INFRACORD® 203-128
SPECTRUM NO. 34
SAMPLE LOCTITE IS-150
Optical Adhesive Study
ORIGIN
PURITY
PHASE
THICKNESS .0005"
LEGEND
1.
2.
DATE 12/19/72
OPERATOR M.D.WILLIAMS
REMARKS
Polished Sodium
Chloride Windows,
1" diameter

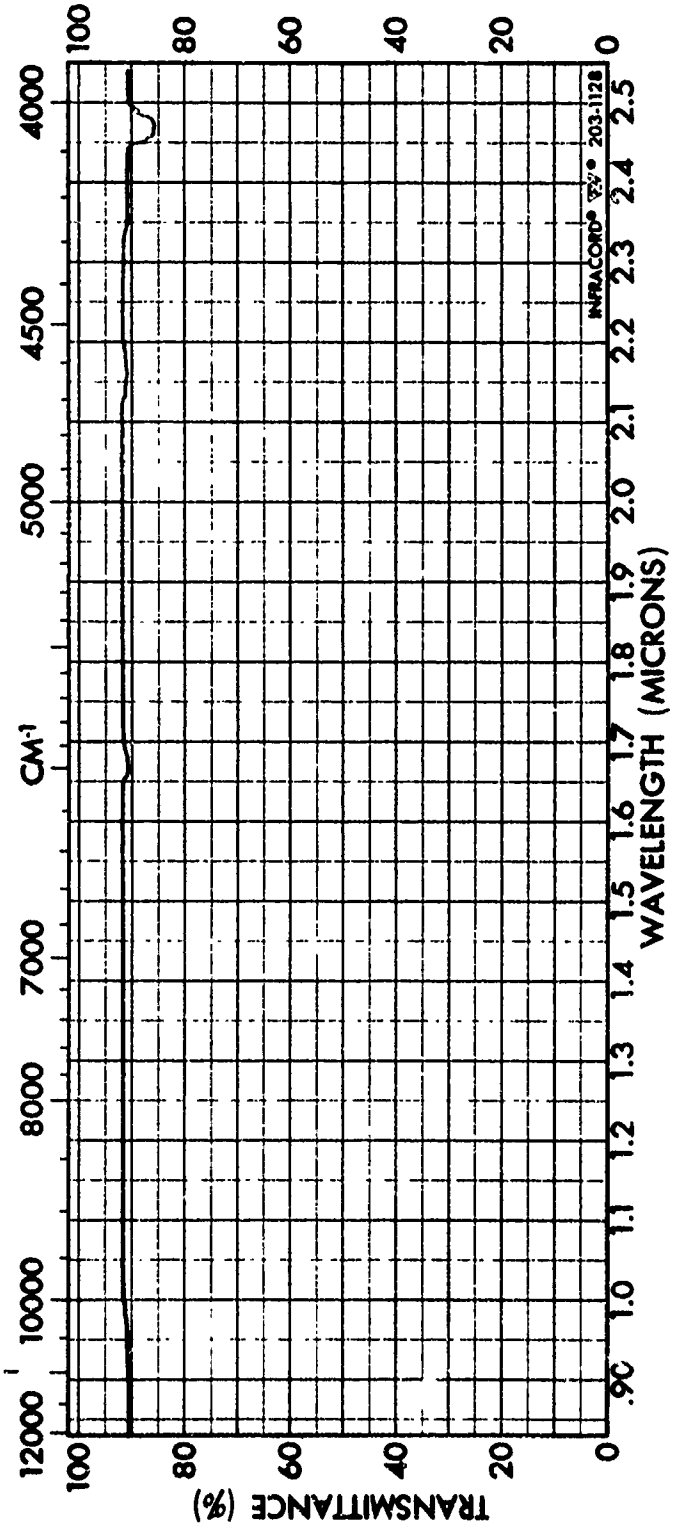

TRANSMITTANCE (%)
WAVELENGTH (MICRONS)
CM-1
INFRACORD® 203-1128
SPECTRUM NO. 35
SAMPLE LOCTITE IS-03
Optical Adhesive Study
ORIGIN
PURITY
PHASE
THICKNESS .0004"
LEGEND
1.
2.
DATE 12/19/72
OPERATOR M.D.WILLIAMS
REMARKS
Polished Sodium
Chloride Windows,
1" diameter



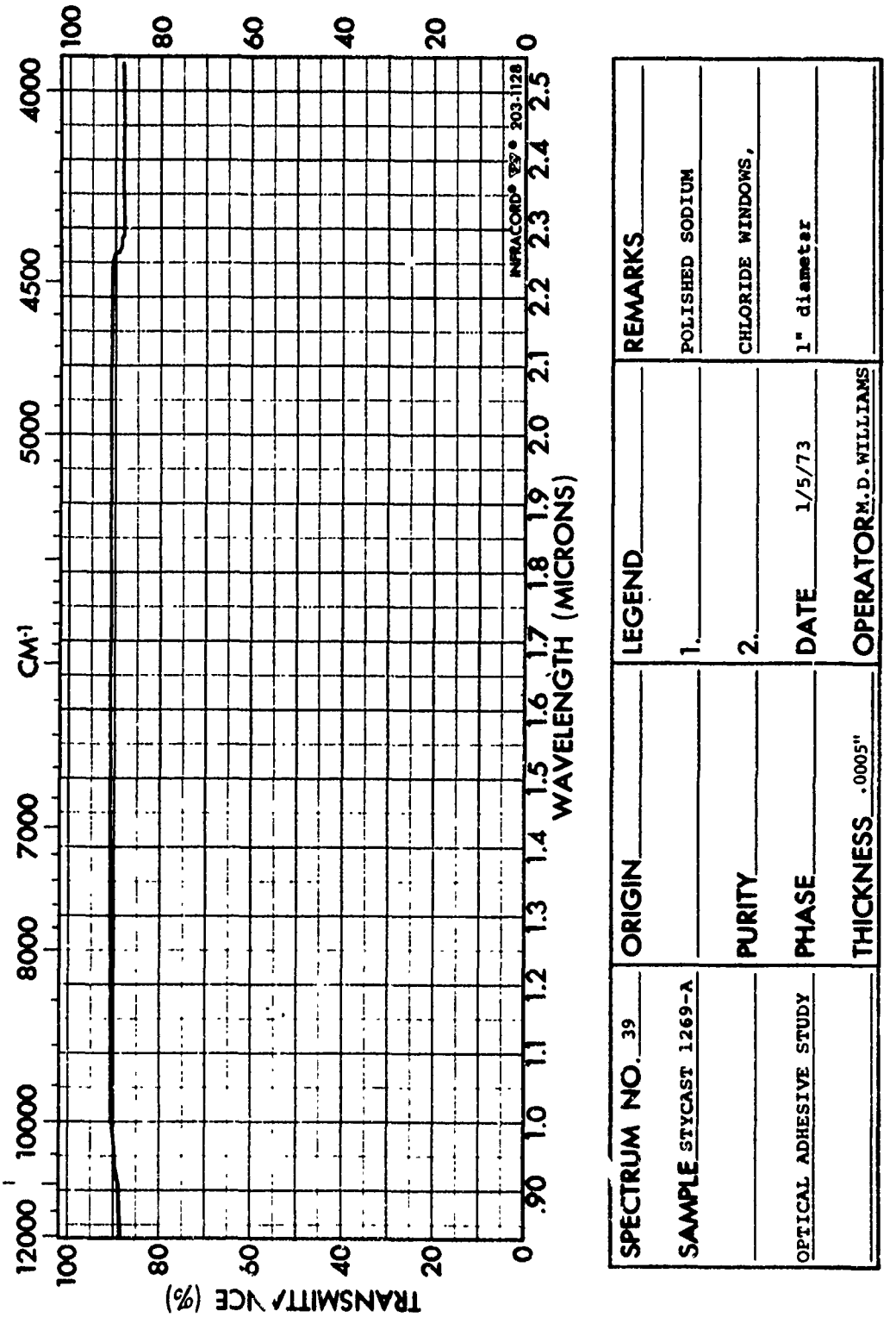
SPECTRUM NO. 36	ORIGIN	LEGEND	REMARKS
SAMPLE LOCTITE IS-06	1	1.	Polished Sodium
Optical Adhesive Study	PURITY	2.	Chloride Windows,
	PHASE	DATE 12/19/72	1" diameter
	THICKNESS .0003"	OPERATOR M.D.WILLIAMS	

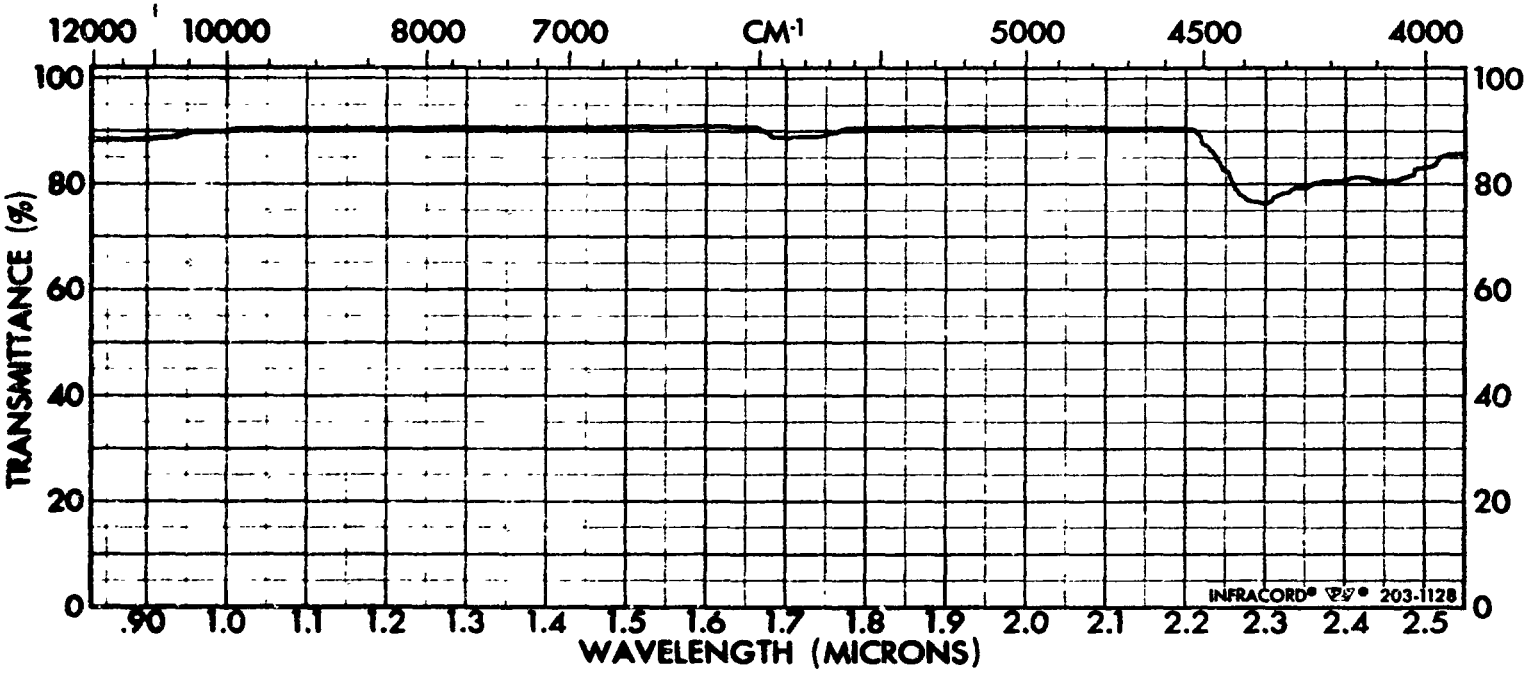


SPECTRUM NO. 37	ORIGIN	LEGEND	REMARKS
SAMPLE LOCTITE IS-04E		1.	Polished Sodium
Optical Adhesive Study	PURITY	2.	Chloride Windows,
	PHASE	DATE 12/19/72	1" diameter
	THICKNESS .0003"	OPERATOR M.D.WILLIAMS	

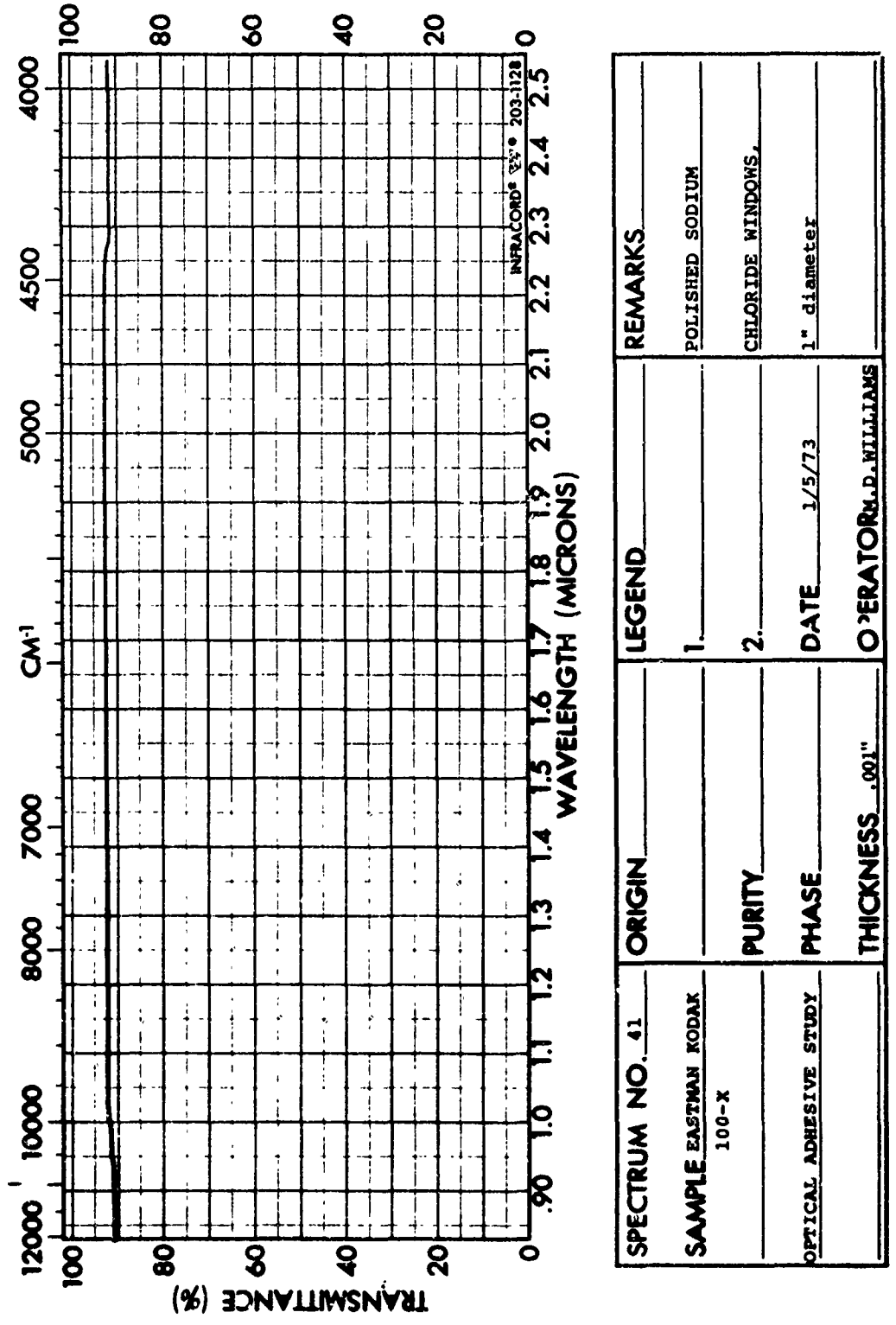


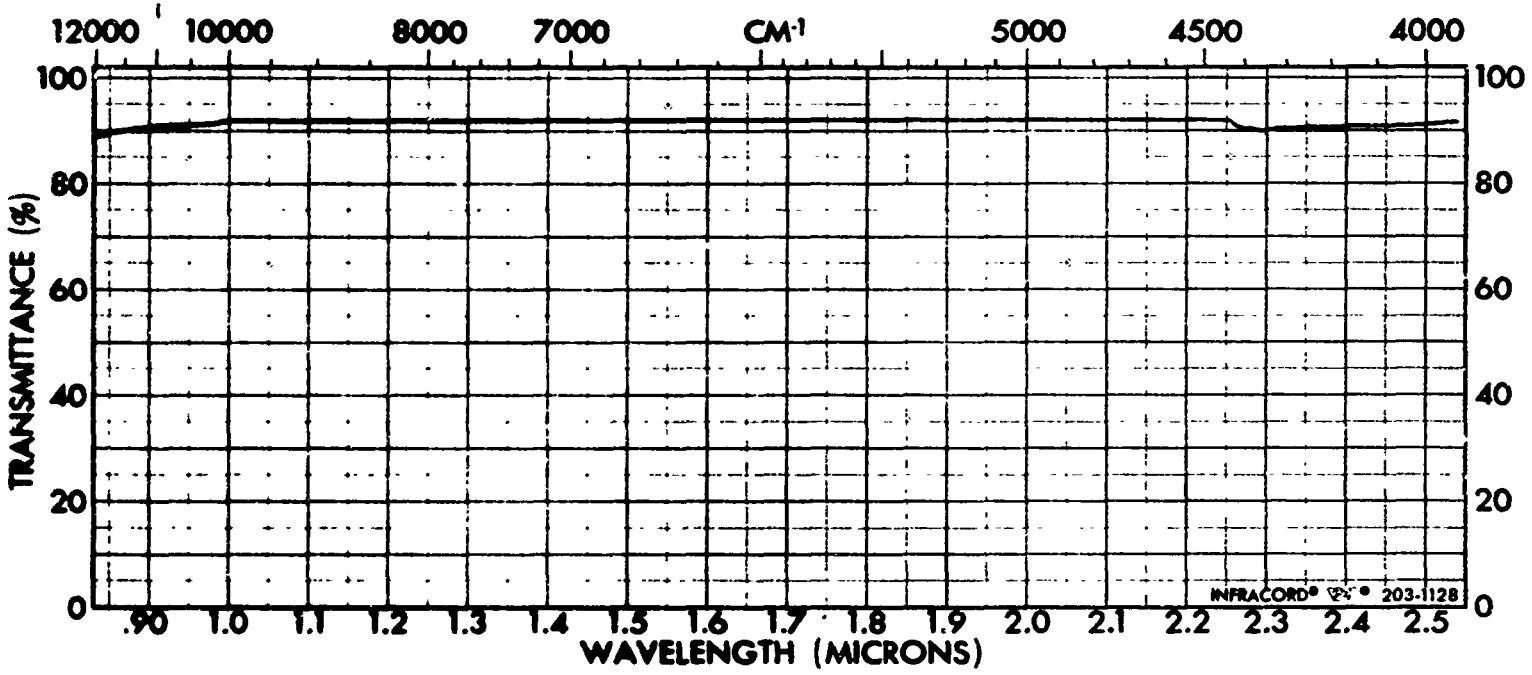
SPECTRUM NO. 38	ORIGIN	LEGEND	REMARKS
SAMPLE STYCAST 35-D		1.	POLISHED SODIUM
	PURITY	2.	CHLORIDE WINDOWS,
OPTICAL ADHESIVE STUDY	PHASE	DATE 1/5/73	1" diameter
	THICKNESS .0015"	OPERATOR M.D.WILLIAMS	


TRANSMITTANCE (%)
WAVELENGTH (MICRONS)
CM-1
INFRACORD 203-1128
SPECTRUM NO. 39
SAMPLE STYCAST 1269-A
OPTICAL ADHESIVE STUDY
ORIGIN
PURITY
PHASE
THICKNESS .0005"
LEGEND
1.
2.
DATE 1/5/73
OPERATOR M.D. WILLIAMS
REMARKS
POLISHED SODIUM
CHLORIDE WINDOWS,
1" diameter

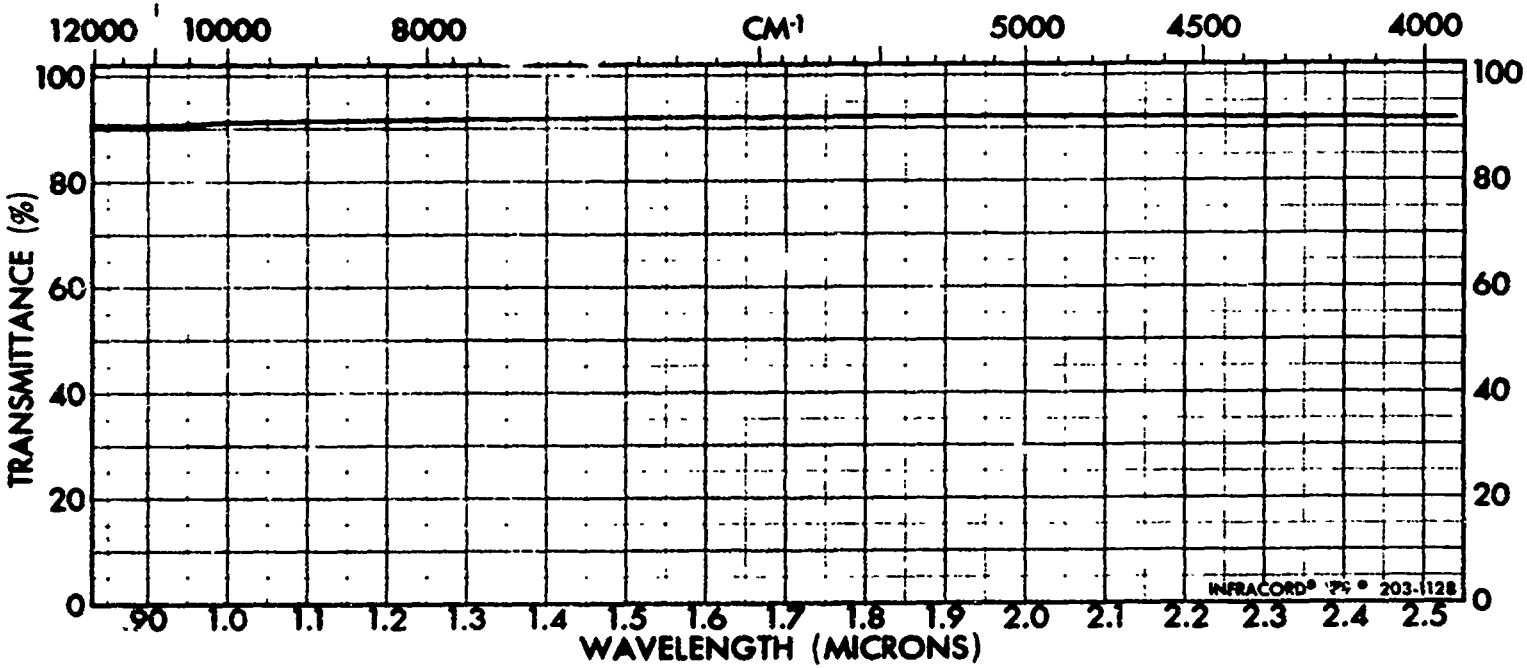


SPECTRUM NO. 40	ORIGIN	LEGEND	REMARKS
SAMPLE EASTMAN KODAK 100-B		1.	POLISHED SODIUM
	PURITY	2.	CHLORIDE WINDOWS,
OPTICAL ADHESIVE STUDY	PHASE	DATE 1/5/73	1" diameter
	THICKNESS .0015"	OPERATOR M.D.WILLIAMS	

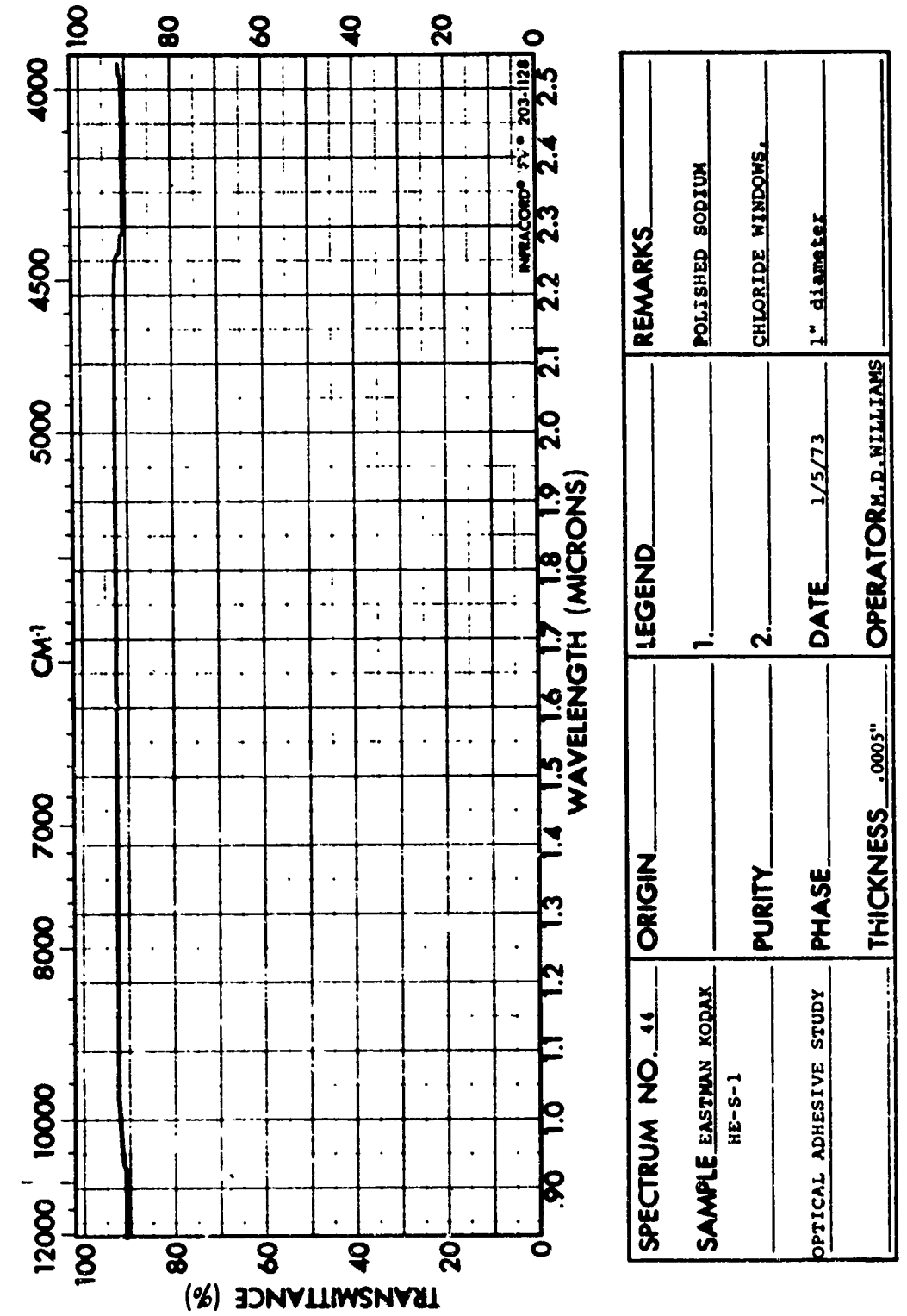

TRANSMITTANCE (%)
WAVELENGTH (MICRONS)
CM-1
INFRACORD 203-1128
SPECTRUM NO. 41
SAMPLE EASTMAN KODAK 100-X
OPTICAL ADHESIVE STUDY
ORIGIN
PURITY
PHASE
THICKNESS .001"
LEGEND
1.
2.
DATE 1/5/73
O'ERATOR M.D. WILLIAMS
REMARKS
POLISHED SODIUM CHLORIDE WINDOWS,
1" diameter

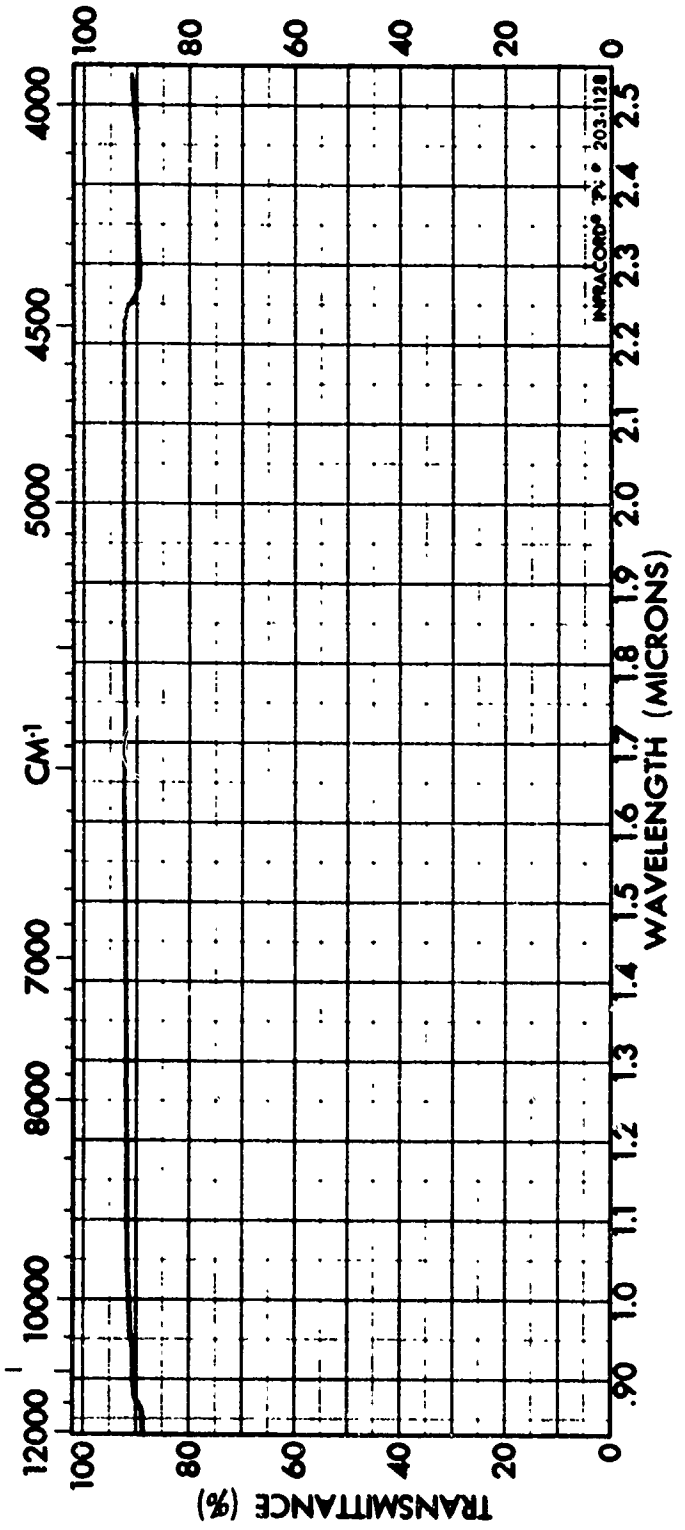


SPECTRUM NO. 42	ORIGIN	LEGEND	REMARKS
SAMPLE EASTMAN KODAK HE-2		1.	POLISHED SODIUM
	PURITY	2.	CHLORIDE WINDOWS,
OPTICAL ADHESIVE STUDY	PHASE	DATE 1/5/73	1" diameter
	THICKNESS .0005"	OPERATOR M.D.WILLIAMS	

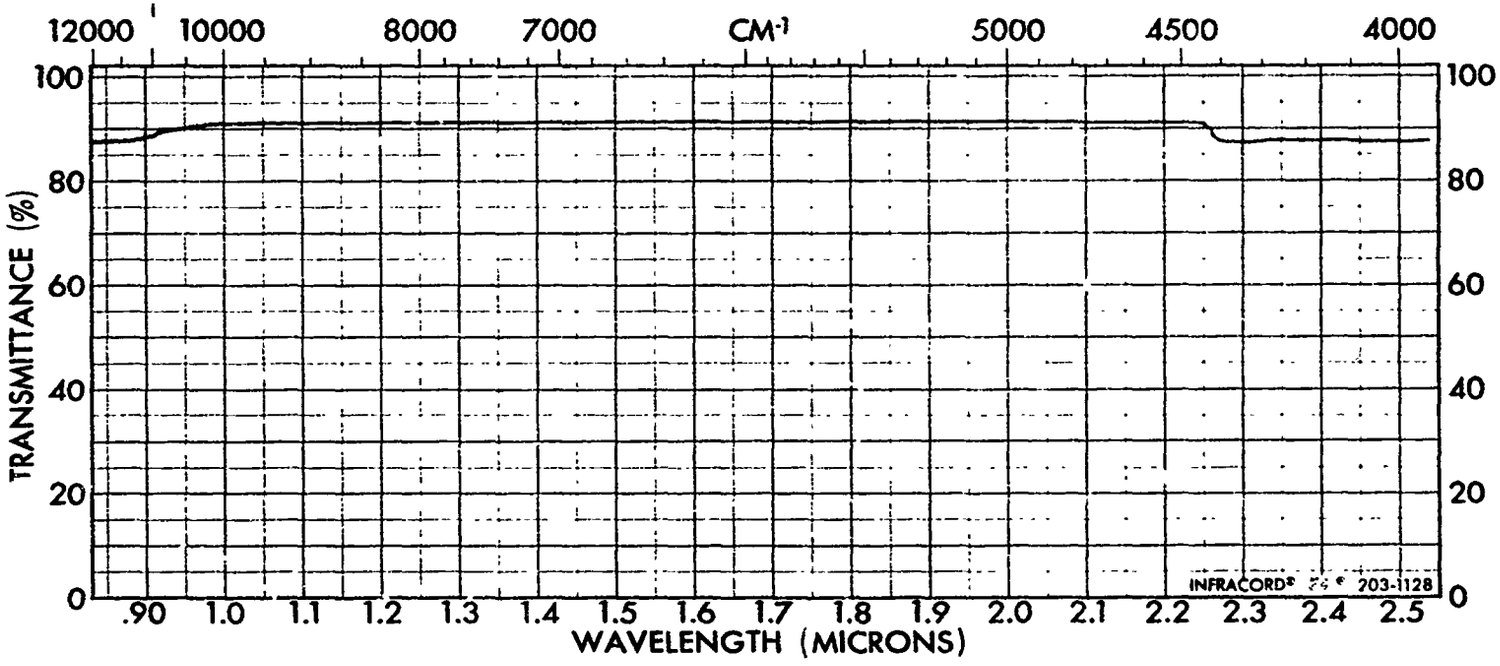


SPECTRUM NO. 43	ORIGIN	LEGEND	REMARKS
SAMPLE EASTMAN KODAK HE-63		1.	POLISHED SODIUM
	PURITY	2.	CHLORIDE WINDOWS,
OPTICAL ADHESIVE STUDY	PHASE	DATE 1/5/73	1" diameter
	THICKNESS .0005"	OPERATOR M. D. WILLIAMS	

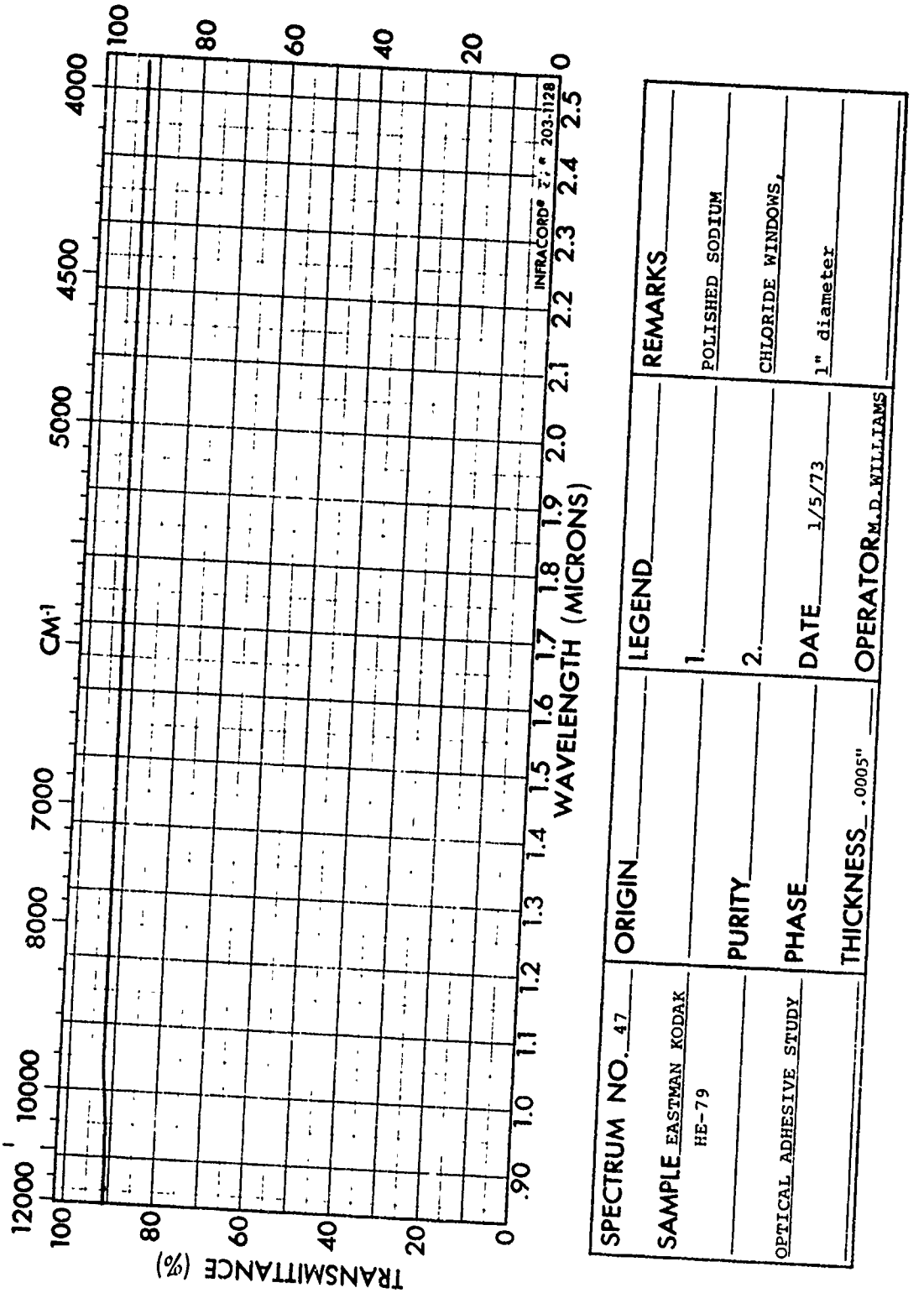

TRANSMITTANCE (%)
CM-1
WAVELENGTH (MICRONS)
INFRACORD FT. 203-1128
SPECTRUM NO. 44
SAMPLE EASTMAN KODAK
HE-S-1
OPTICAL ADHESIVE STUDY
ORIGIN
PURITY
PHASE
THICKNESS .0005"
LEGEND
1.
2.
DATE 1/5/73
OPERATOR M.D. WILLIAMS
REMARKS
POLISHED SODIUM
CHLORIDE WINDOWS,
1" diameter

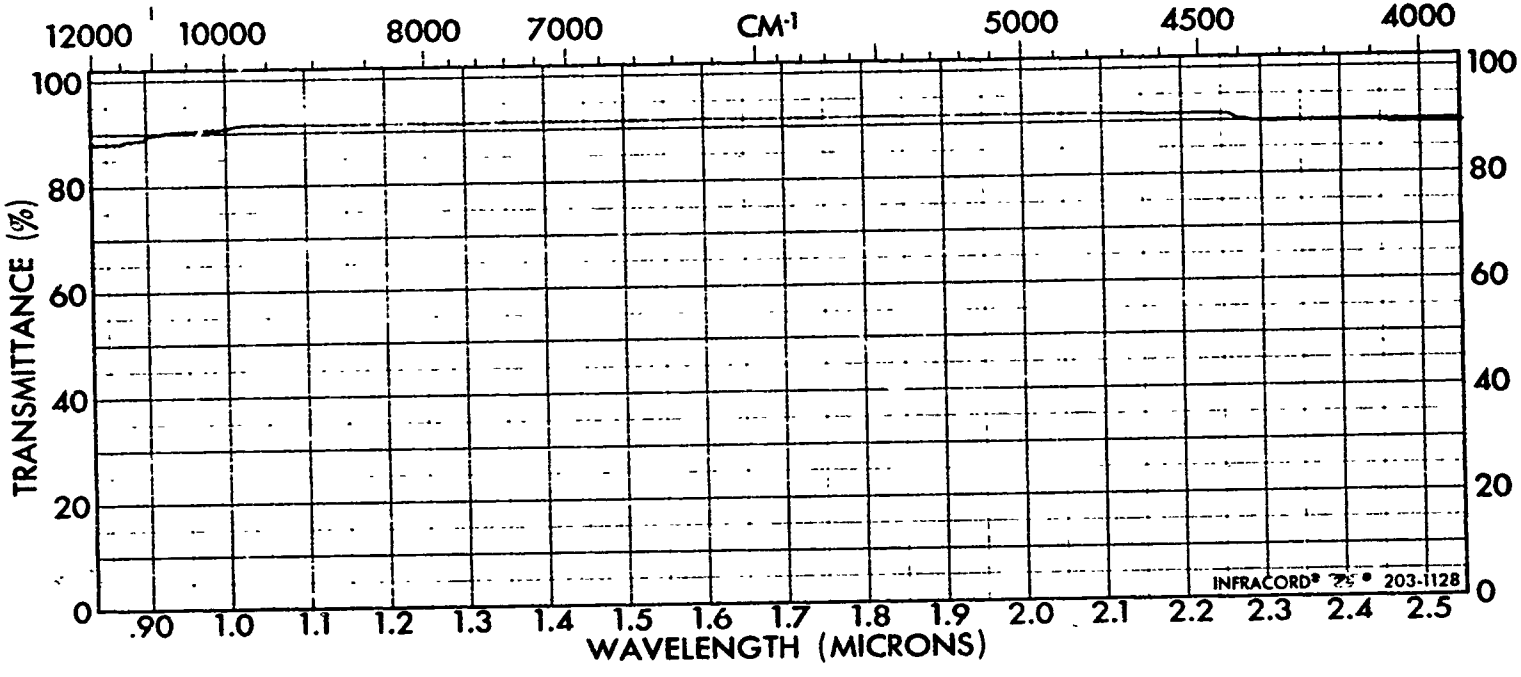


SPECTRUM NO. 45	ORIGIN	LEGEND	REMARKS
SAMPLE EASTMAN KODAK HE-3-4		1.	POLISHED SODIUM
	PURITY	2.	CHLORIDE WINDOWS.
OPTICAL ADHESIVE STUDY	PHASE	DATE 1/5/73	1" diameter
	THICKNESS .0005"	OPERATOR M.D. WILLIAMS	



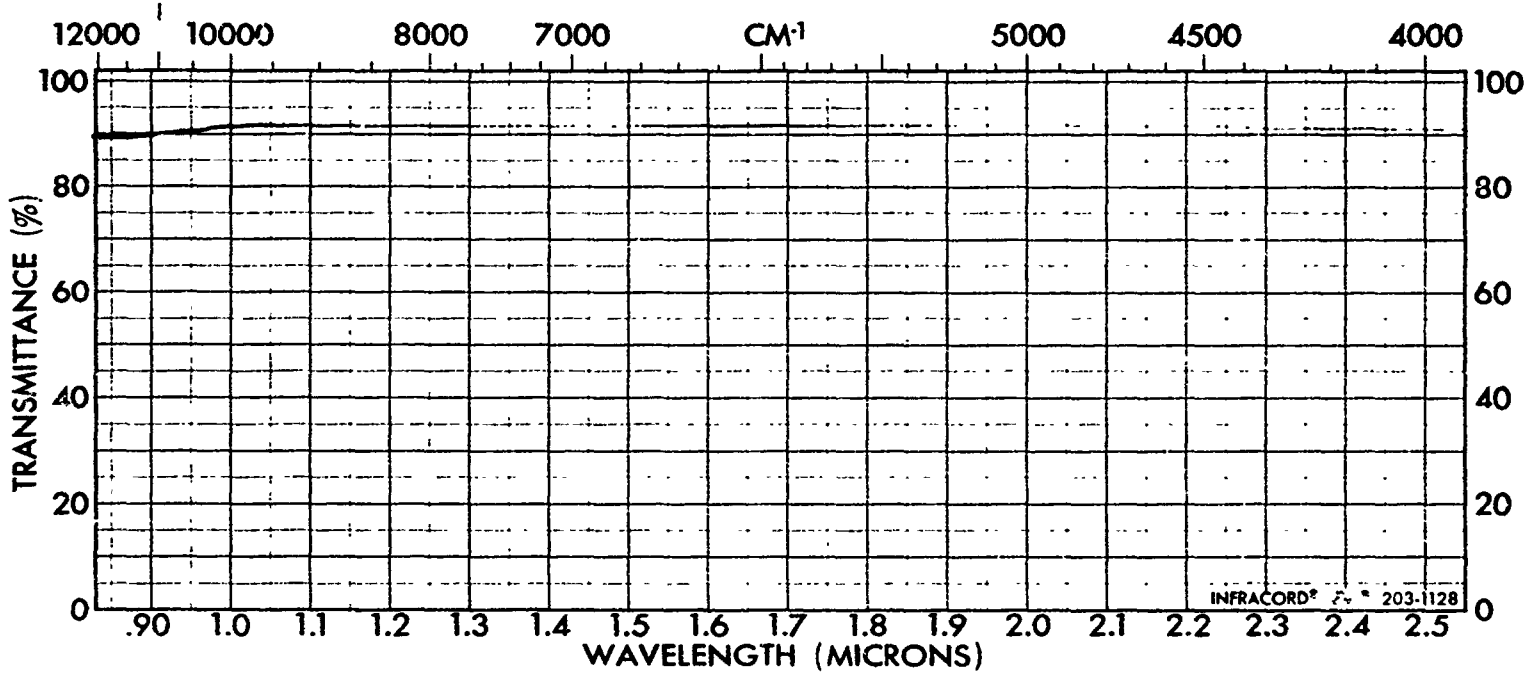
SPECTRUM NO. 46	ORIGIN	LEGEND	REMARKS
SAMPLE EASTMAN KODAK HE-10		1.	POLISHED SODIUM
	PURITY	2.	CHLORIDE WINDOWS,
OPTICAL ADHESIVE STUDY	PHASE	DATE 1/5/73	1" diameter
	THICKNESS .0005"	OPERATOR M.D.WILLIAMS	


TRANSMITTANCE (%)
CM-1
WAVELENGTH (MICRONS)
INFRACORD® 203-1128
SPECTRUM NO. 47
ORIGIN
LEGEND
REMARKS
SAMPLE EASTMAN KODAK HE-79
1.
POLISHED SODIUM
OPTICAL ADHESIVE STUDY
PURITY
2.
CHLORIDE WINDOWS,
PHASE
DATE 1/5/73
1" diameter
THICKNESS .0005"
OPERATOR M.D. WILLIAMS

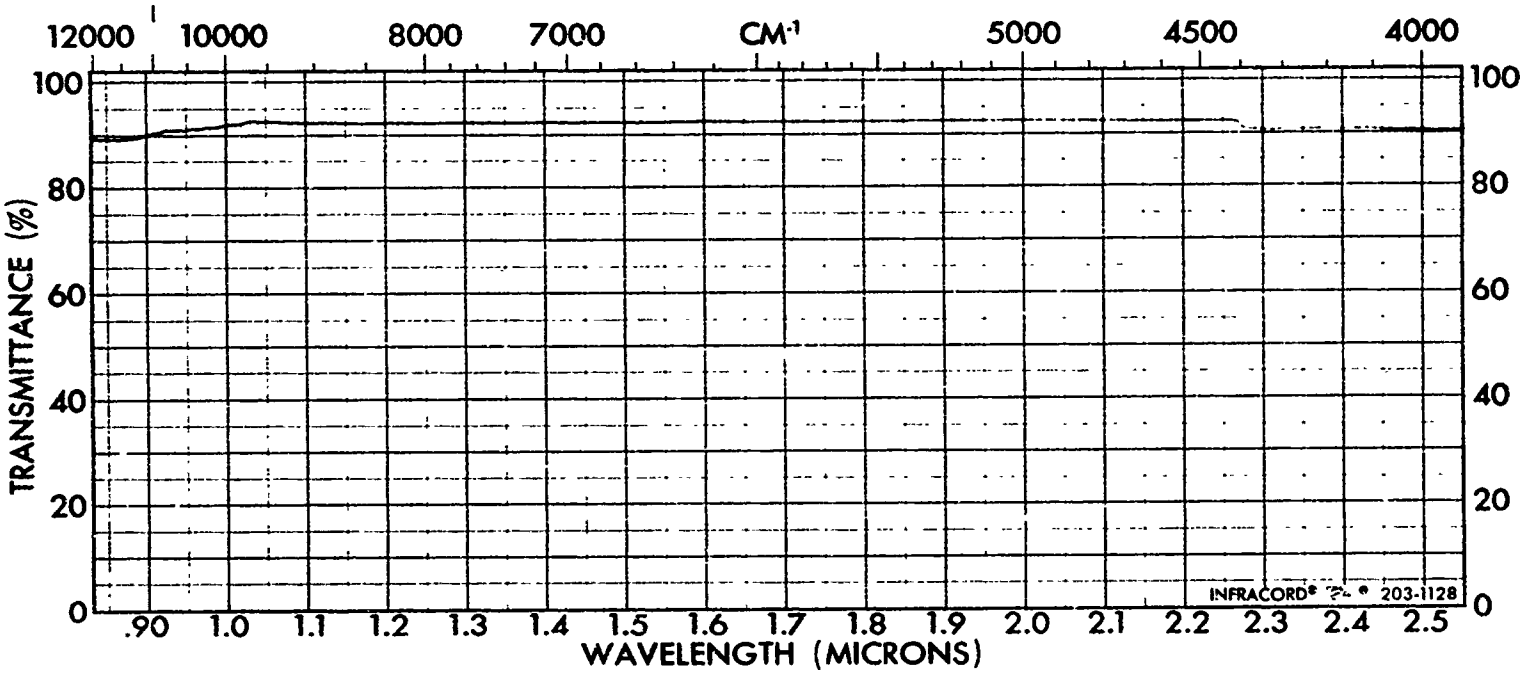


SPECTRUM NO. 48	ORIGIN	LEGEND	REMARKS
SAMPLE STYCAST 1217		1.	POLISHED SODIUM
	PURITY	2.	CHLORIDE WINDOWS,
OPTICAL ADHESIVE STUDY	PHASE	DATE 1/5/73	1" diameter
	THICKNESS .0005"	OPERATOR M.D.WILLIAMS	

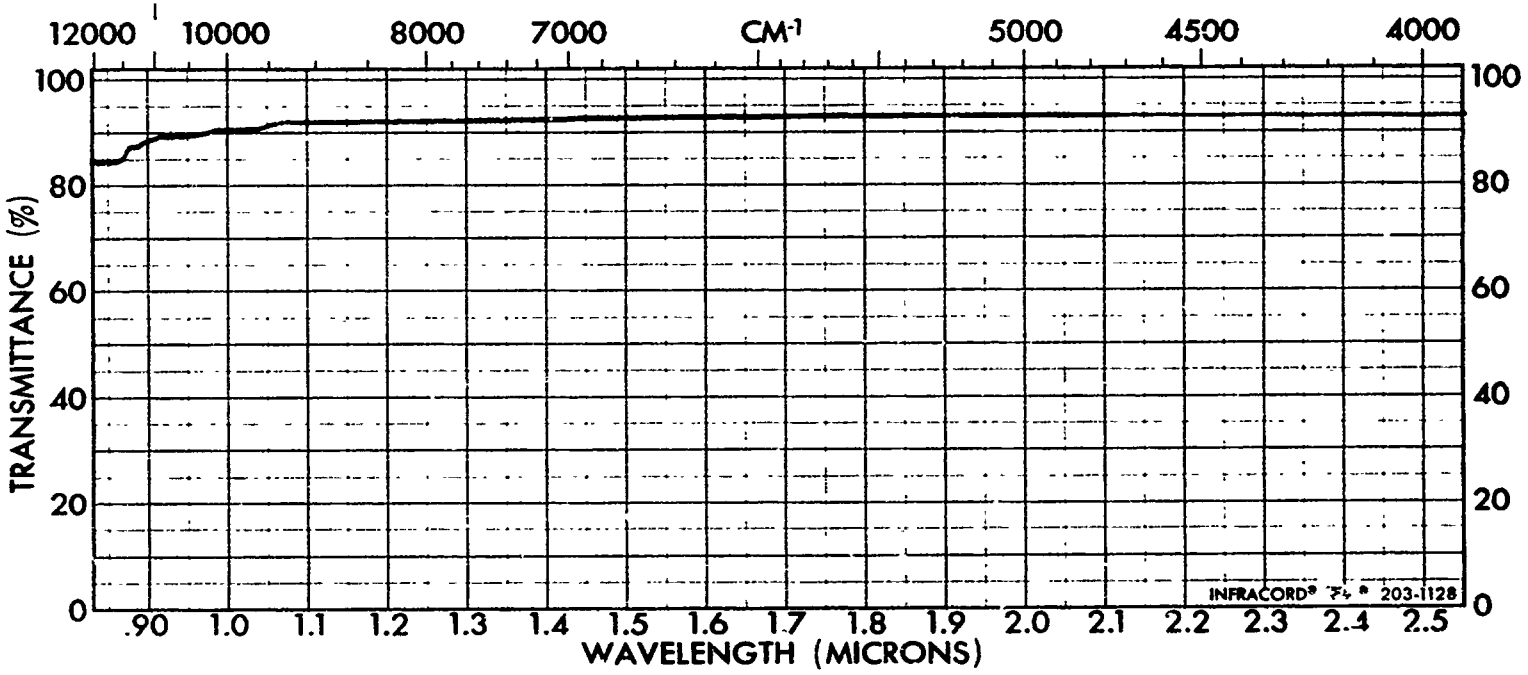
NWC TP 5583



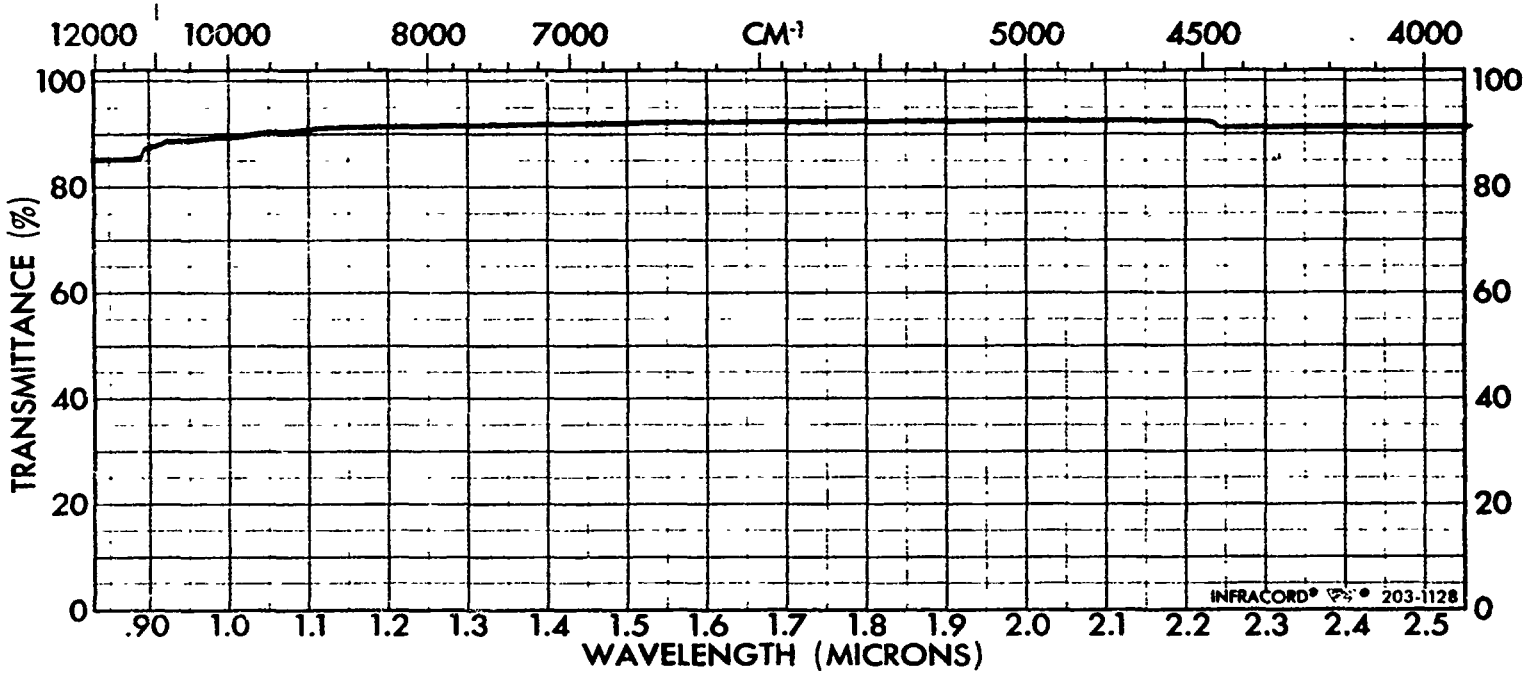
SPECTRUM NO. 49	ORIGIN	LEGEND	REMARKS
SAMPLE STYCAST 1264		1.	POLISHED SODIUM
	PURITY	2.	CHLORIDE WINDOWS,
OPTICAL ADHESIVE STUDY	PHASE	DATE 1/5/73	1" diameter
	THICKNESS .0004"	OPERATOR M.D. WILLIAMS	



SPECTRUM NO. 50	ORIGIN	LEGEND	REMARKS
SAMPLE STYCAST 1266		1.	POLISHED SODIUM
	PURITY	2.	CHLORIDE WINDOWS,
OPTICAL ADHESIVE STUDY	PHASE	DATE 1.5.73	1" diameter
	THICKNESS .0005"	OPERATOR M.D.WILLIAMS	

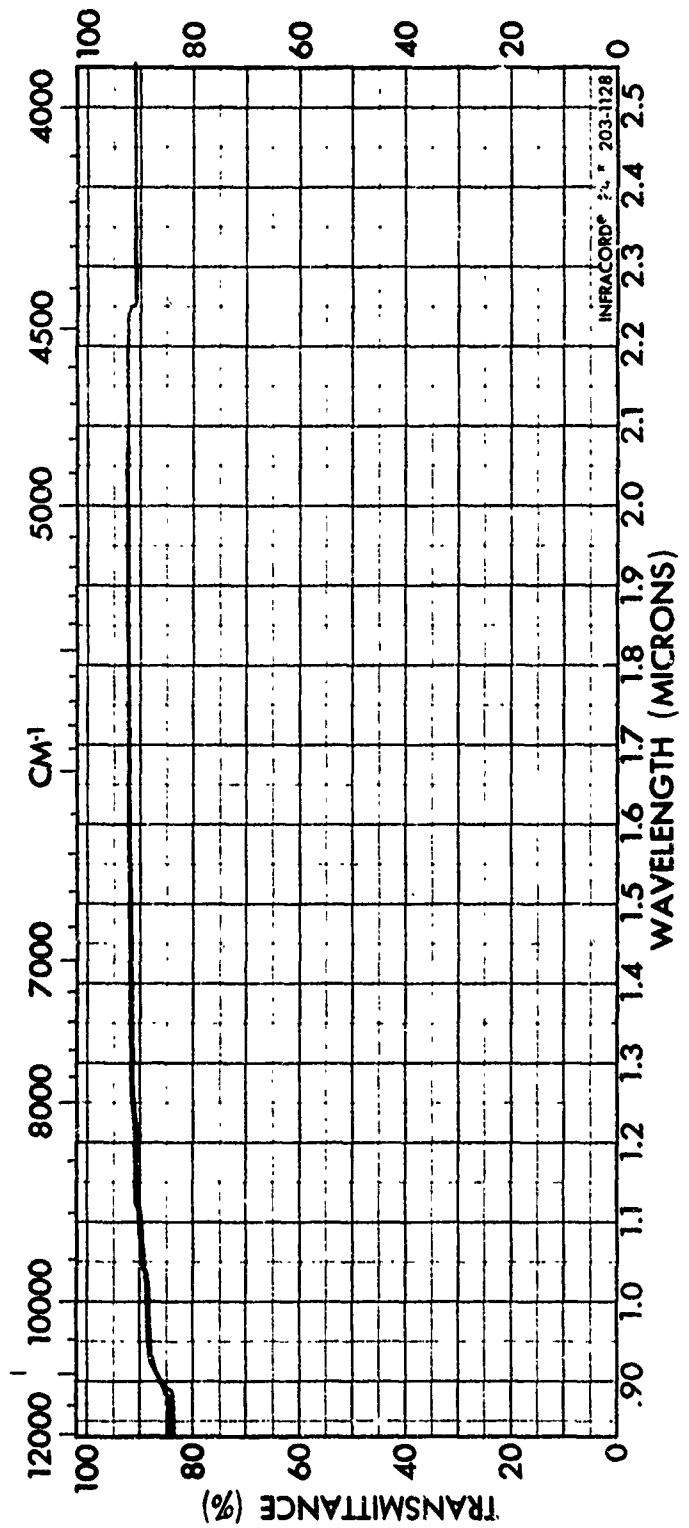


SPECTRUM NO. 51	ORIGIN	LEGEND	REMARKS
SAMPLE ARON ALPHA #101		1.	POLISHED SODIUM
	PURITY	2.	CHLORIDE WINDOWS,
OPTICAL ADHESIVE STUDY	PHASE	DATE 2/20/73	1" diameter
	THICKNESS .0001"	OPERATOR M.D.WILLIAMS	



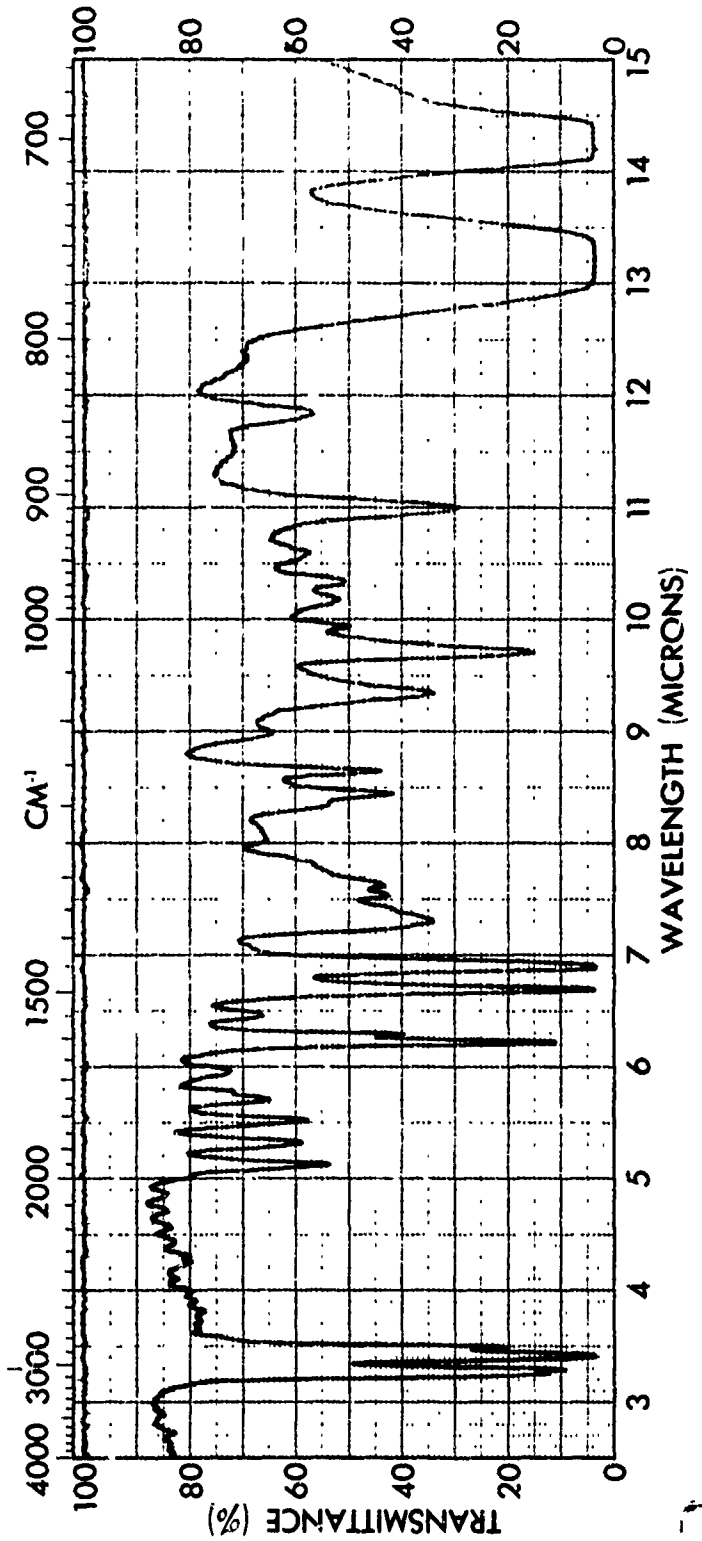
SPECTRUM NO. 52	ORIGIN	LEGEND	REMARKS
SAMPLE ARON ALPHA #102		1.	POLISHED SODIUM
	PURITY	2.	CHLORIDE WINDOWS,
OPTICAL ADHESIVE STUDY	PHASE	DATE 2/20/73	1" diameter
	THICKNESS .0002"	OPERATOR M.D.WILLIAMS	

NWC TP 5583



SPECTRUM NO. 53	ORIGIN	LEGEND	REMARKS
SAMPLE ARON ALPHA #202		1.	POLISHED SODIUM
	PURITY	2.	CHLORIDE WINDOWS.
OPTICAL ADHESIVE STUDY	PHASE	DATE 2/20/73	1" diameter
	THICKNESS .0002"	OPERATOR M.D.WILLIAMS	

Appendix D
2.5- to 15.0-Micron Range



SPECTRUM NO.	ORIGIN	LEGEND	REMARKS
SAMPLE 100% Line		1. Optical Adhesive Study	
W/Polystyrene Calibra-	PURITY	2.	
tion	PHASE	DATE 23 FEB 74	
	THICKNESS .05 mm	OPERATOR	

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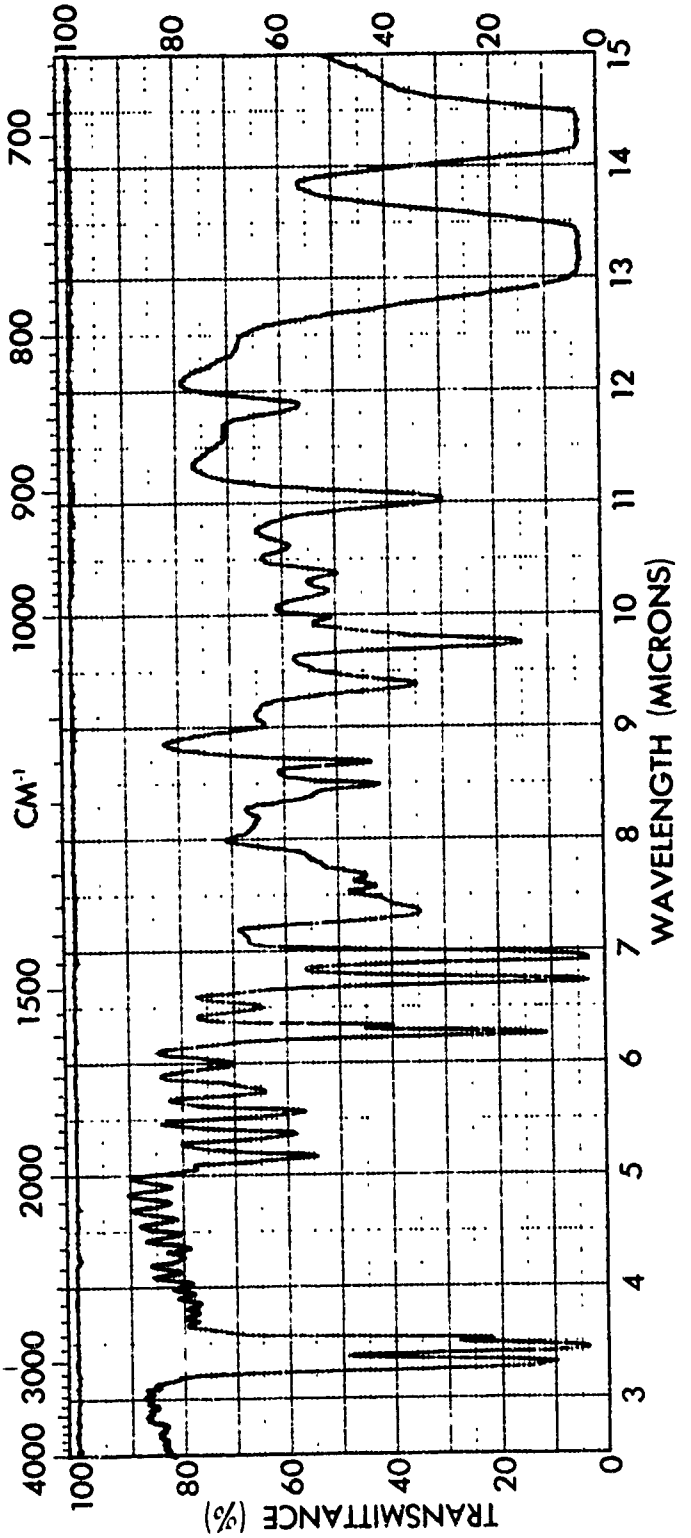
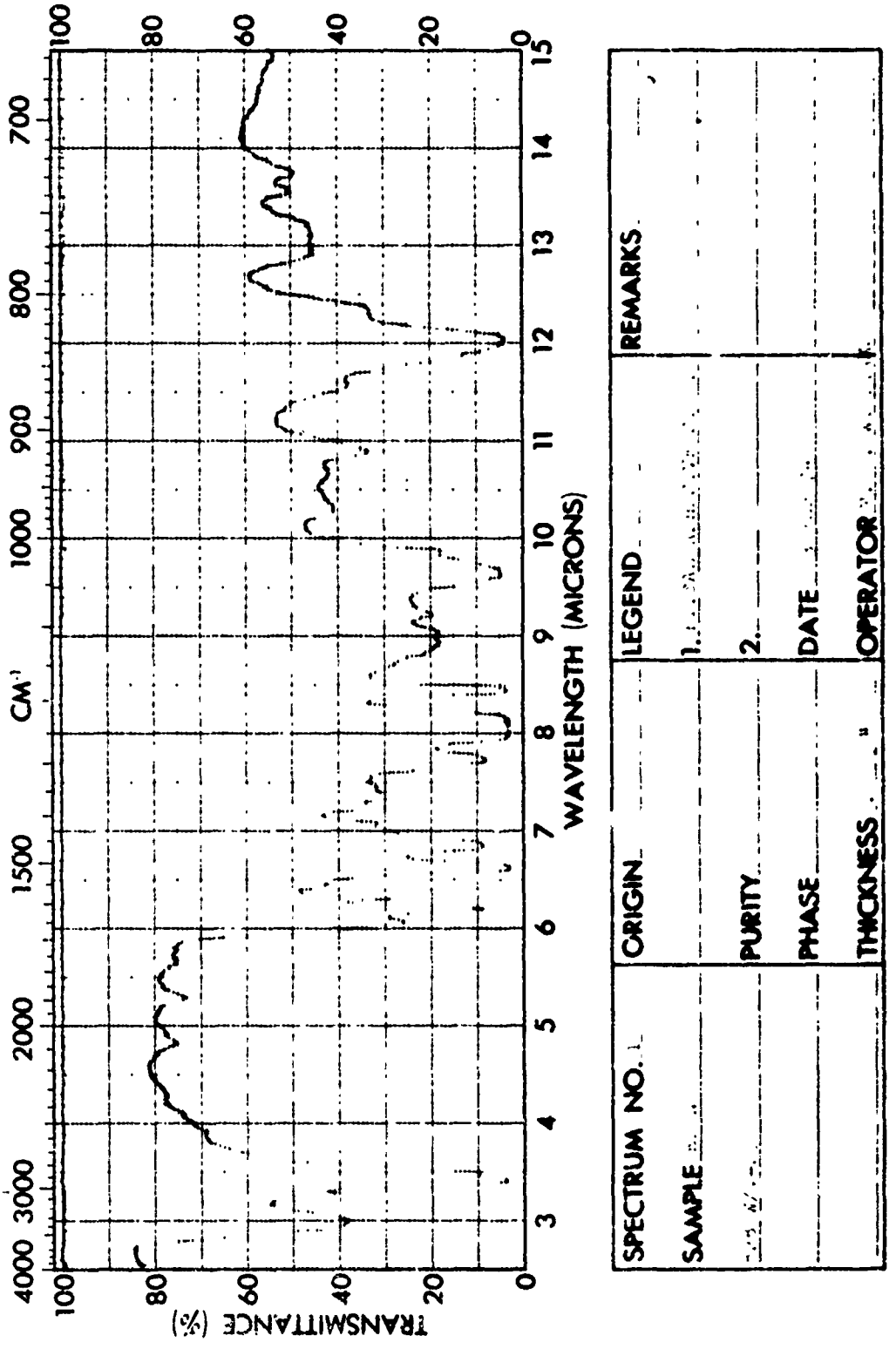
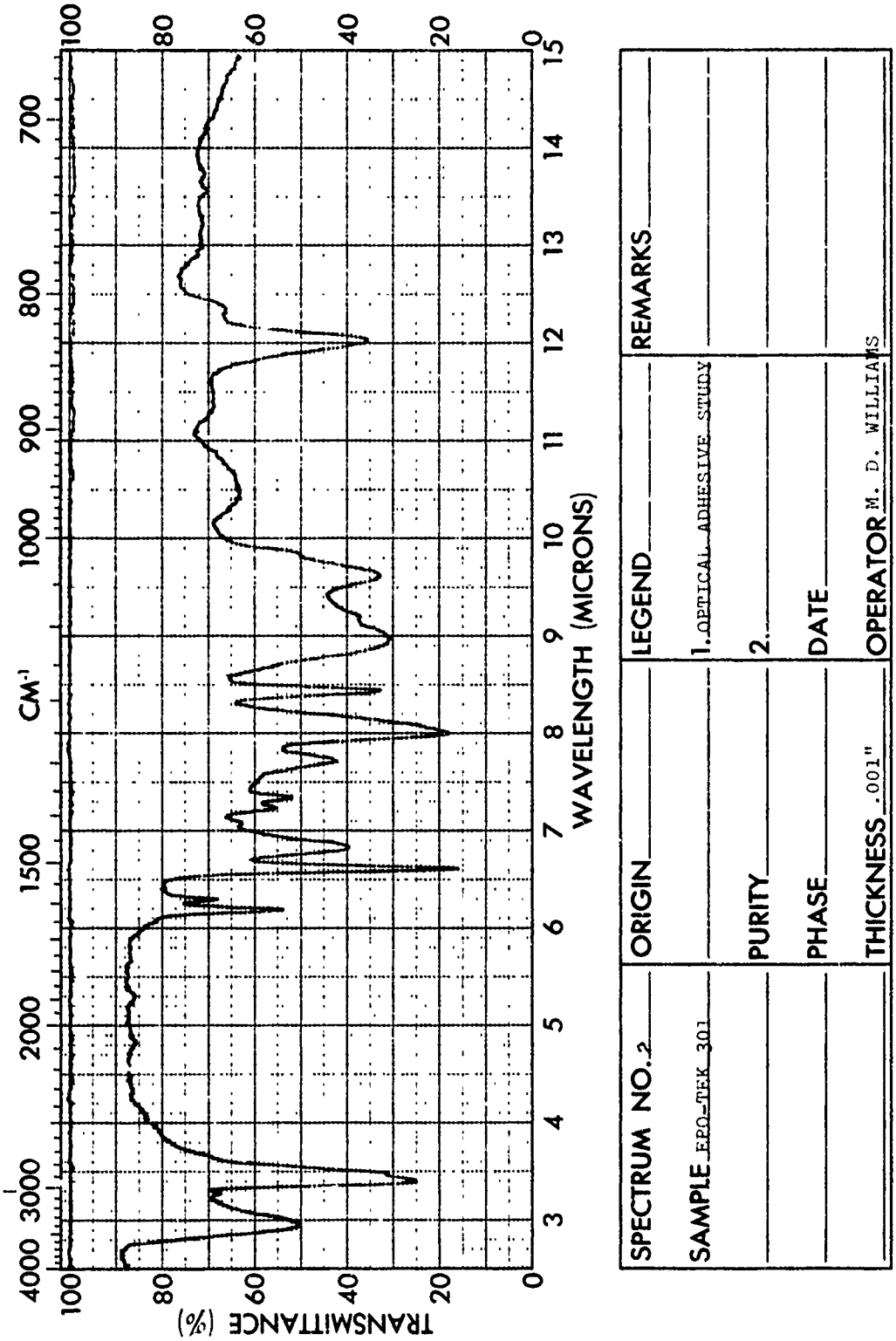
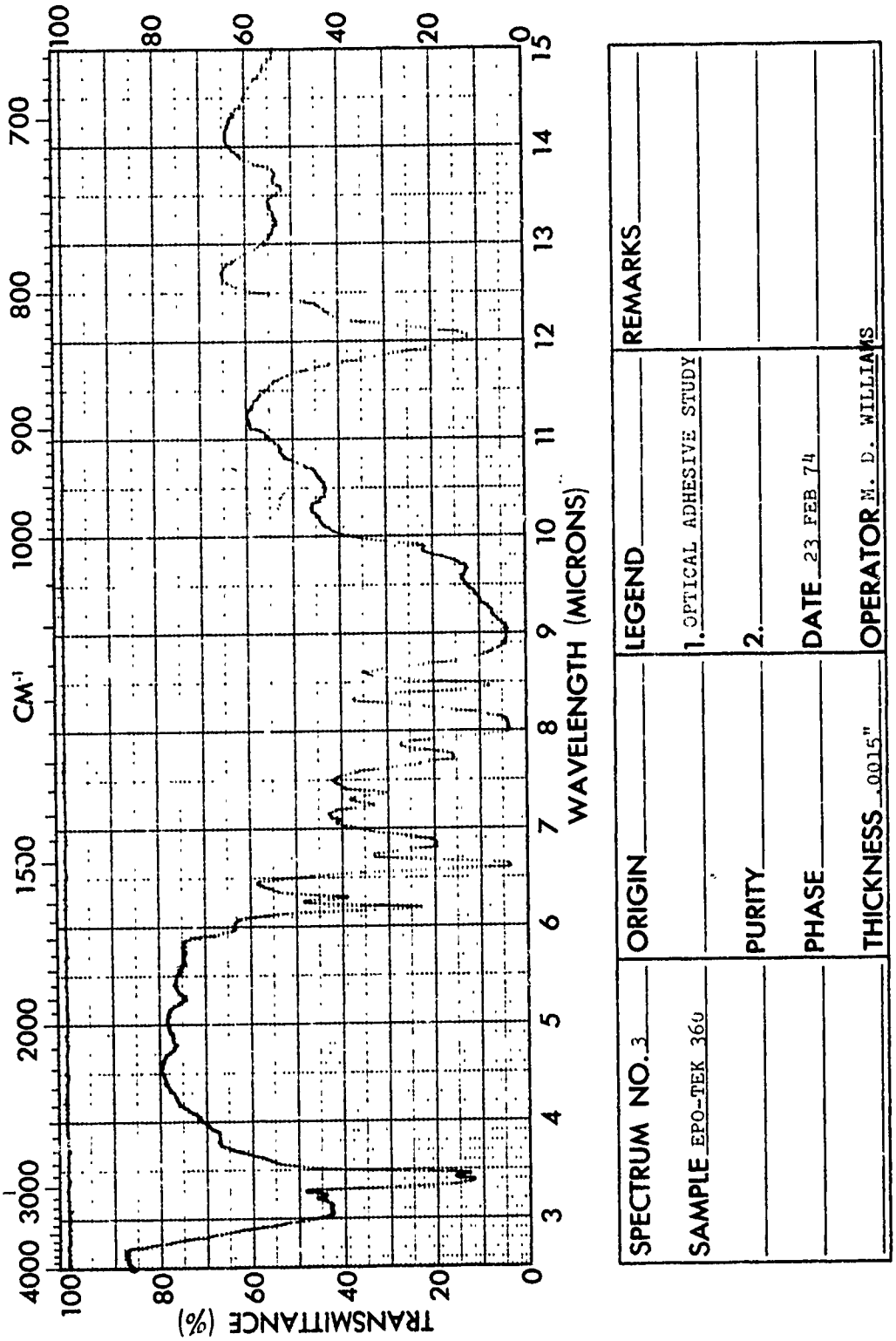
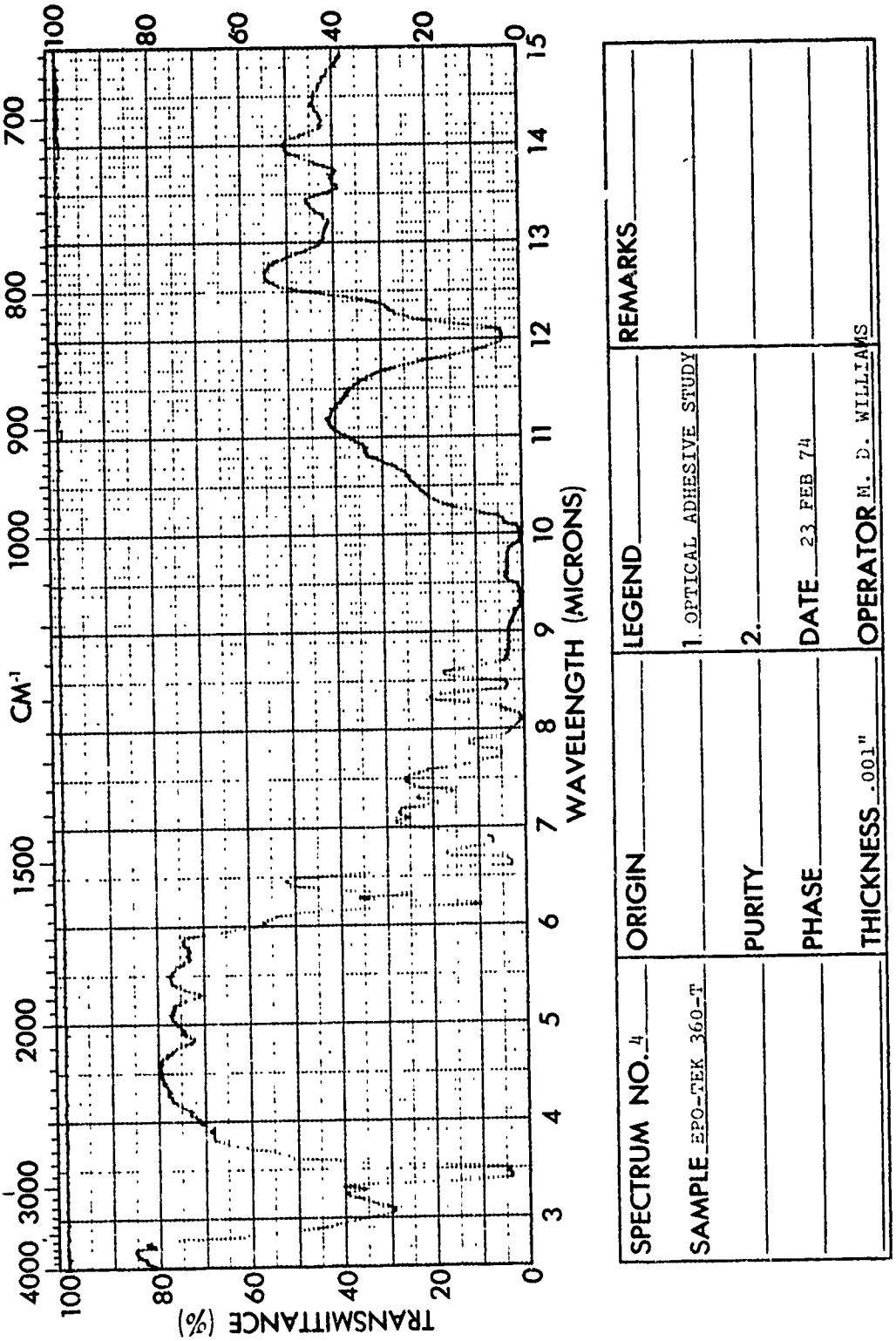
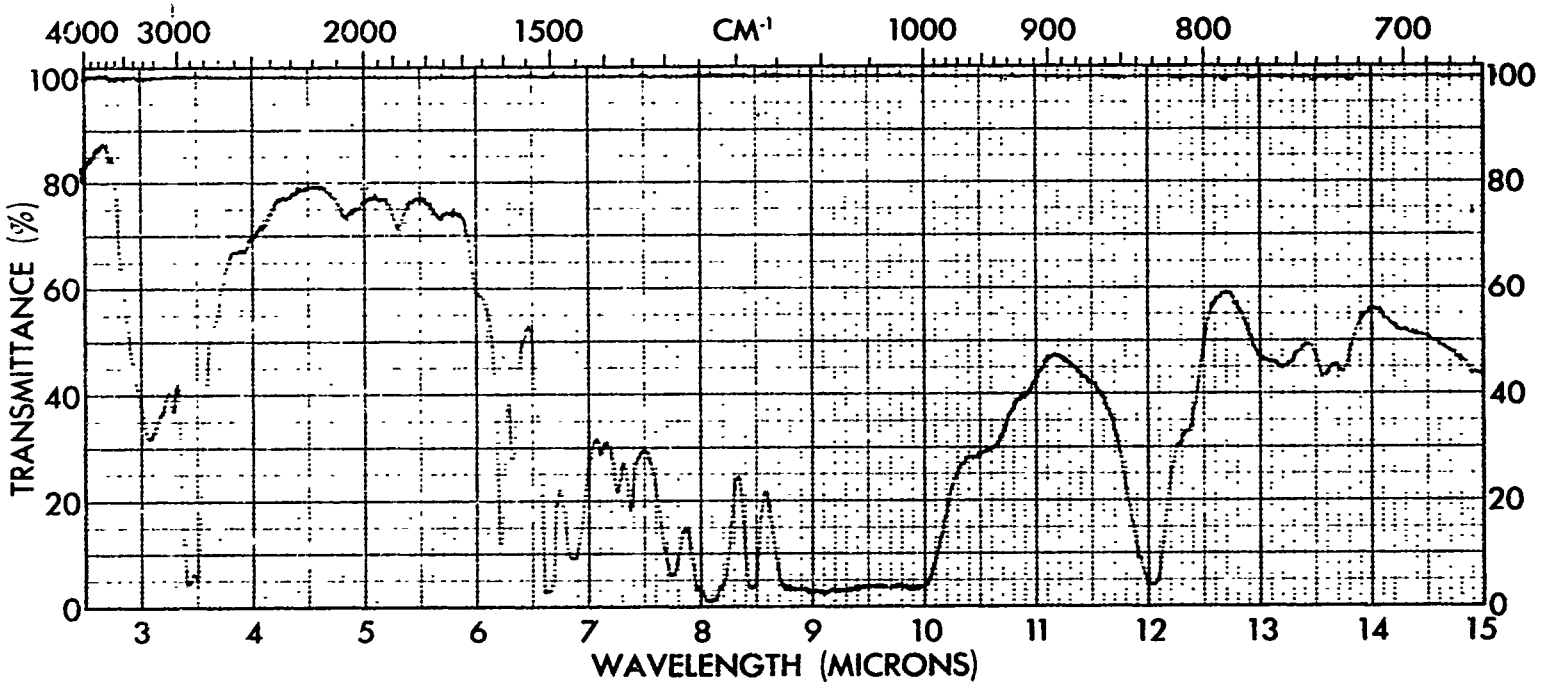

TRANSMITTANCE (%)
CM⁻¹
WAVELENGTH (MICRONS)
SPECTRUM NO.
ORIGIN
LEGEND
REMARKS
SAMPLE 100% LINE
1. OPTICAL ADHESIVE CASEY
W/POLYSTYRENE CALIBRATIO
PURITY
2.
PHASE
DATE 24 FEB 74
THICKNESS .032 mm
OPERATOR M. D. WILLIAMS


TRANSMITTANCE (%)
100
80
60
40
20
0
4000
3000
2000
1500
1000
900
800
700
CM⁻¹
3
4
5
6
7
8
9
10
11
12
13
14
15
WAVELENGTH (MICRONS)
SPECTRUM NO.
SAMPLE
ORIGIN
PURITY
PHASE
THICKNESS
LEGEND
1.
2.
DATE
OPERATOR
REMARKS

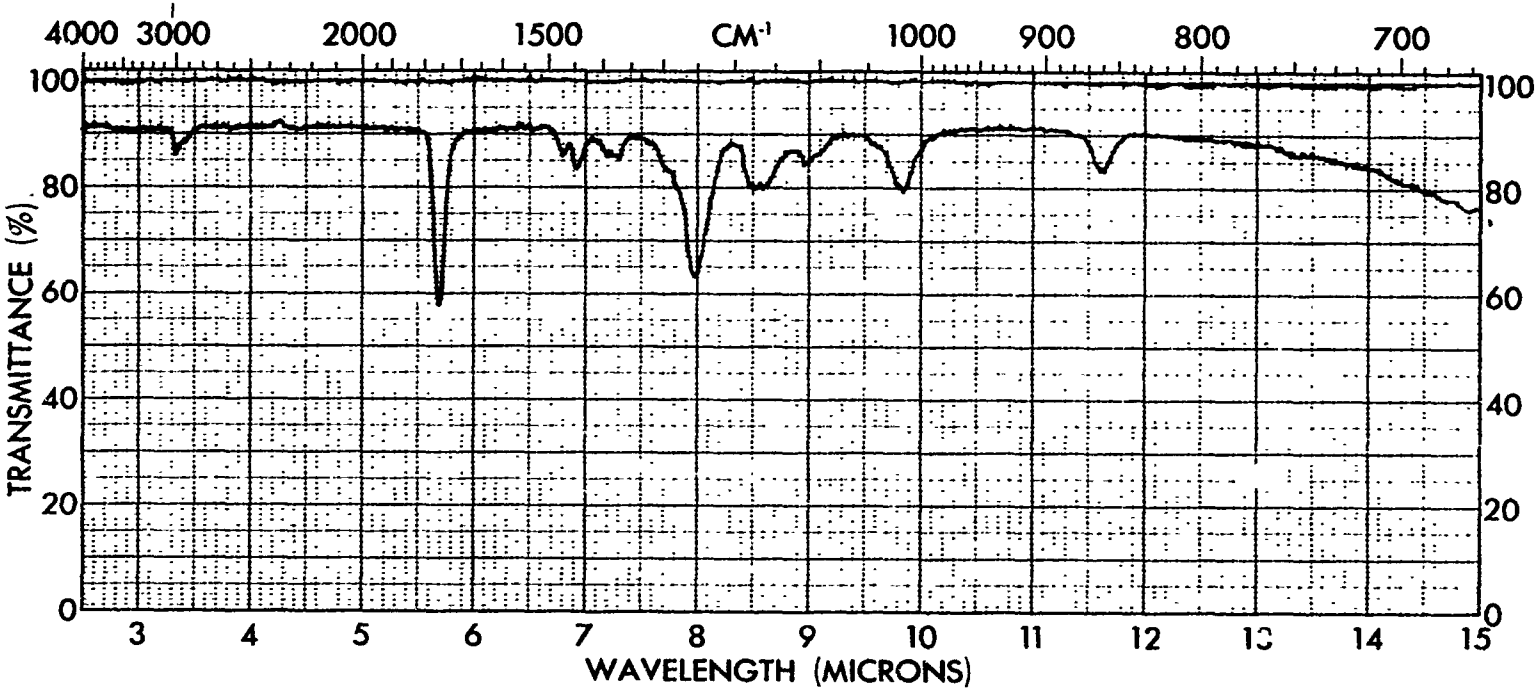

TRANSMITTANCE (%)
100
80
60
40
20
0
4000
3000
2000
1500
1000
900
800
700
CM-1
3
4
5
6
7
8
9
10
11
12
13
14
15
WAVELENGTH (MICRONS)
SPECTRUM NO. 2
SAMPLE EPO-TEK 301
ORIGIN
PURITY
PHASE
THICKNESS .001"
LEGEND
1. OPTICAL ADHESIVE STUDY
2.
DATE
OPERATOR M. D. WILLIAMS
REMARKS


TRANSMITTANCE (%)
CM⁻¹
WAVELENGTH (MICRONS)
SPECTRUM NO. 3
SAMPLE EPO-TEK 360
ORIGIN
PURITY
PHASE
THICKNESS .0015"
LEGEND
1. OPTICAL ADHESIVE STUDY
2.
DATE 23 FEB 74
OPERATOR M. D. WILLIAMS
REMARKS

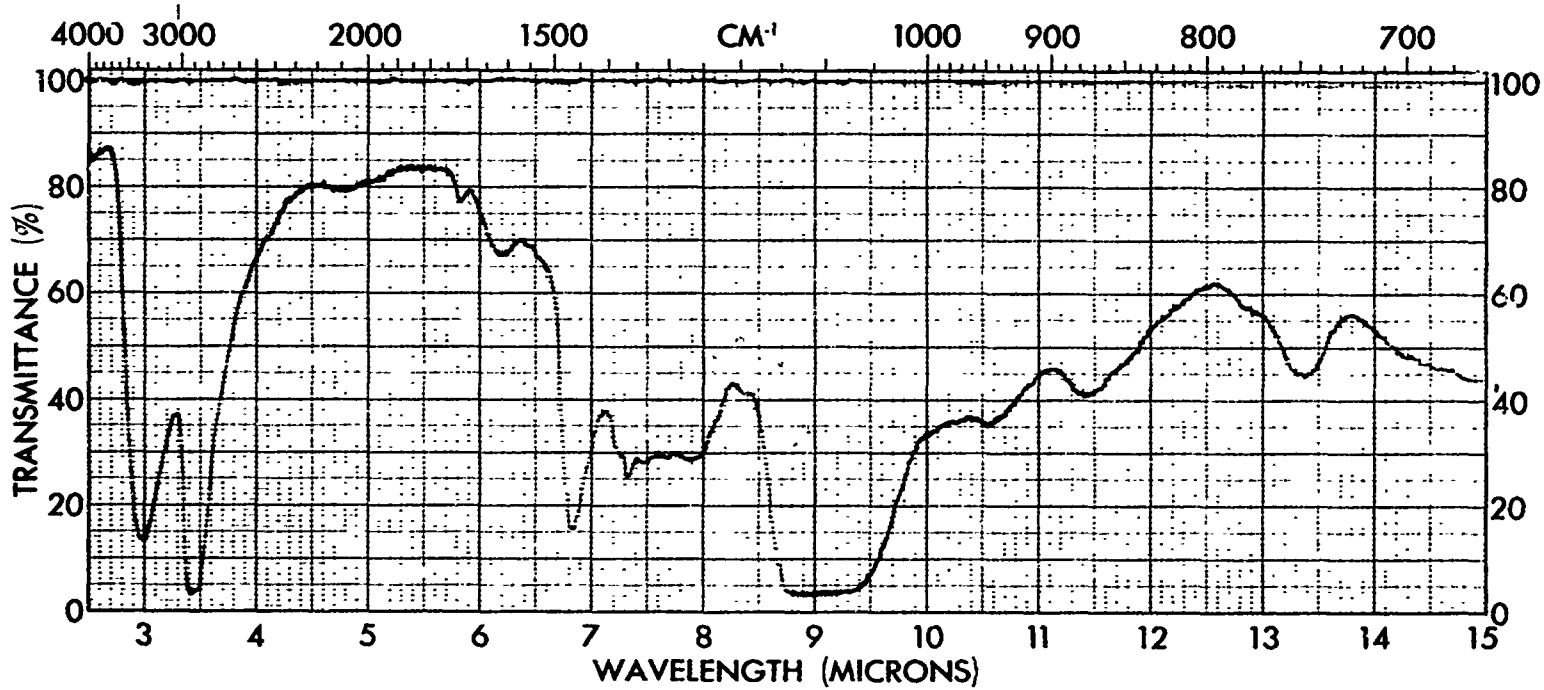

TRANSMITTANCE (%)
CM-1
WAVELENGTH (MICRONS)
SPECTRUM NO. 4
ORIGIN
LEGEND
REMARKS
SAMPLE EPO-TEK 360-T
1. OPTICAL ADHESIVE STUDY
PURITY
2.
PHASE
DATE 23 FEB 74
THICKNESS .001"
OPERATOR M. D. WILLIAMS



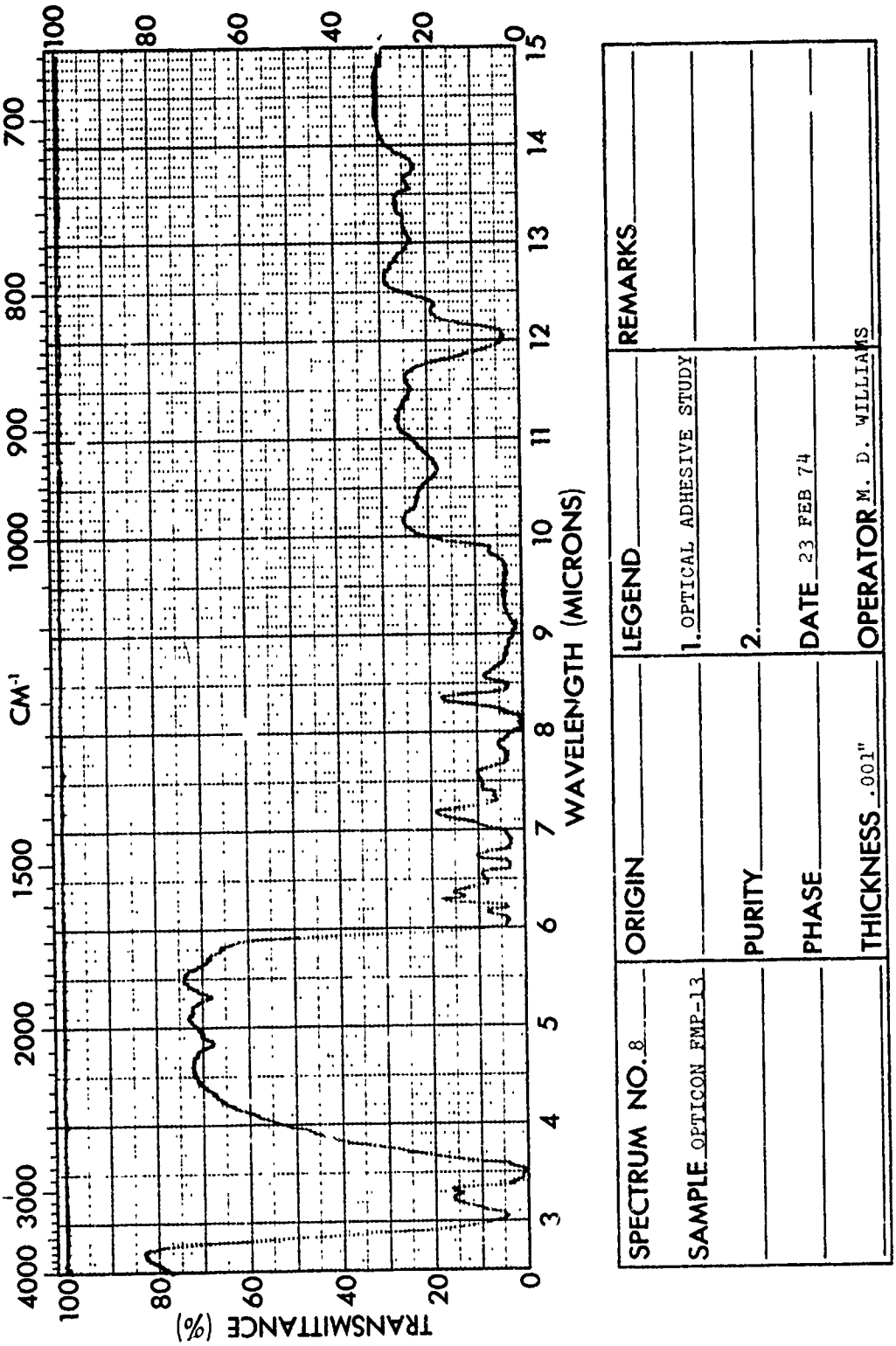
SPECTRUM NO. 5	ORIGIN	LEGEND	REMARKS
SAMPLE EPO-TEK 360 ST		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 23 FEB 74	
	THICKNESS .0015"	OPERATOR M. D. WILLIAMS	

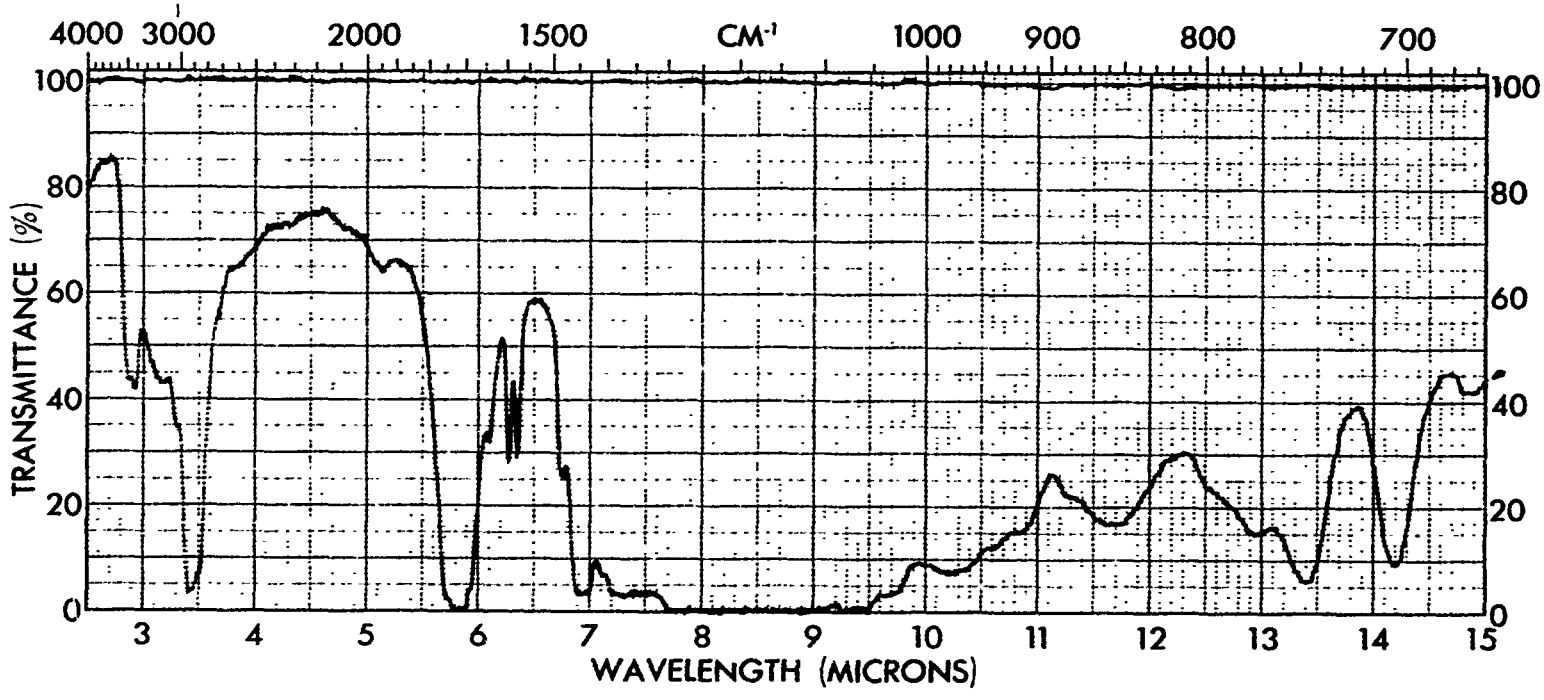


SPECTRUM NO. 6	ORIGIN	LEGEND	REMARKS
SAMPLE ARON ALPHA 201		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 23 FEB 74	
	THICKNESS .0001"	OPERATOR M. D. WILLIAMS	

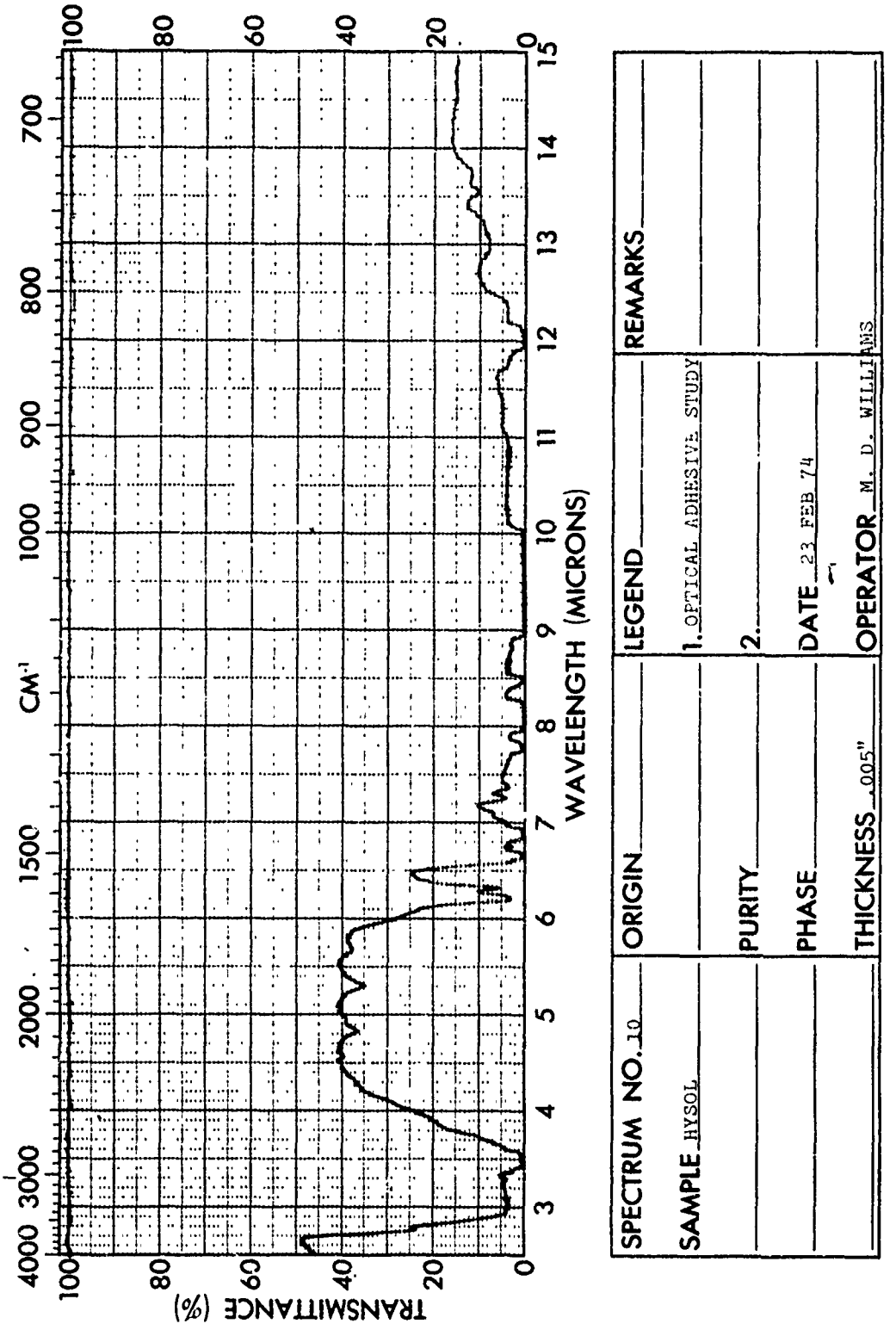


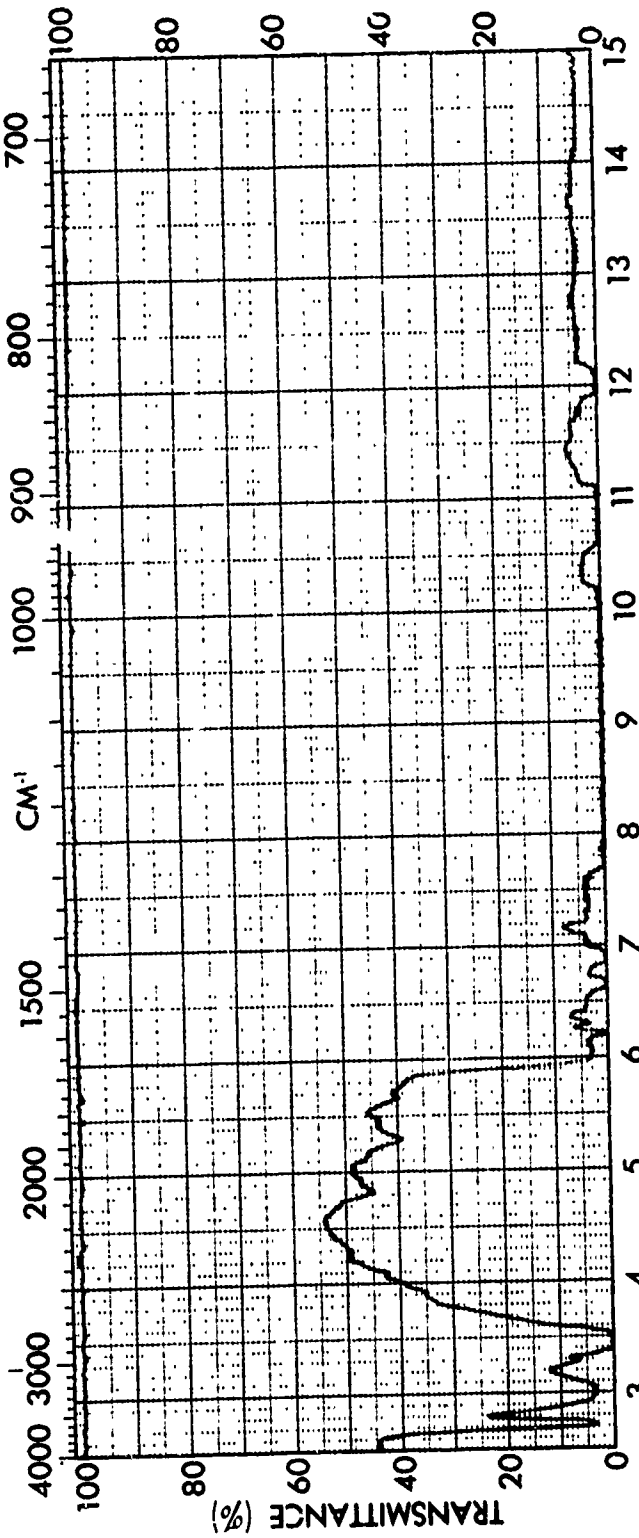
SPECTRUM NO. 7	ORIGIN	LEGEND	REMARKS
SAMPLE EPO-TEK 305		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 23 FEB 74	
	THICKNESS .001"	OPERATOR M. D. WILLIAMS	


TRANSMITTANCE (%)
CM⁻¹
WAVELENGTH (MICRONS)
4000 3000 2000 1500 1000 900 800 700
3 4 5 6 7 8 9 10 11 12 13 14 15
100 80 60 40 20 0
SPECTRUM NO. 8
SAMPLE OPTICON FMP-13
ORIGIN
PURITY
PHASE
THICKNESS .001"
LEGEND
1. OPTICAL ADHESIVE STUDY
2.
DATE 23 FEB 74
OPERATOR M. D. WILLIAMS
REMARKS

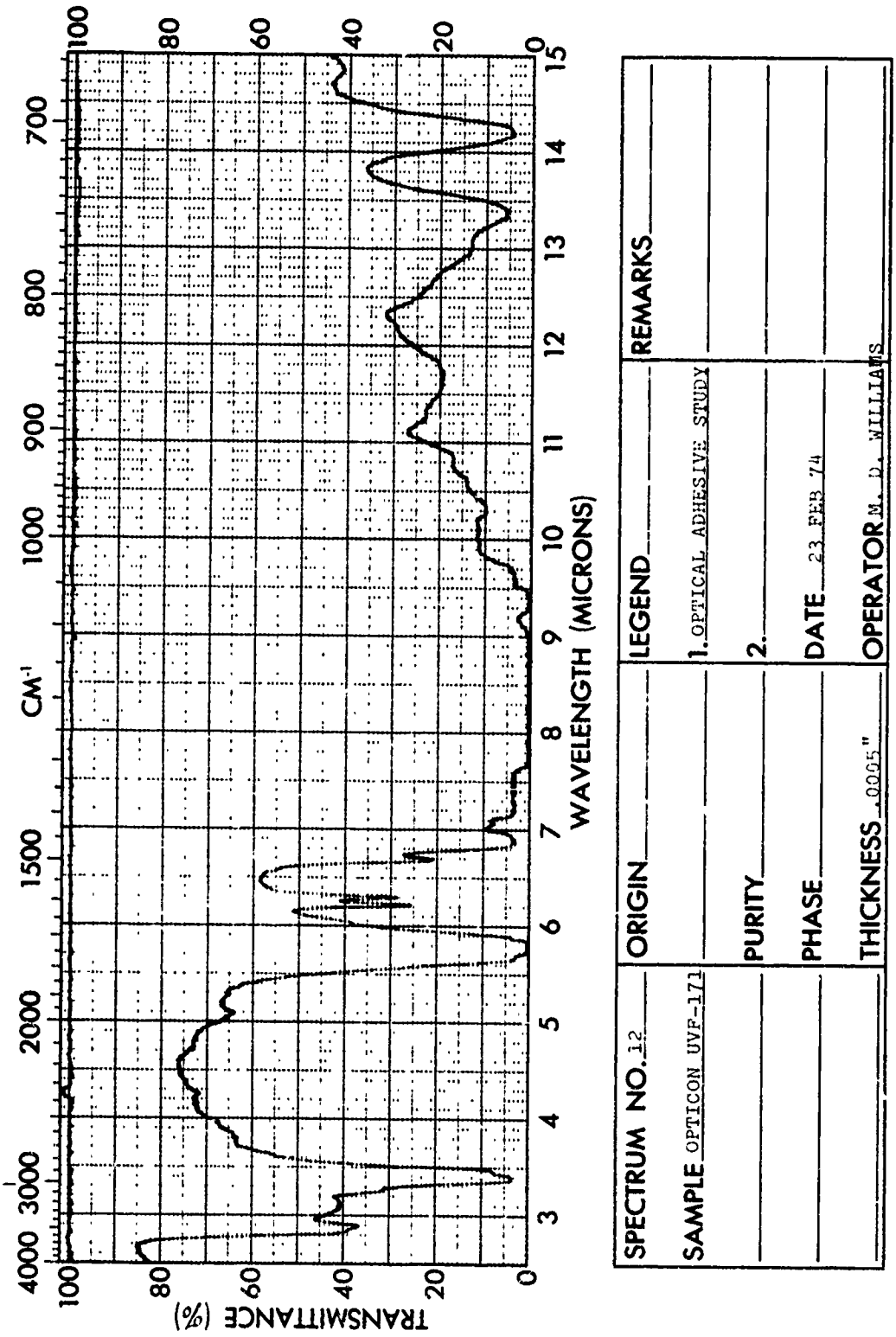


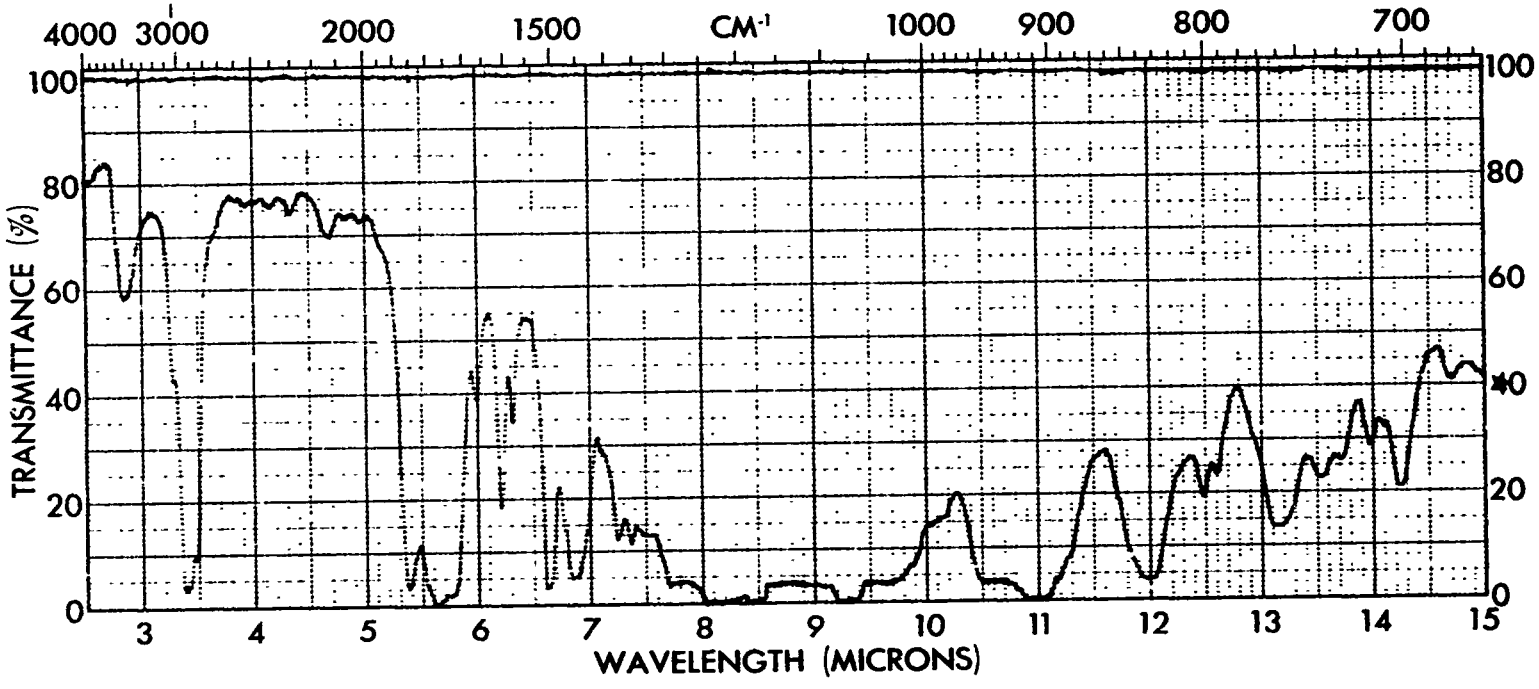
SPECTRUM NO. 9	ORIGIN	LEGEND	REMARKS
SAMPLE CPTICON UV-57		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 23 FEB 74	
	THICKNESS .002"	OPERATOR M. D. WILLIAMS	


TRANSMITTANCE (%)
100
80
60
40
20
0
4000 3000 2000 1500 1000 900 800 700
CM-1
3 4 5 6 7 8 9 10 11 12 13 14 15
WAVELENGTH (MICRONS)
SPECTRUM NO. 10
SAMPLE HYSOL
ORIGIN
PURITY
PHASE
THICKNESS .005"
LEGEND
1. OPTICAL ADHESIVE STUDY
2.
DATE 23 FEB 74
OPERATOR M. D. WILLIAMS
REMARKS

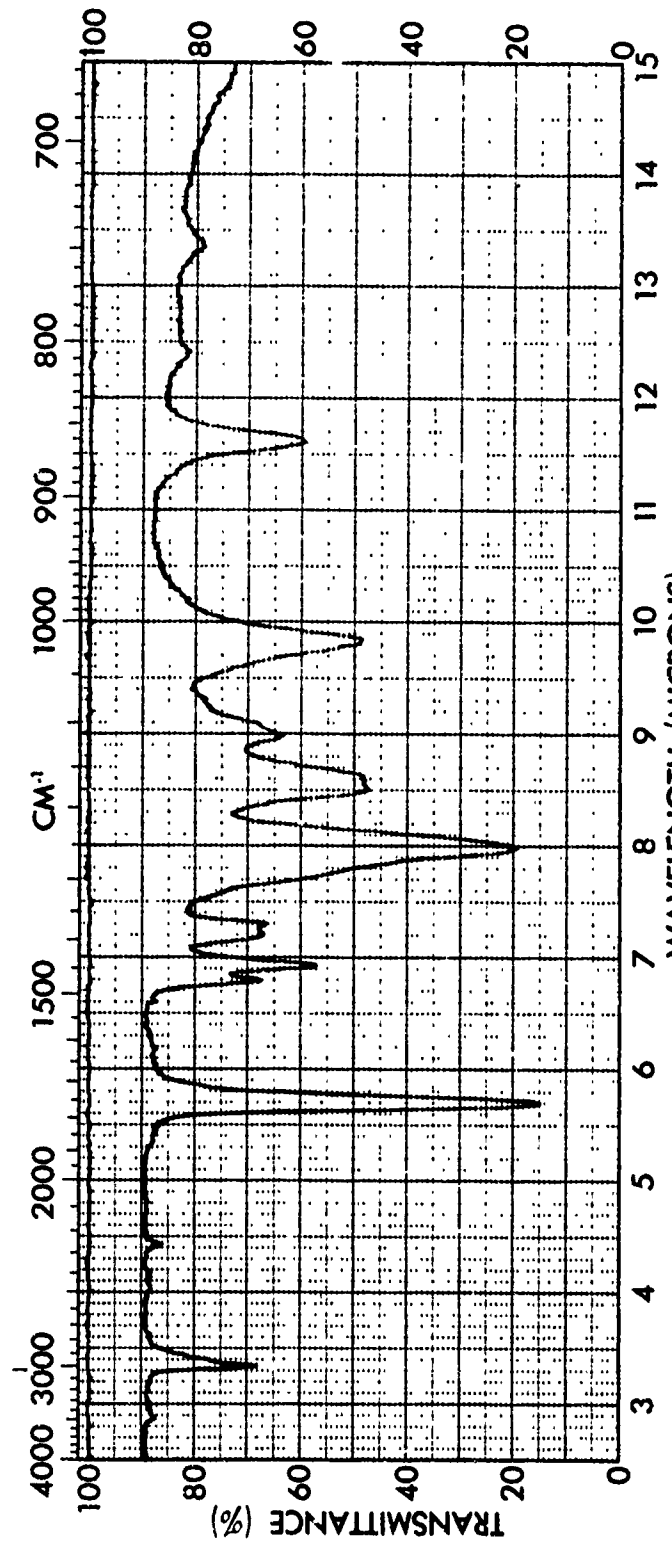


SPECTRUM NO. 11	ORIGIN	LEGEND	REMARKS
SAMPLE 3M		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 23 FEB 74	
	THICKNESS .0135"	OPERATOR M. D. WILLIAMS	


TRANSMITTANCE (%)
100
80
60
40
20
0
4000
3000
2000
1500
1000
900
800
700
CM⁻¹
3
4
5
6
7
8
9
10
11
12
13
14
15
WAVELENGTH (MICRONS)
SPECTRUM NO. 12
SAMPLE OPTICON UVF-171
ORIGIN
PURITY
PHASE
THICKNESS .0005"
LEGEND
1. OPTICAL ADHESIVE STUDY
2.
DATE 23 FEB 74
OPERATOR M. D. WILLIAMS
REMARKS

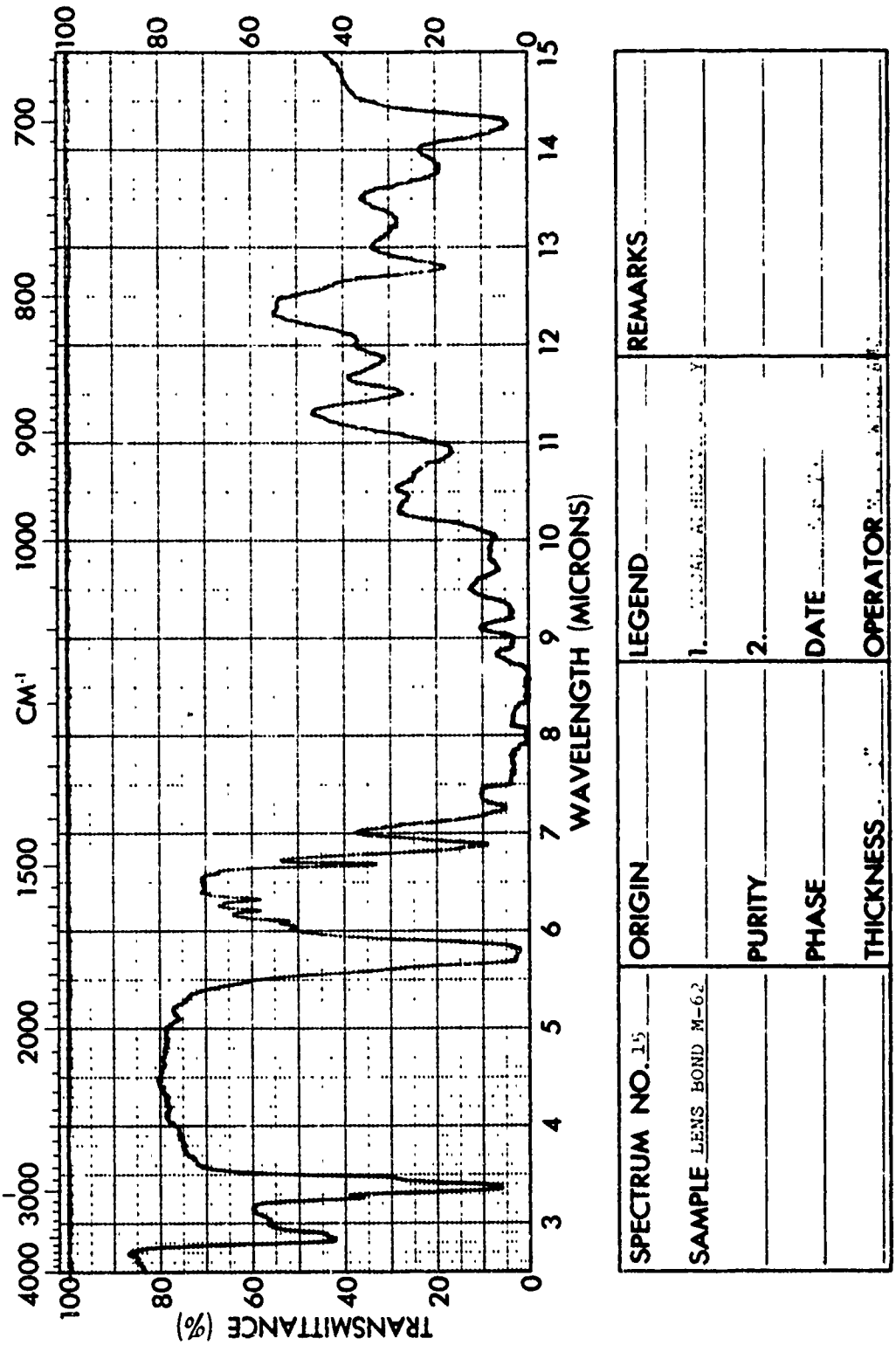


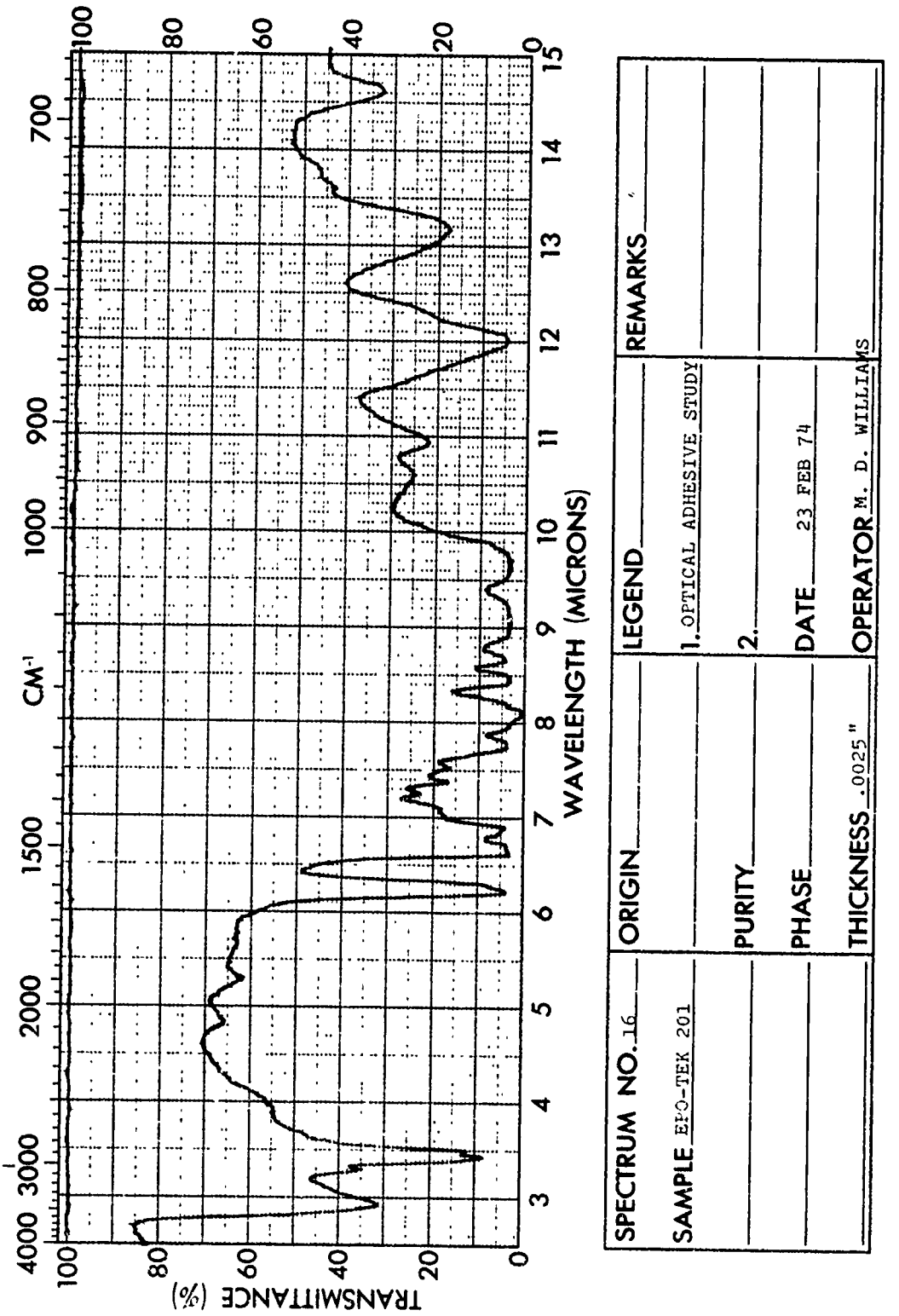
SPECTRUM NO. 13	ORIGIN	LEGEND	REMARKS
SAMPLE OPTICON SEA-23		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 23 FEB 74	
	THICKNESS .001"	OPERATOR M. D. WILLIAMS	

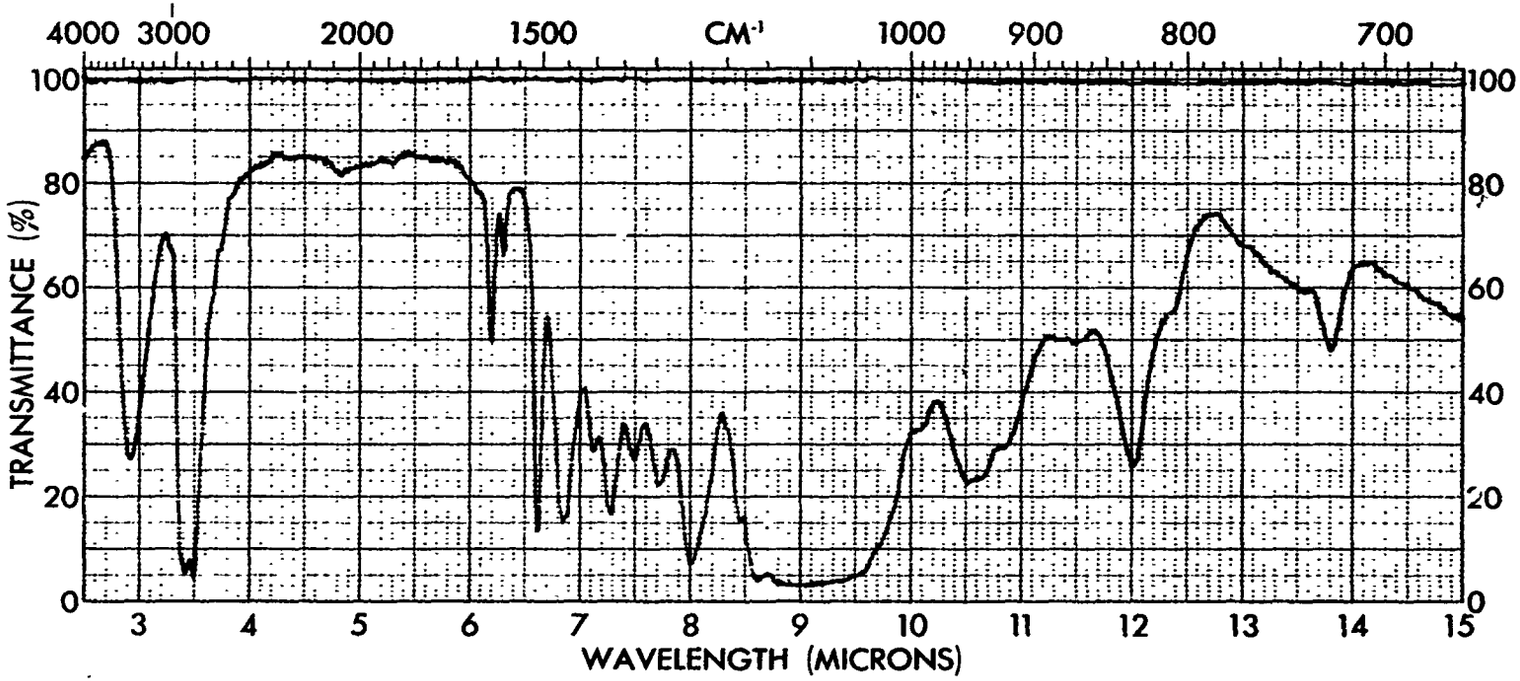


SPECTRUM NO. 14	ORIGIN	LEGEND	REMARKS
SAMPLE ZIPBOND CONTACT CEMENT		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 23 FEB 74	
	THICKNESS .0005"	OPERATOR M. D. WILLIAMS	

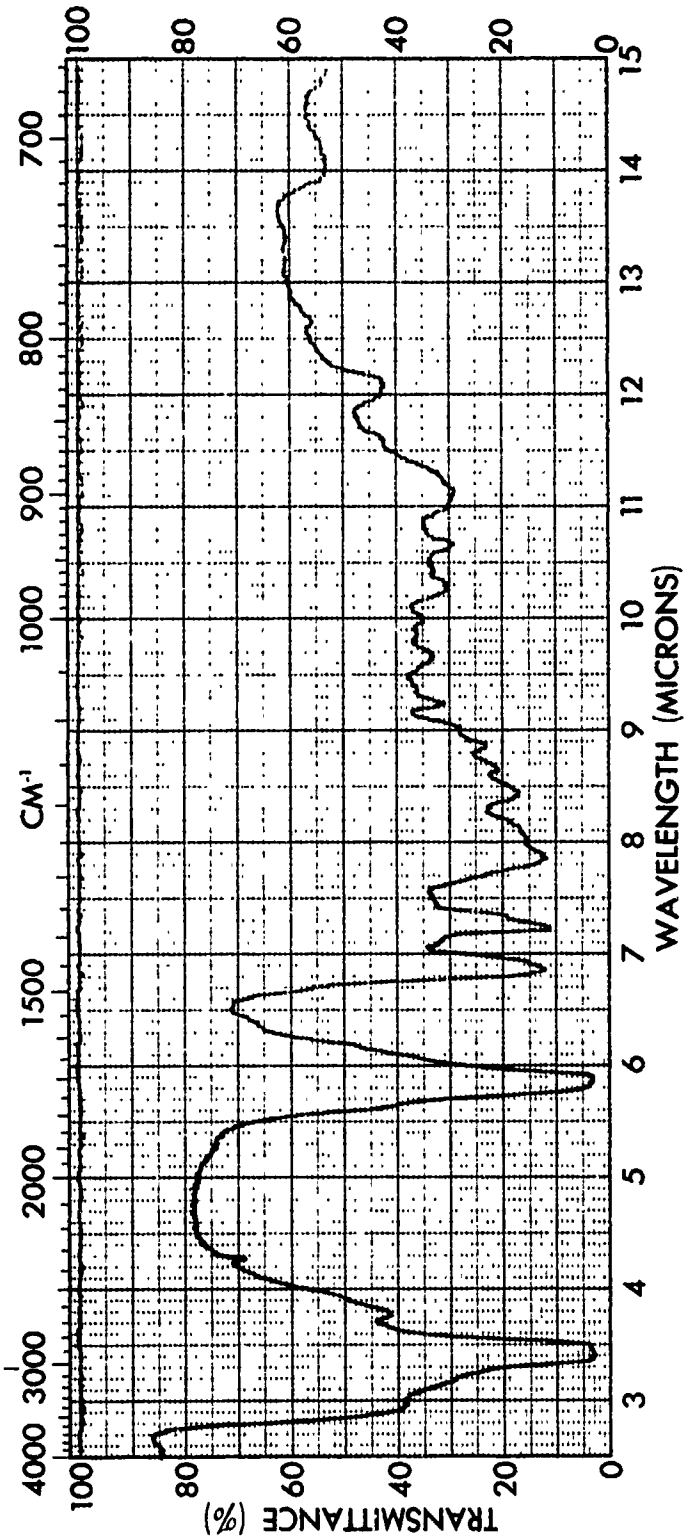
PART NO. 137-1281 ● THE PERKIN-ELMER CORPORATION, NORWALK, CONN.


TRANSMITTANCE (%)
CM⁻¹
WAVELENGTH (MICRONS)
SPECTRUM NO. 15
SAMPLE LENS BOND M-62
ORIGIN
PURITY
PHASE
THICKNESS
LEGEND
1.
2.
DATE
OPERATOR
REMARKS

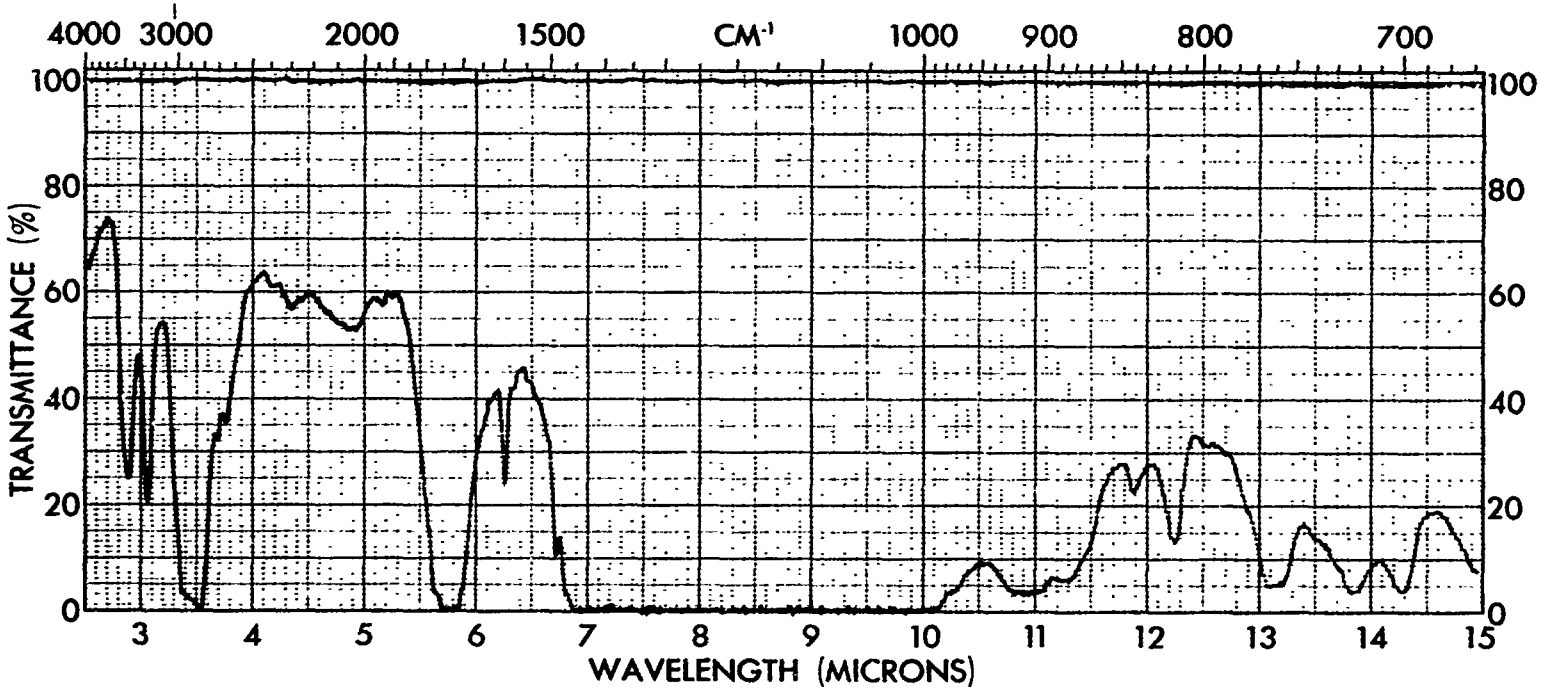

TRANSMITTANCE (%)
CM⁻¹
WAVELENGTH (MICRONS)
SPECTRUM NO. 16
SAMPLE EPO-TEK 201
ORIGIN
PURITY
PHASE
THICKNESS .0025"
LEGEND
1. OPTICAL ADHESIVE STUDY
2.
DATE 23 FEB 74
OPERATOR M. D. WILLIAMS
REMARKS



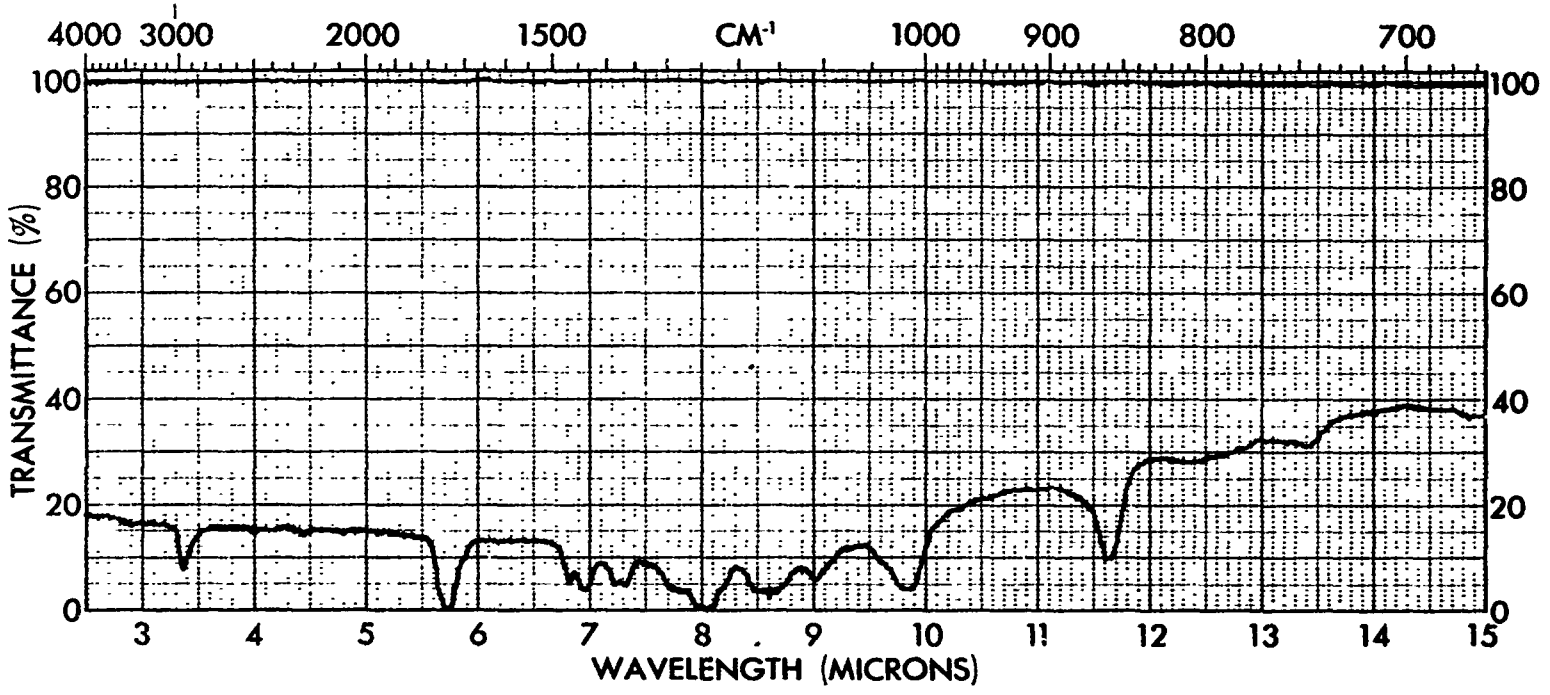
SPECTRUM NO. 17	ORIGIN	LEGEND	REMARKS
SAMPLE EPO-TEK 310		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 23 FEB 74	
	THICKNESS .003"	OPERATOR M. D. WILLIAMS	



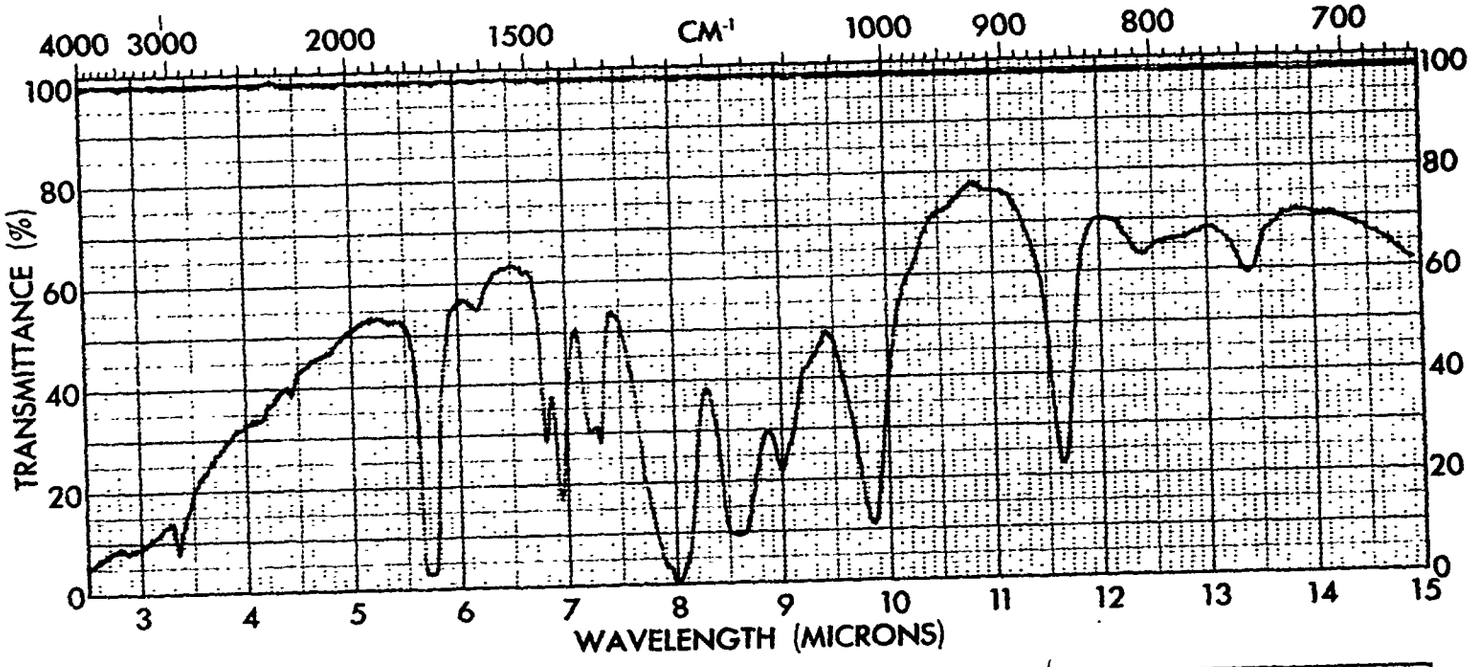
SPECTRUM NO. 18	ORIGIN	LEGEND	REMARKS
SAMPLE CANADIAN BALSAM	PURITY	1. OPTICAL ADHESIVE STUDY 2.	
	PHASE	DATE 23 FEB 74	
	THICKNESS .0015"	OPERATOR M. D. WILLIAMS	



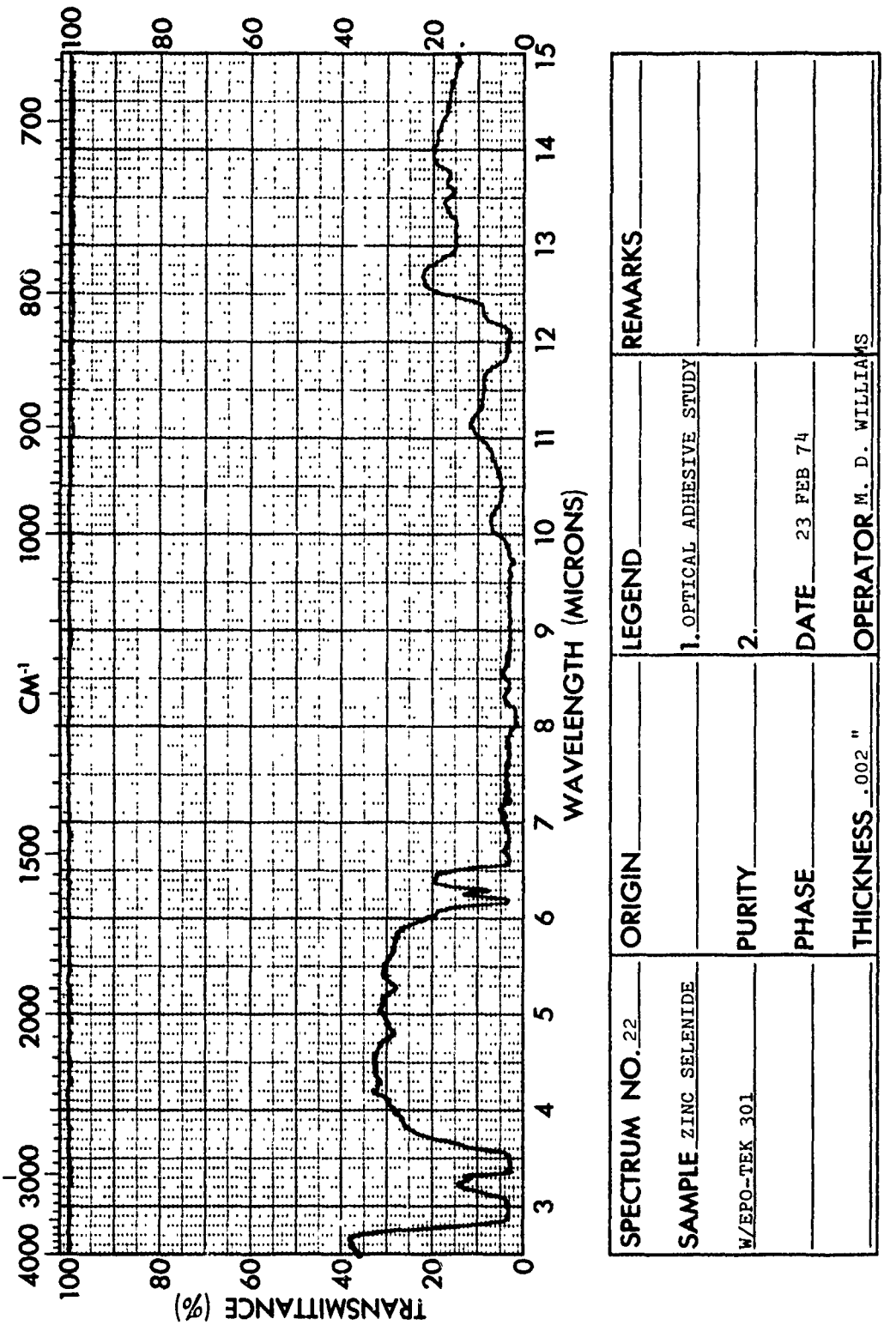
SPECTRUM NO. 19	ORIGIN	LEGEND	REMARKS
SAMPLE CELLULOSE		1. OPTICAL ADHESIVE STUDY	
CAPRATE	PURITY	2.	
	PHASE	DATE 23 FEB 74	
	THICKNESS .003"	OPERATOR M. D. WILLIAMS	

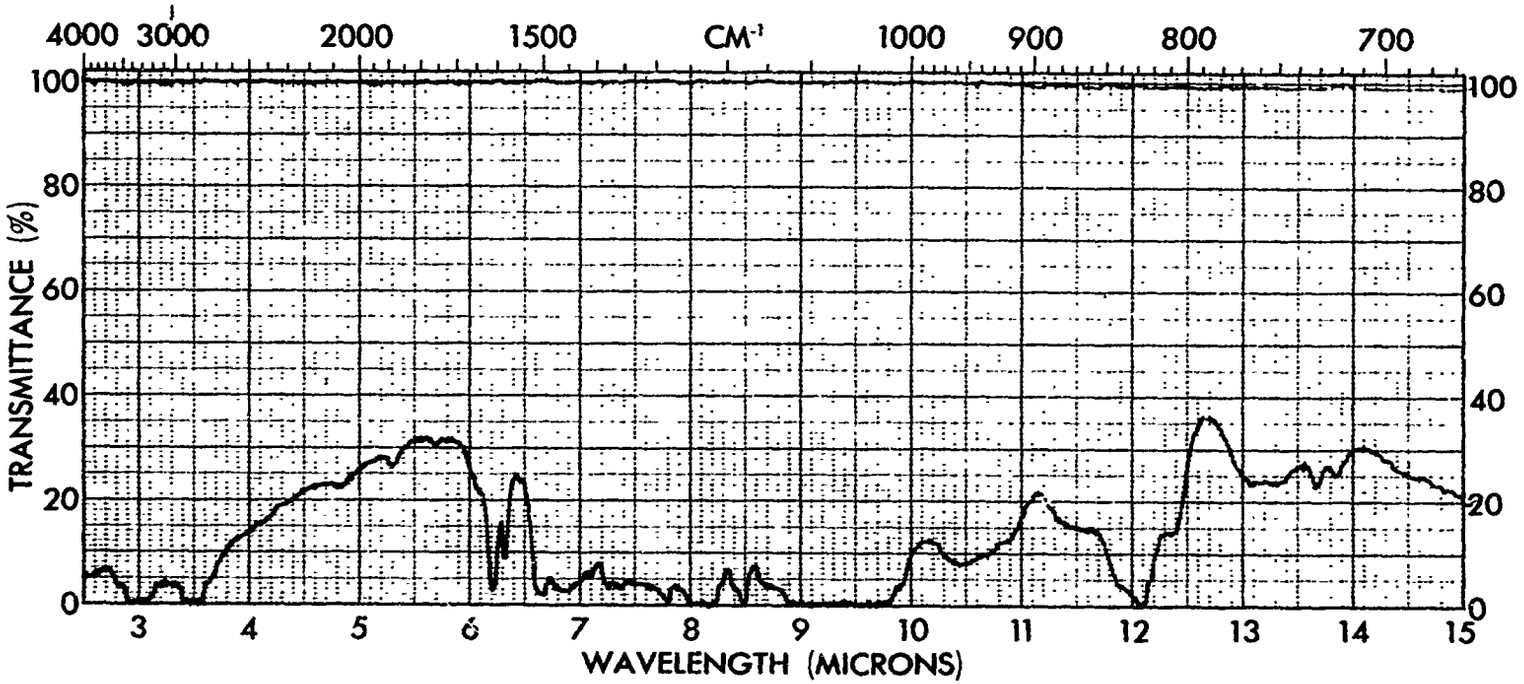


SPECTRUM NO. 20	ORIGIN	LEGEND	REMARKS
SAMPLE ZINC SELENIDE		1. OPTICAL ADHESIVE STUDY	
WITH ZIPBOND CONTACT	PURITY	2.	
CEMENT	PHASE	DATE 23 FEB 74	
	THICKNESS .003"	OPERATOR M. D. WILLIAMS	



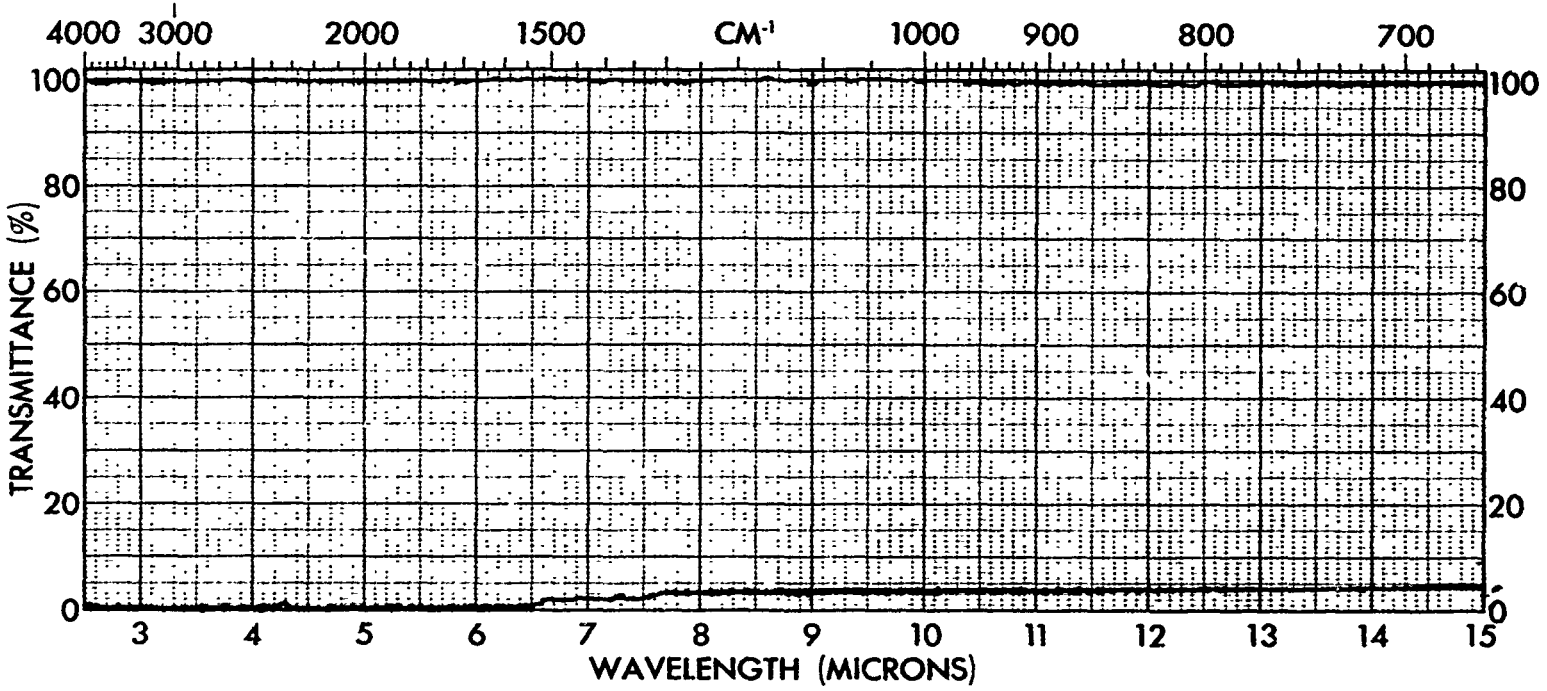
SPECTRUM NO. 21	ORIGIN	LEGEND	REMARKS
SAMPLE ZINC SULFIDE		1. OPTICAL ADHESIVE STUDY	
W/ZIPBOND CONTACT CEMENT	PURITY	2.	
	PHASE	DATE 23 FEB 74	
	THICKNESS .001"	OPERATOR M. D. WILLIAMS	


TRANSMITTANCE (%)
100
80
60
40
20
0
4000
3000
2000
1500
1000
900
800
700
CM-1
3
4
5
6
7
8
9
10
11
12
13
14
15
WAVELENGTH (MICRONS)
SPECTRUM NO. 22
SAMPLE ZINC SELENIDE
W/EPO-TEK 301
ORIGIN
PURITY
PHASE
THICKNESS .002"
LEGEND
1. OPTICAL ADHESIVE STUDY
2.
DATE 23 FEB 74
OPERATOR M. D. WILLIAMS
REMARKS

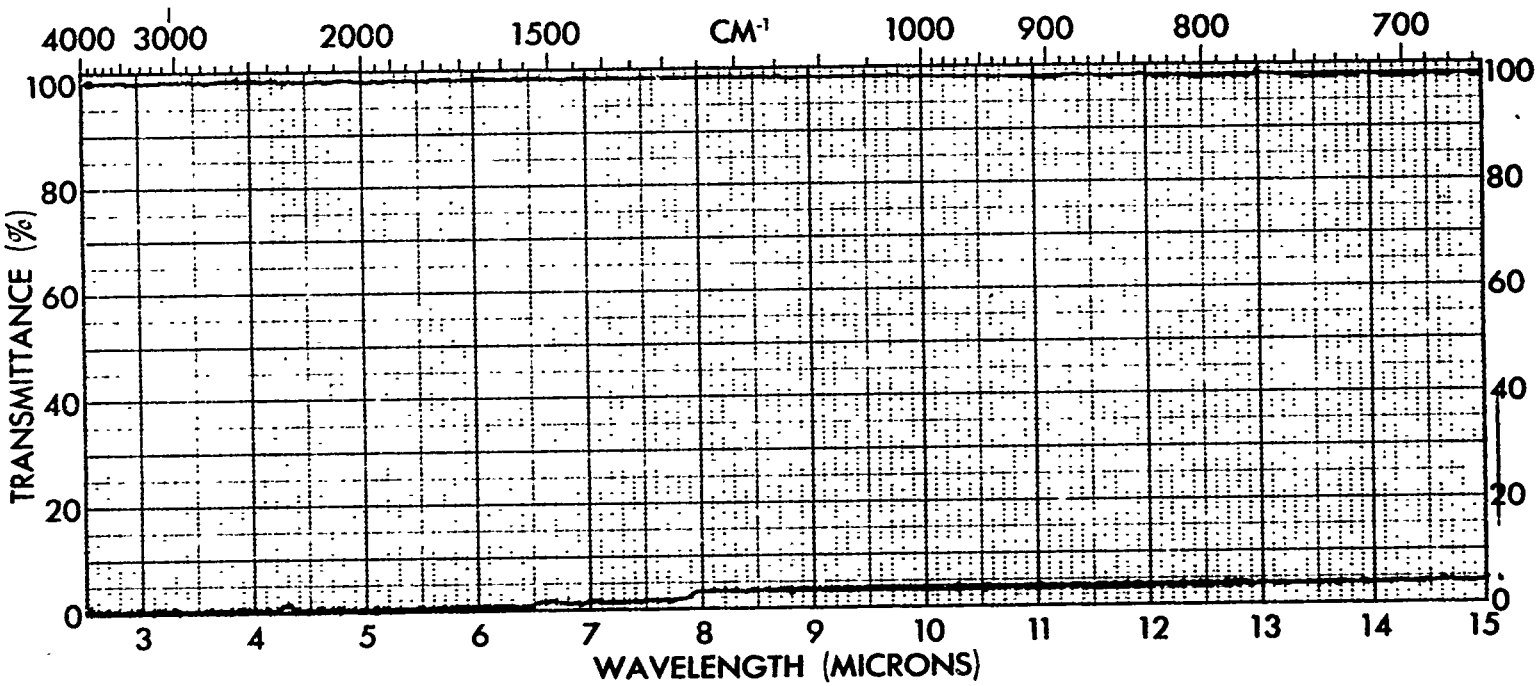


SPECTRUM NO. 23	ORIGIN	LEGEND	REMARKS
SAMPLE Zinc Sulfide		1. OPTICAL ADHESIVE STUDY	
W/EPO-TEK 301	PURITY	2.	
	PHASE	DATE 23 FEB 74	
	THICKNESS .0025 "	OPERATOR M. D. WILLIAMS	

NMC TP 5583

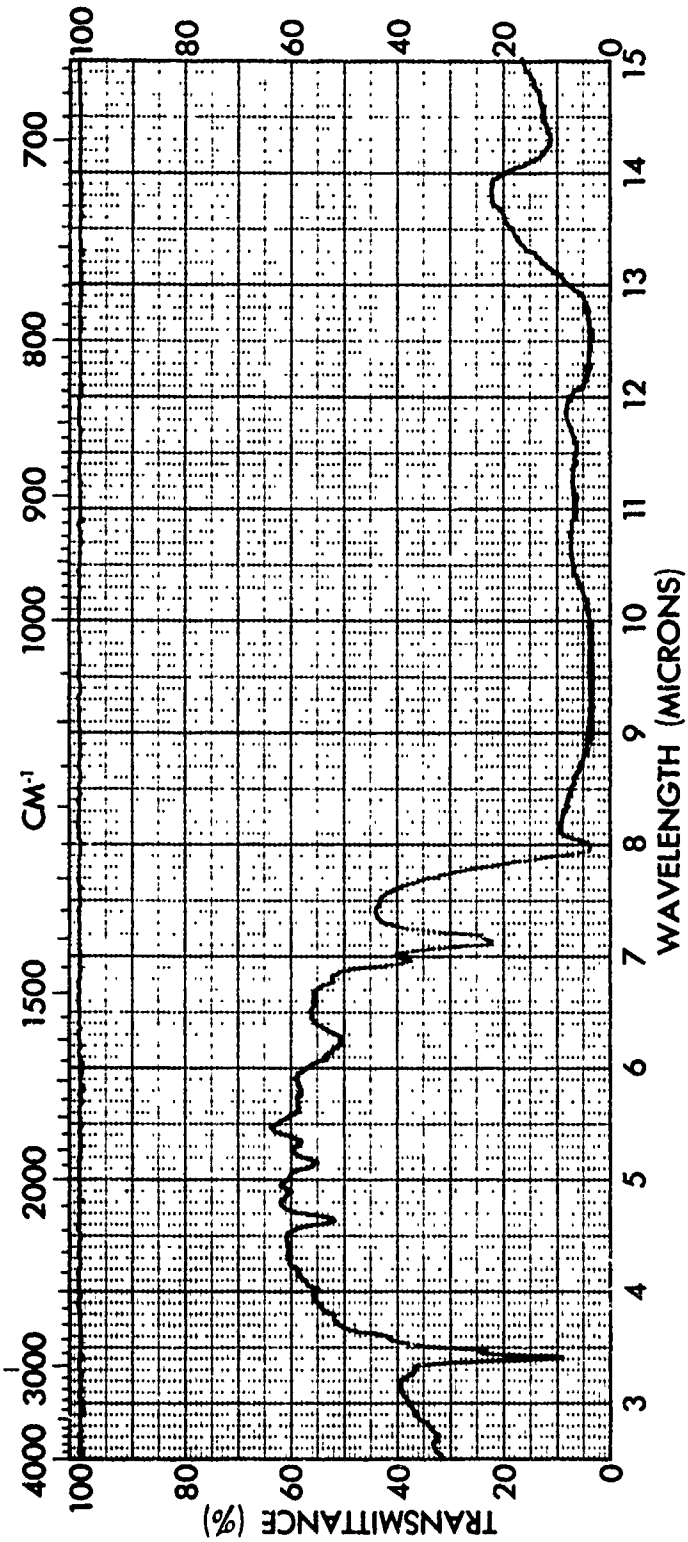


SPECTRUM NO. 24	ORIGIN	LEGEND	REMARKS
SAMPLE 1" DIA EPOXY		1. OPTICAL ADHESIVE STUDY	
PLUG W/ZINC SELENIDE	PURITY	2.	
AND EPO-TEK 301	PHASE	DATE 23 FEB 74	
	THICKNESS .040"	OPERATOR M. D. WILLIAMS	

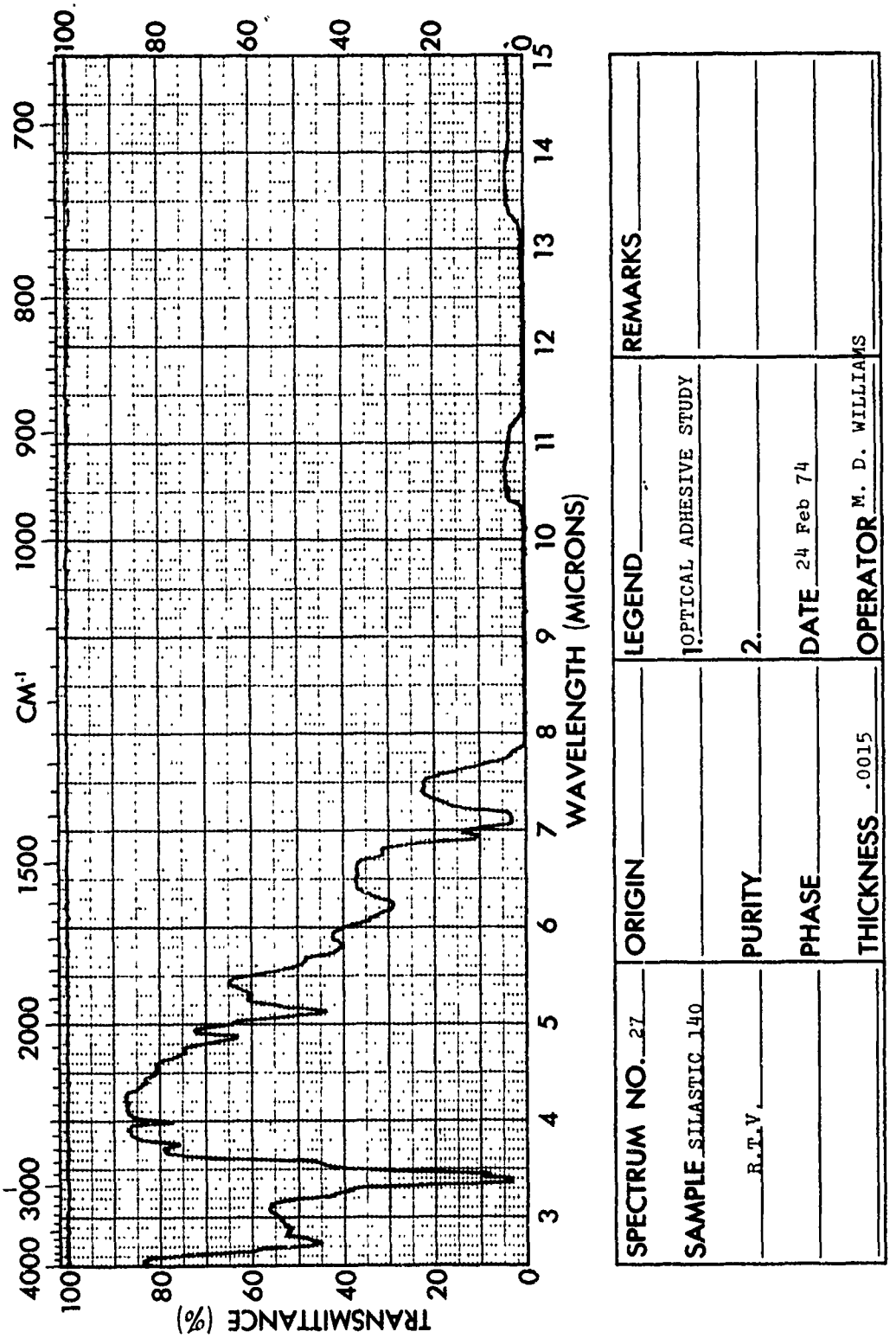


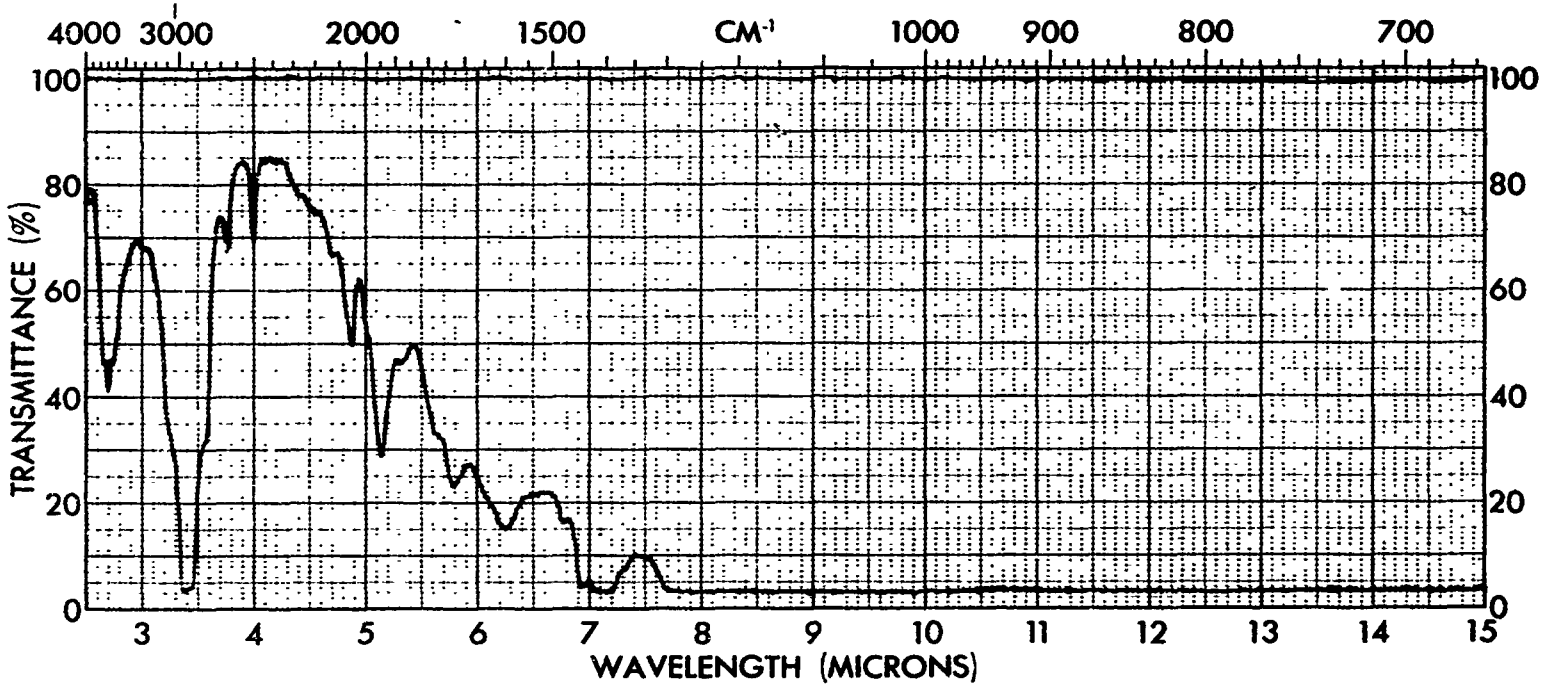
SPECTRUM NO. 25	ORIGIN	LEGEND	REMARKS
SAMPLE 1" DIA EPOXY PLUG		1. OPTICAL ADHESIVE STUDY	
W/ZINC SULFIDE AND	PURITY	2.	
EPO-TEK 301	PHASE	DATE 23 FEB 74	
	THICKNESS .049"	OPERATOR M. D. WILLIAMS	

NWC TP 5583

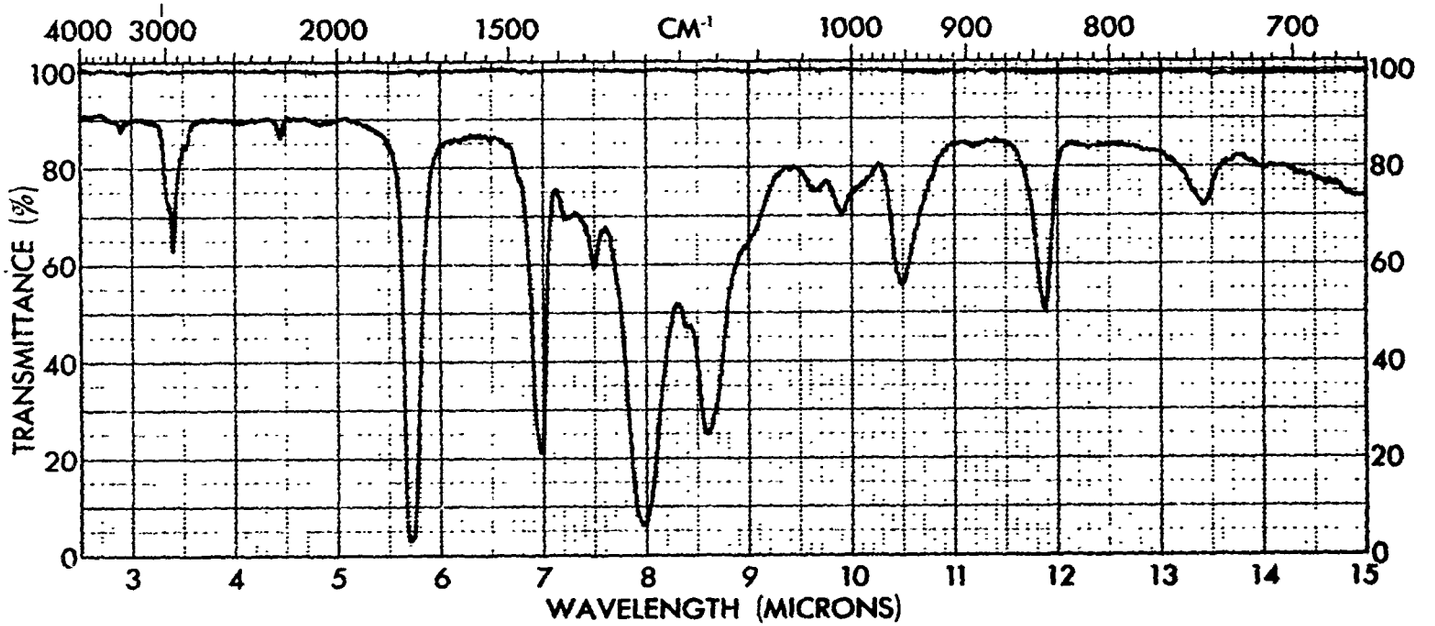


SPECTRUM NO. 26	ORIGIN	LEGEND	REMARKS
SAMPLE DOW CORNING 3118		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0005"	OPERATOR M. D. WILLIAMS	

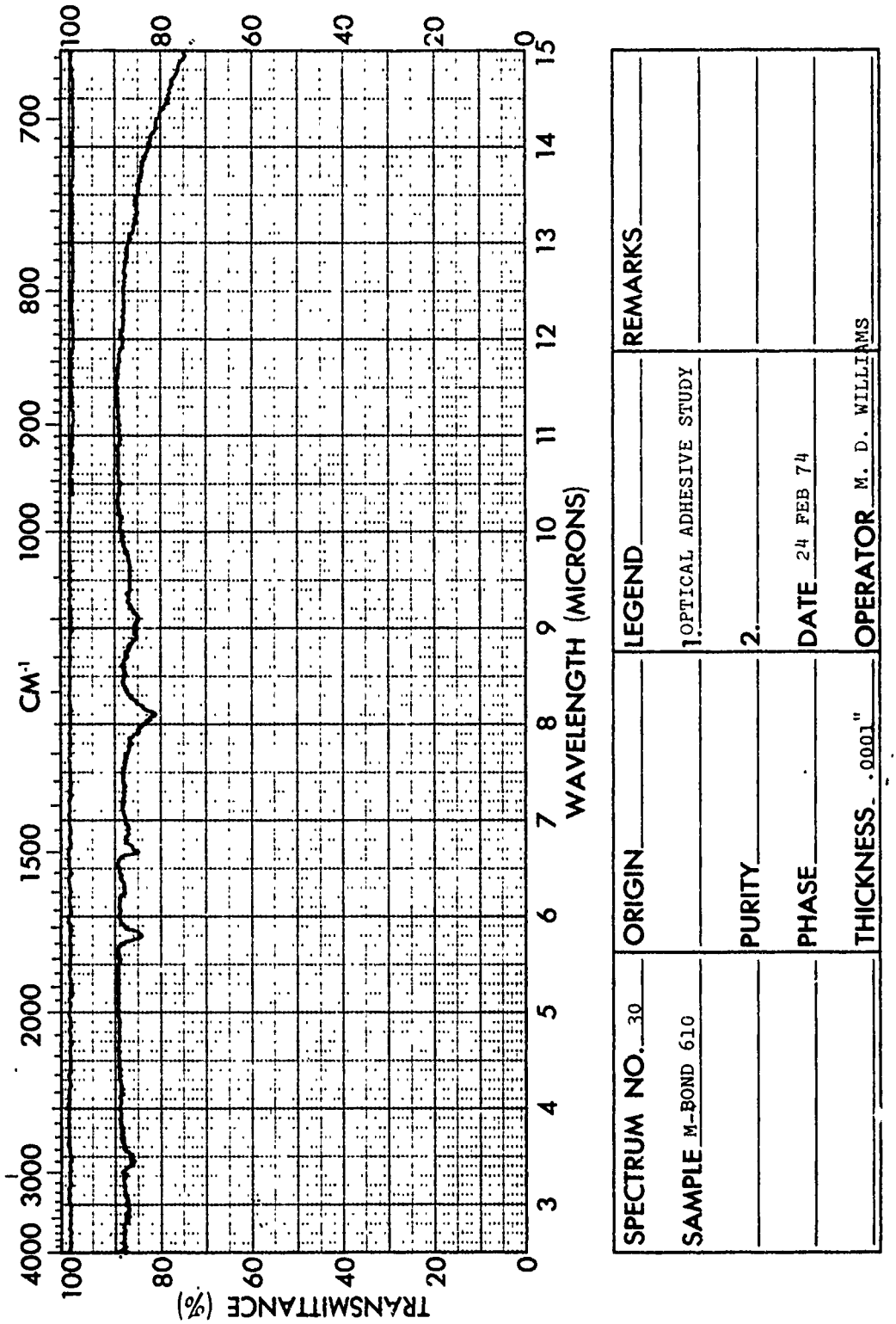

TRANSMITTANCE (%)
CM⁻¹
WAVELENGTH (MICRONS)
SPECTRUM NO. 27
SAMPLE SILASTIC 140 R.T.V.
ORIGIN
PURITY
PHASE
THICKNESS .0015
LEGEND
1. OPTICAL ADHESIVE STUDY
2.
DATE 24 Feb 74
OPERATOR M. D. WILLIAMS
REMARKS

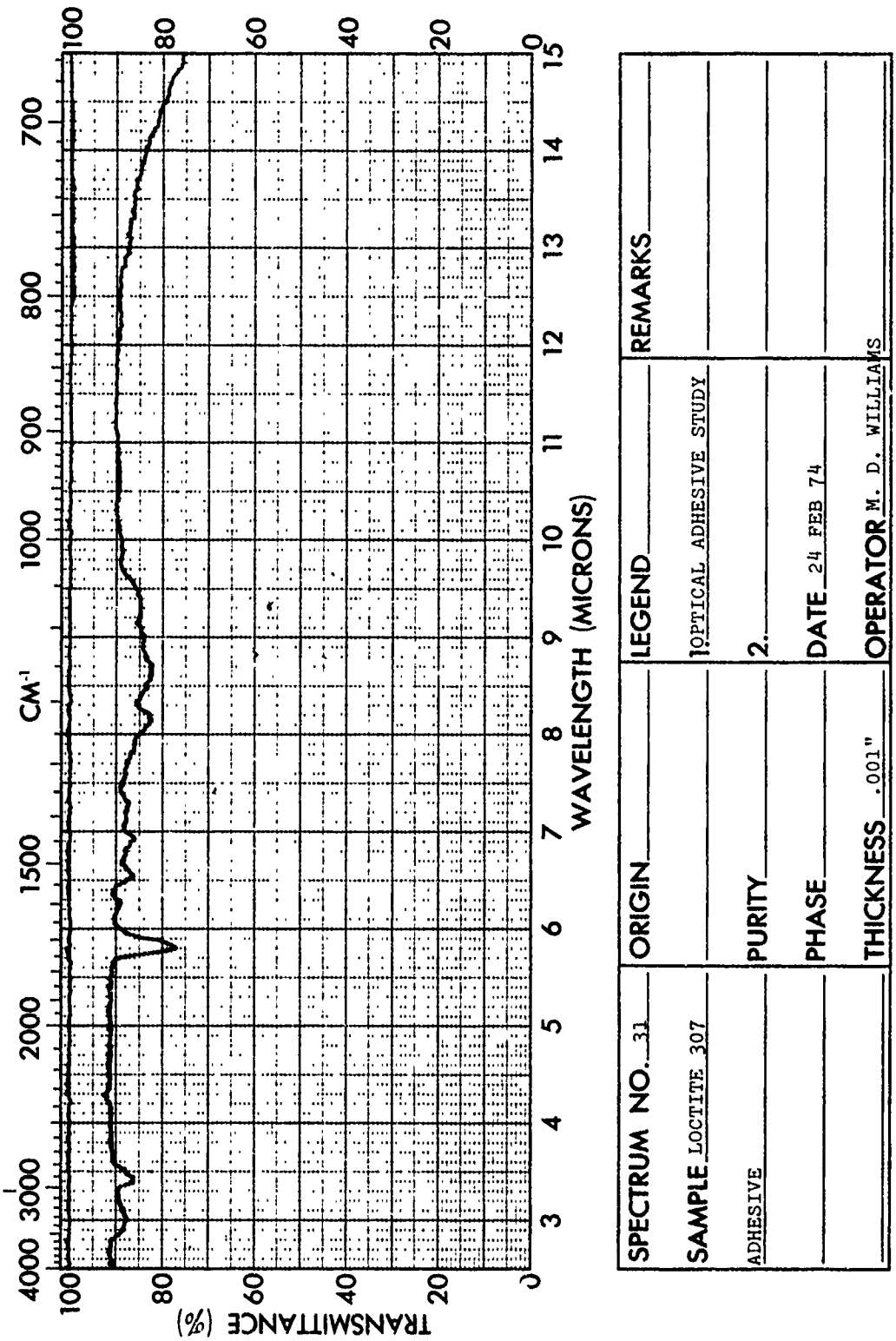


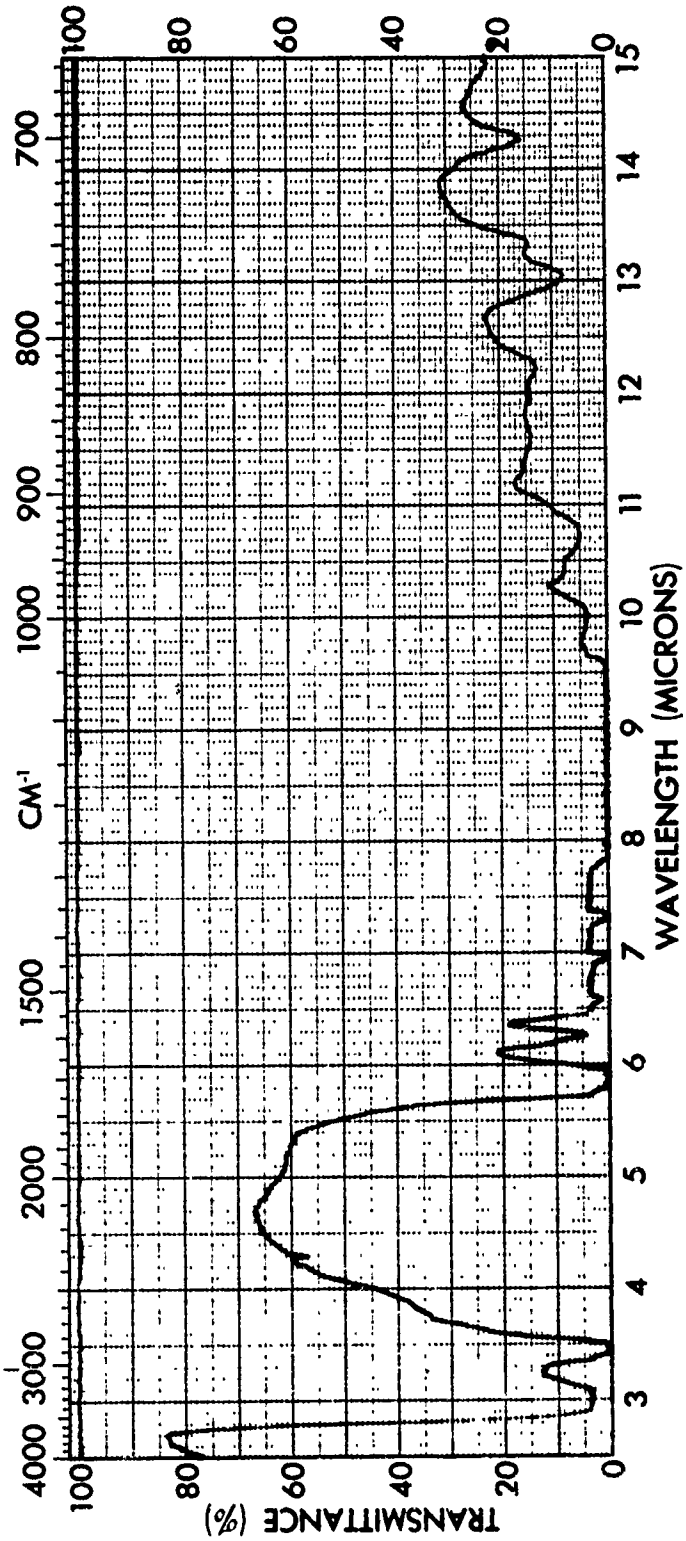
SPECTRUM NO. 28	ORIGIN	LEGEND	REMARKS
SAMPLE R.T.V. 108		1 OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0025	OPERATOR M. D. WILLIAMS	



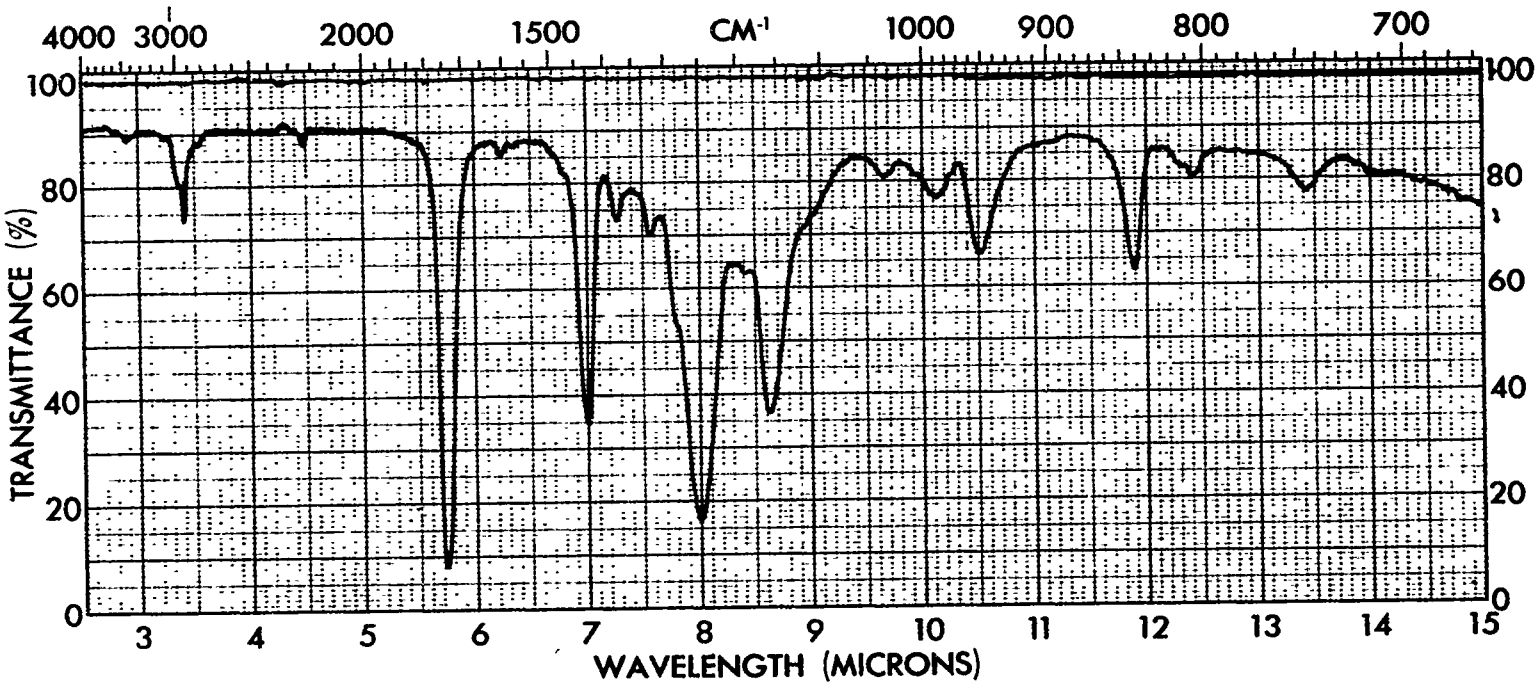
SPECTRUM NO. 29	ORIGIN	LEGEND	REMARKS
SAMPLE EASTMAN 910		1 OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0001"	OPERATOR M. D. WILLIAMS	


TRANSMITTANCE (%)
CM-1
WAVELENGTH (MICRONS)
SPECTRUM NO. 30
SAMPLE M-BOND 610
ORIGIN
PURITY
PHASE
THICKNESS .0001"
LEGEND
1. OPTICAL ADHESIVE STUDY
2.
DATE 24 FEB 74
OPERATOR M. D. WILLIAMS
REMARKS

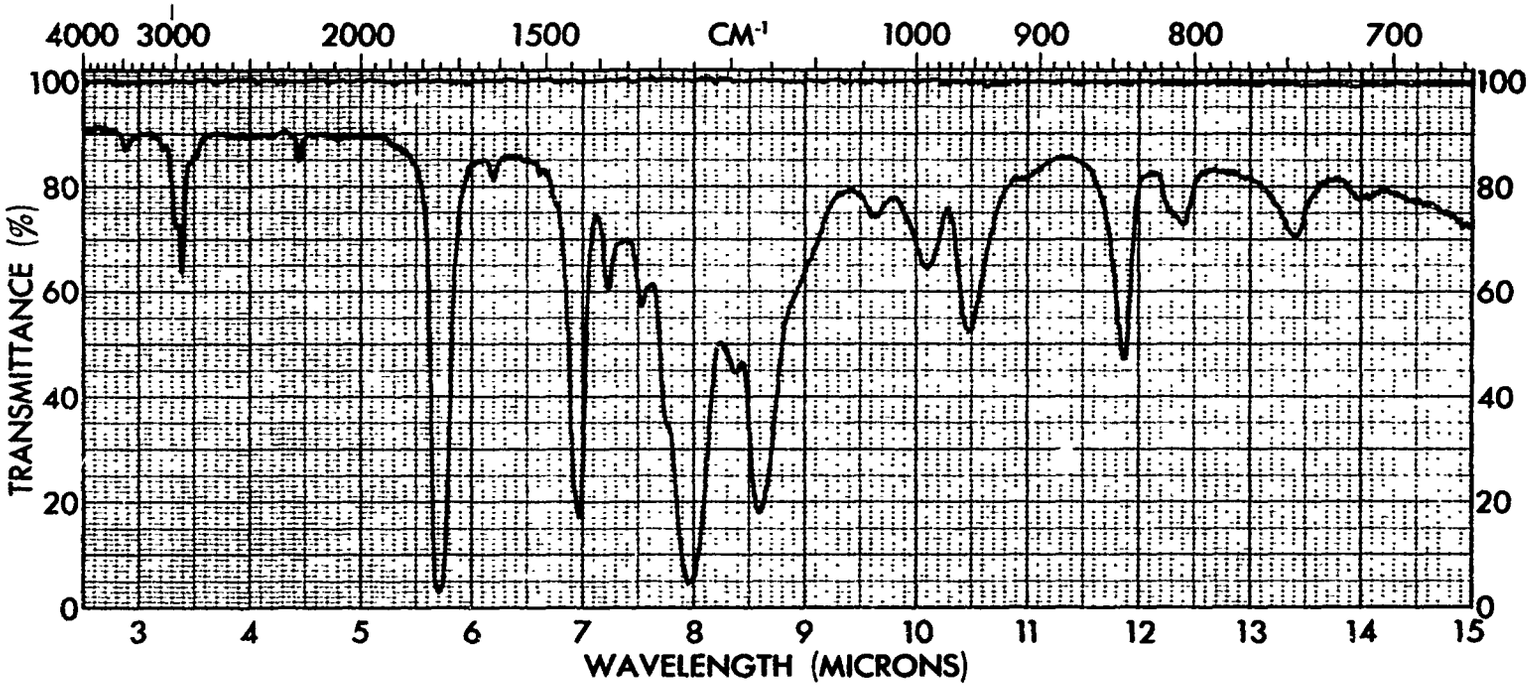

TRANSMITTANCE (%)
CM⁻¹
WAVELENGTH (MICRONS)
SPECTRUM NO. 31
SAMPLE LOCTITE 307
ADHESIVE
ORIGIN
PURITY
PHASE
THICKNESS .001"
LEGEND
1. OPTICAL ADHESIVE STUDY
2.
DATE 24 FEB 74
OPERATOR M. D. WILLIAMS
REMARKS



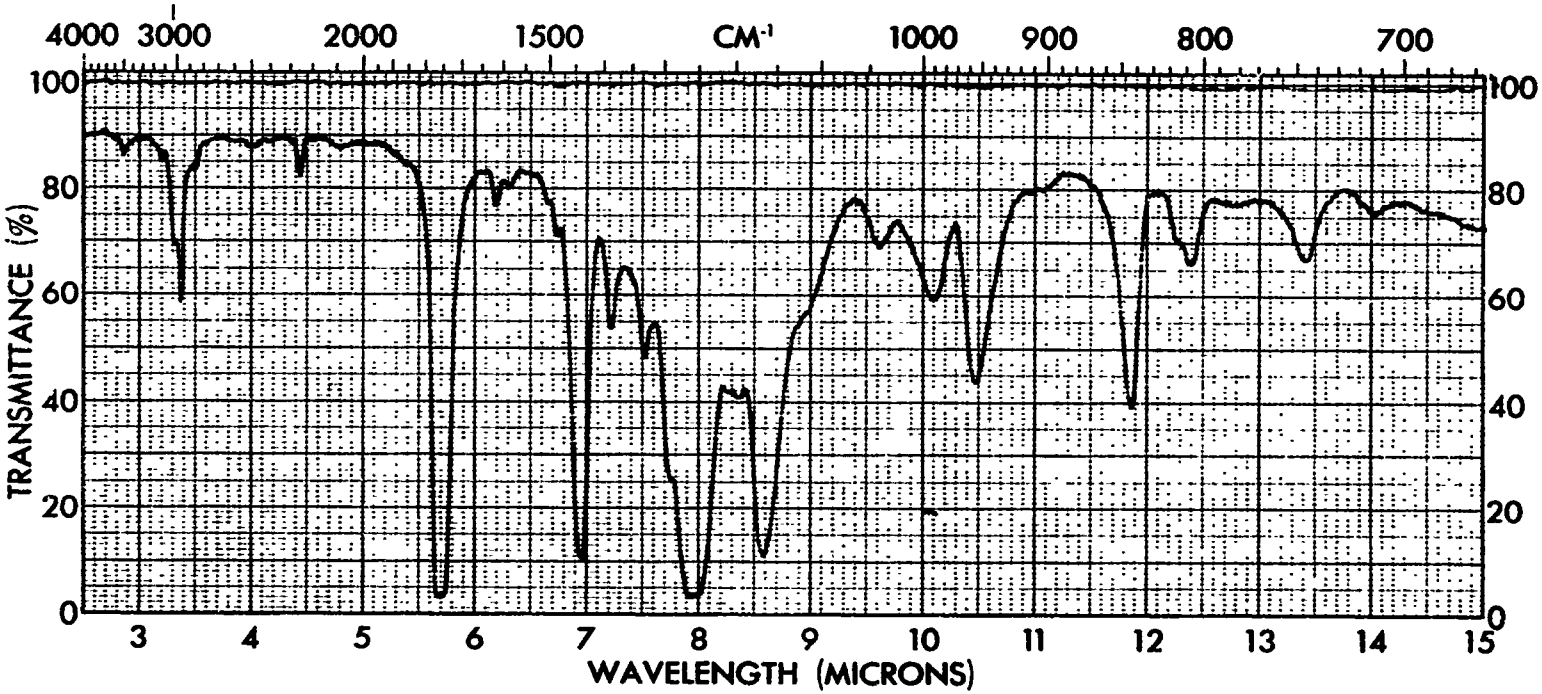
SPECTRUM NO. 32	ORIGIN	LEGEND	REMARKS
SAMPLE LOCTITE MINUTE BOND 312		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0001"	OPERATOR M. D. WILLIAMS	



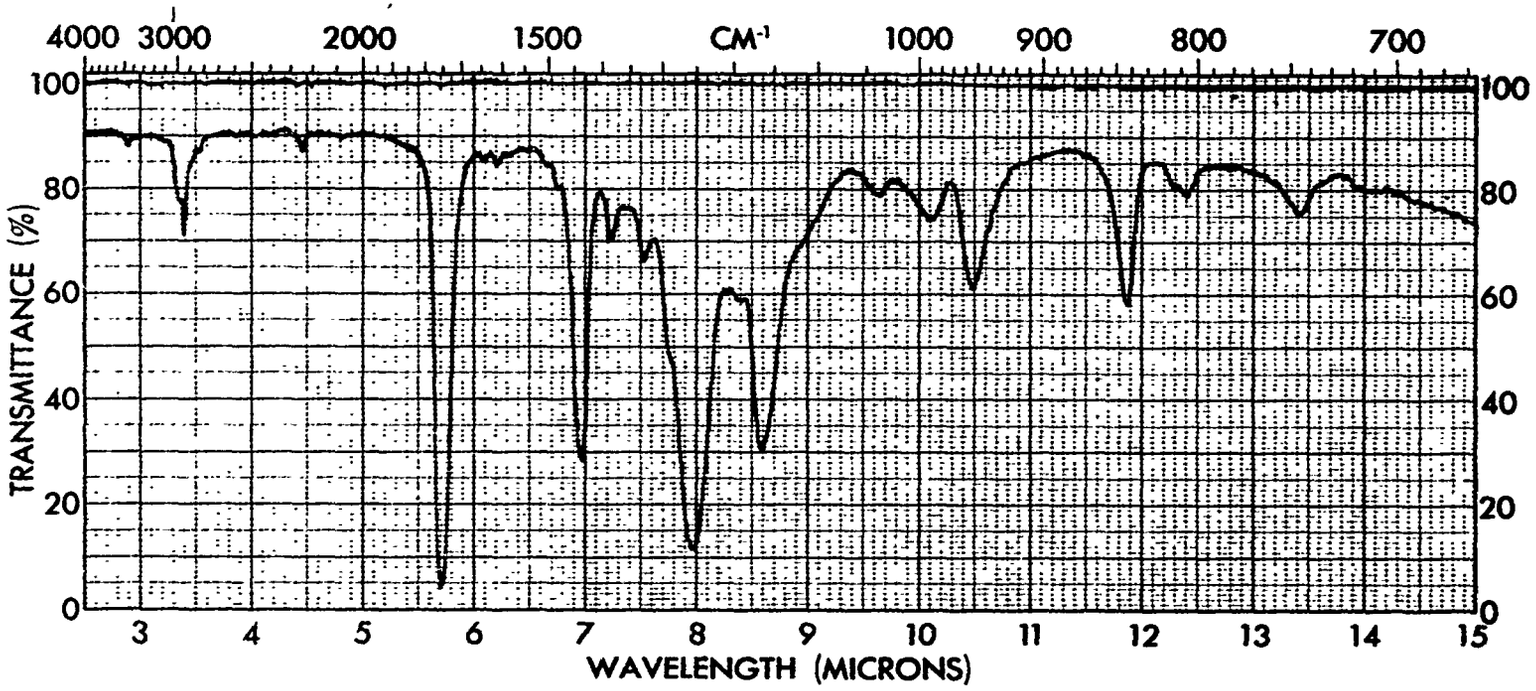
SPECTRUM NO. 33	ORIGIN	LEGEND	REMARKS
SAMPLE LOCTITE IS-12		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0004"	OPERATOR M. D. WILLIAMS	



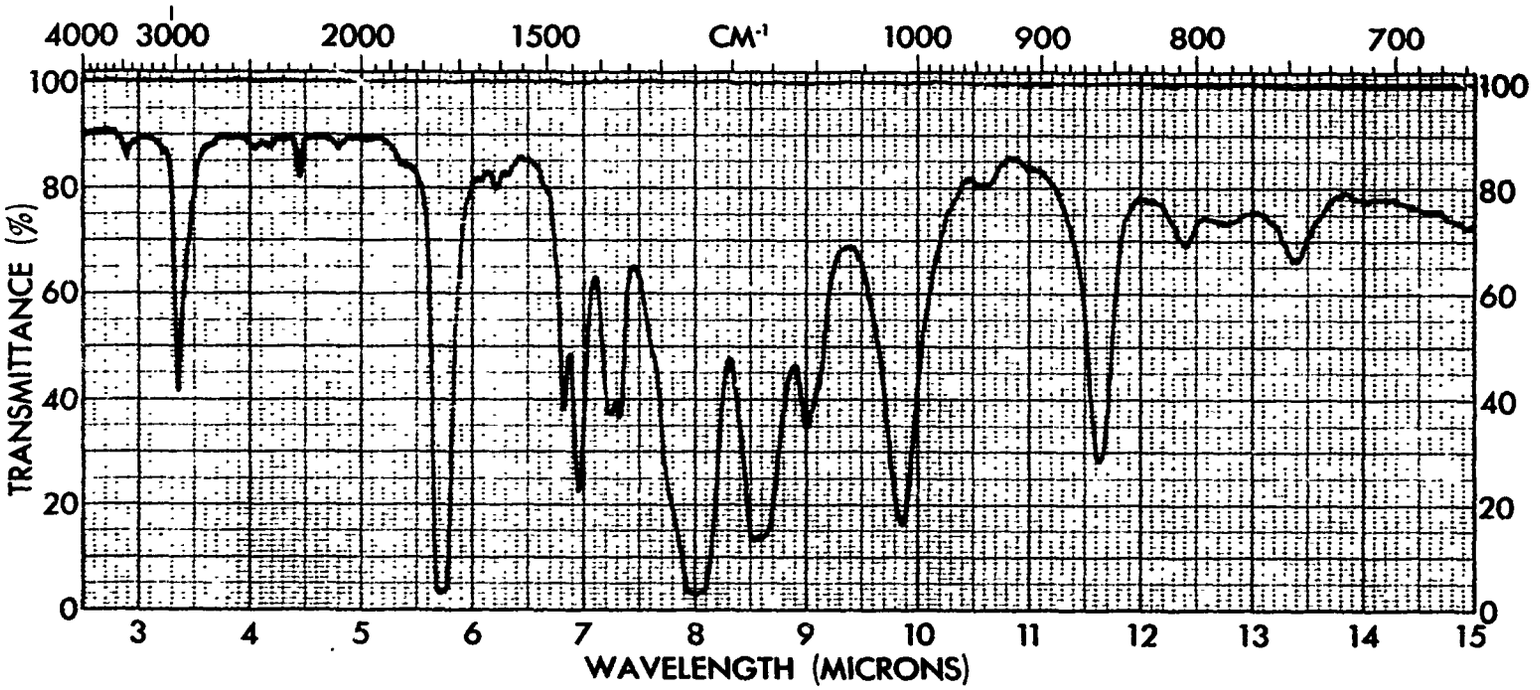
SPECTRUM NO. 34	ORIGIN	LEGEND	REMARKS
SAMPLE LOCTITE IS-150		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0005"	OPERATOR M. D. WILLIAMS	



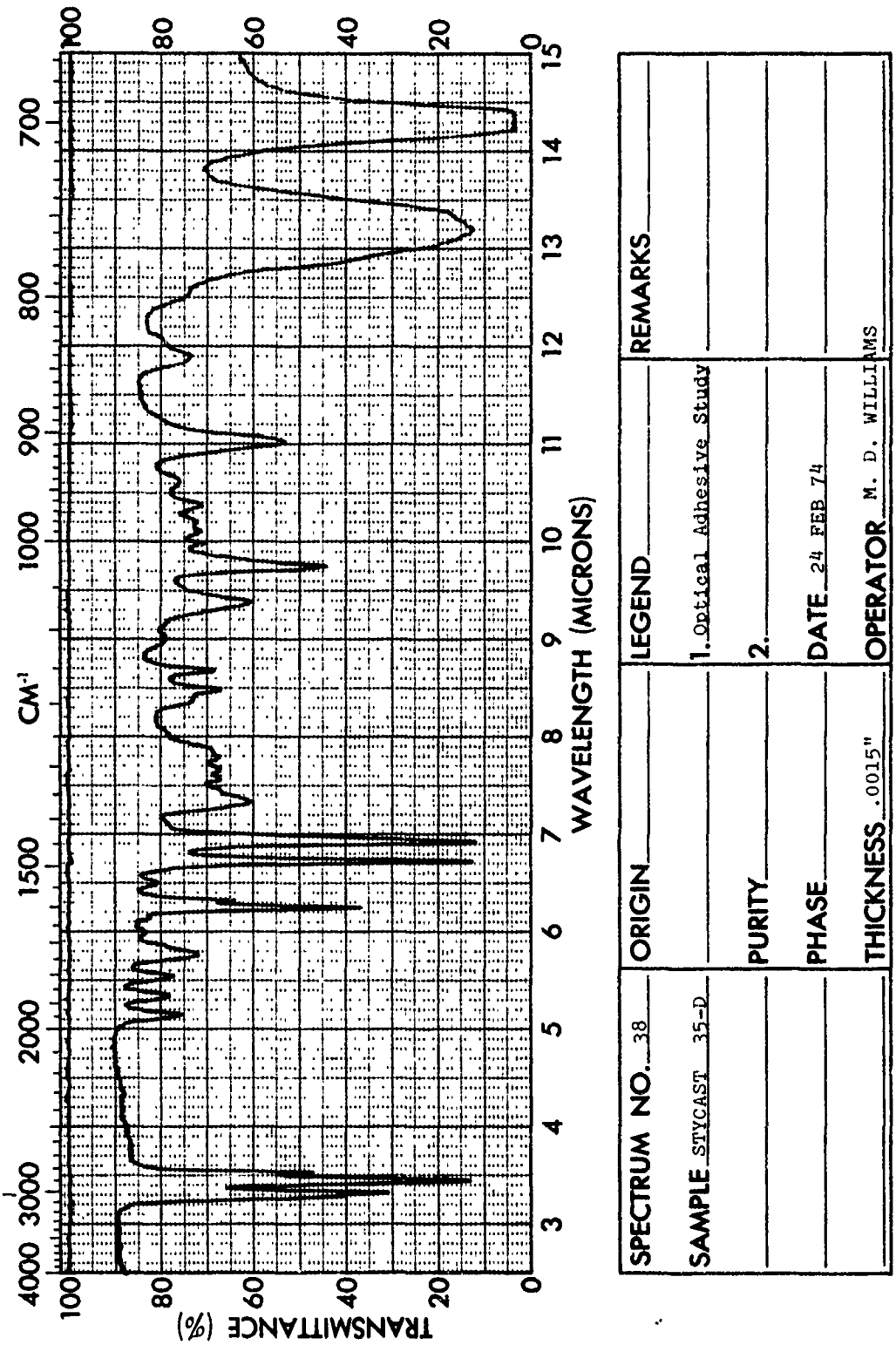
SPECTRUM NO. 35	ORIGIN	LEGEND	REMARKS
SAMPLE LOCTITE IS-03		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0004"	OPERATOR M. D. WILLIAMS	

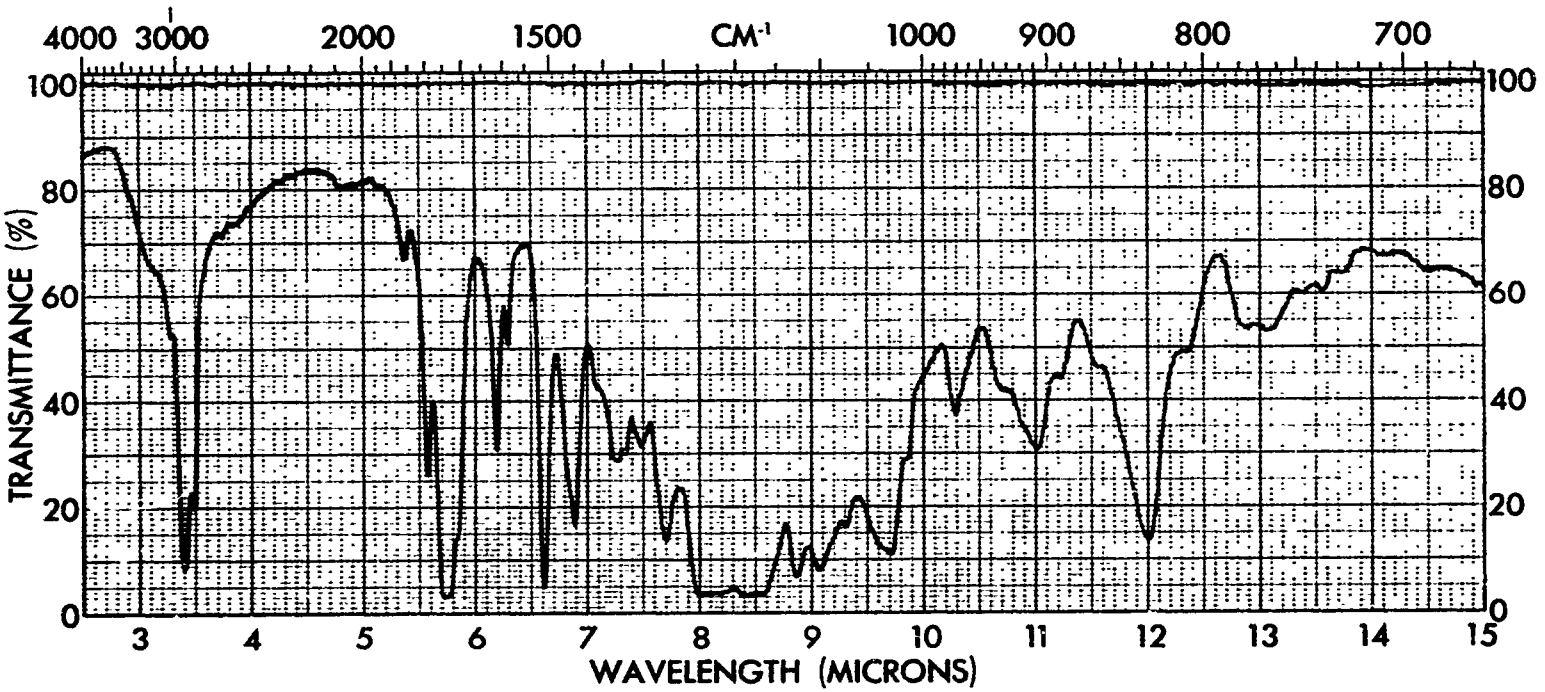


SPECTRUM NO. 36	ORIGIN	LEGEND	REMARKS
SAMPLE LOCTITE IS-06		1.OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0003"	OPERATOR M. D. WILLIAMS	

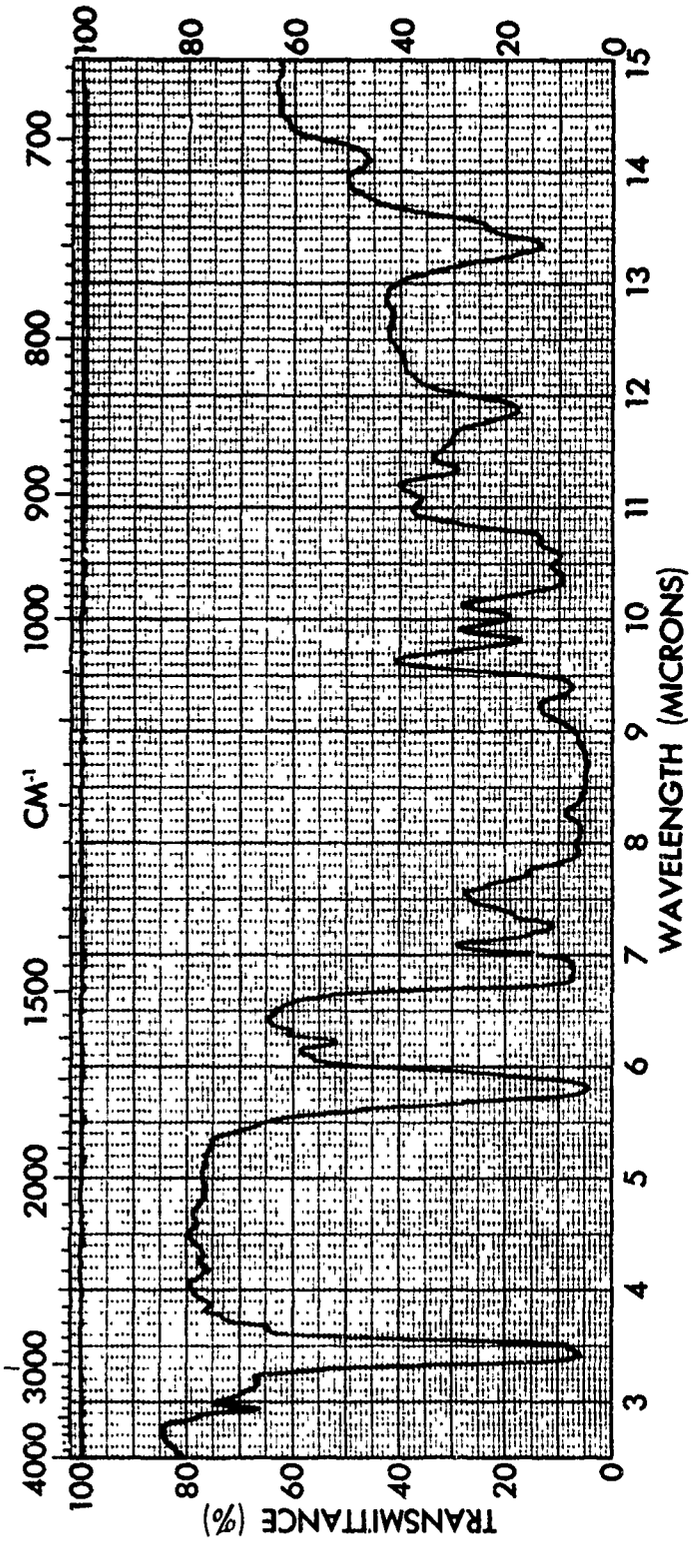


SPECTRUM NO. 37	ORIGIN	LEGEND	REMARKS
SAMPLE LOCTITE IS-04E		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0003"	OPERATOR M. D. WILLIAMS	

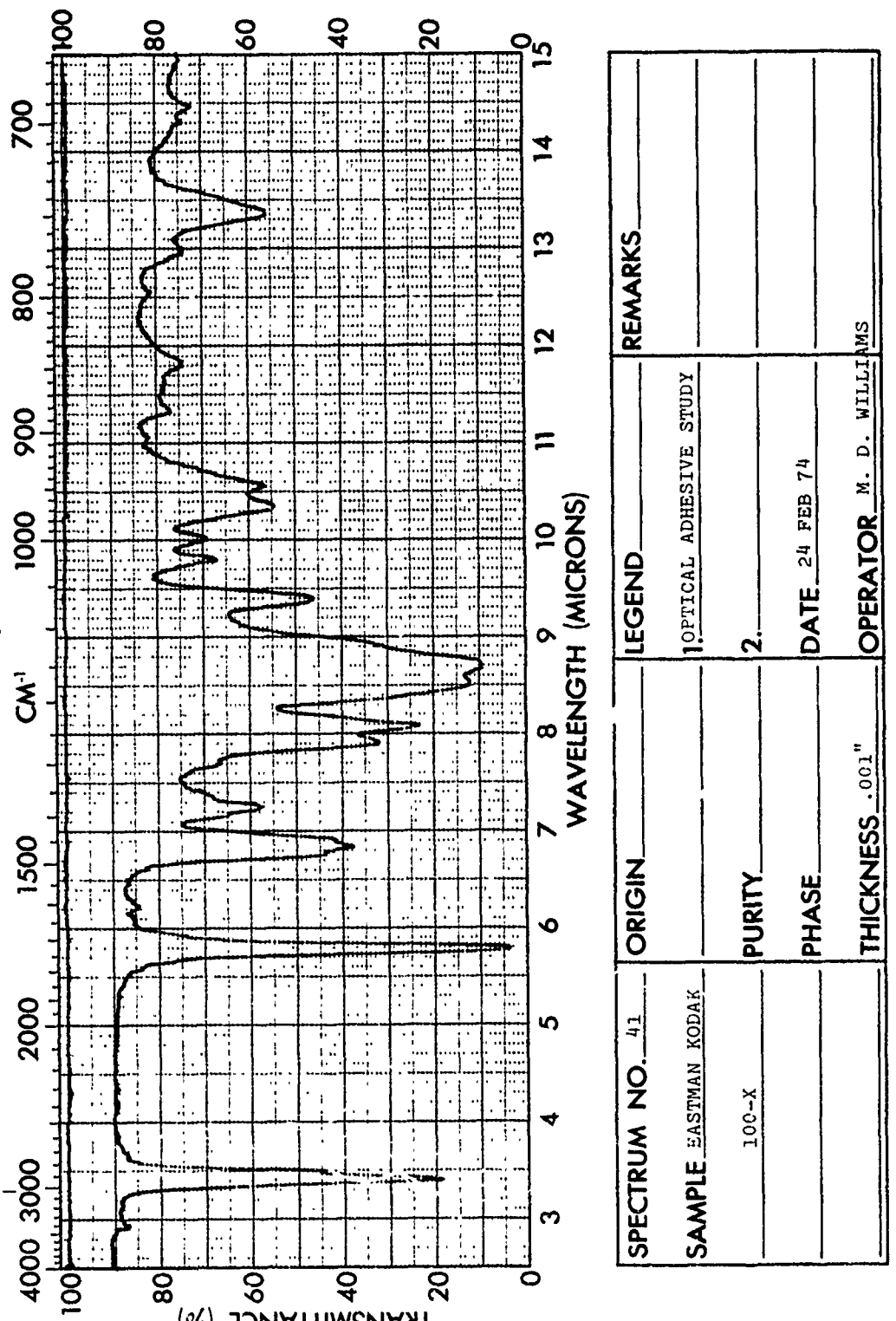

TRANSMITTANCE (%)
100
80
60
40
20
0
4000
3000
2000
1500
1000
900
800
700
CM-1
3
4
5
6
7
8
9
10
11
12
13
14
15
WAVELENGTH (MICRONS)
SPECTRUM NO. 38
SAMPLE STYCAST 35-D
ORIGIN
PURITY
PHASE
THICKNESS .0015"
LEGEND
1. Optical Adhesive Study
2.
DATE 24 FEB 74
OPERATOR M. D. WILLIAMS
REMARKS

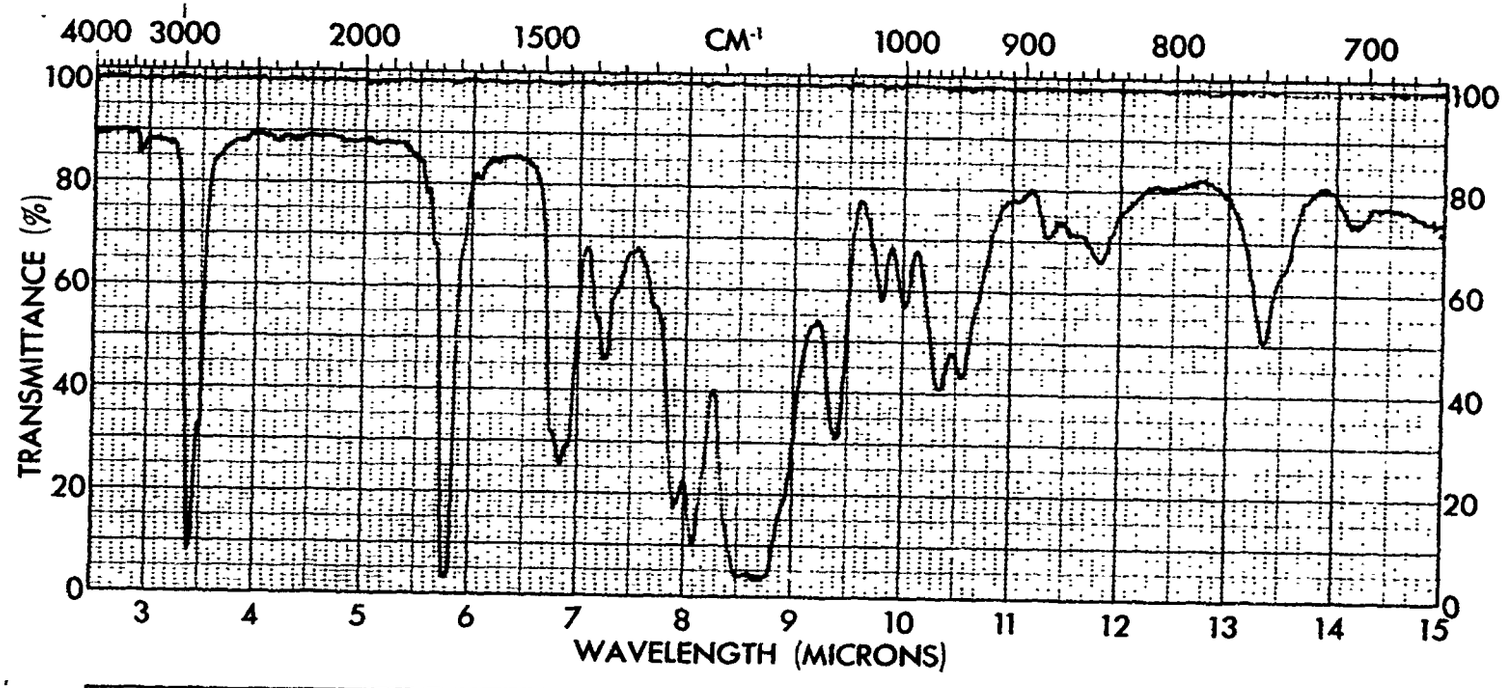


SPECTRUM NO. 39	ORIGIN	LEGEND	REMARKS
SAMPLE STYCAST 1269-A		1. Optical Adhesive Study	
	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0005"	OPERATOR M. D. WILLIAMS	

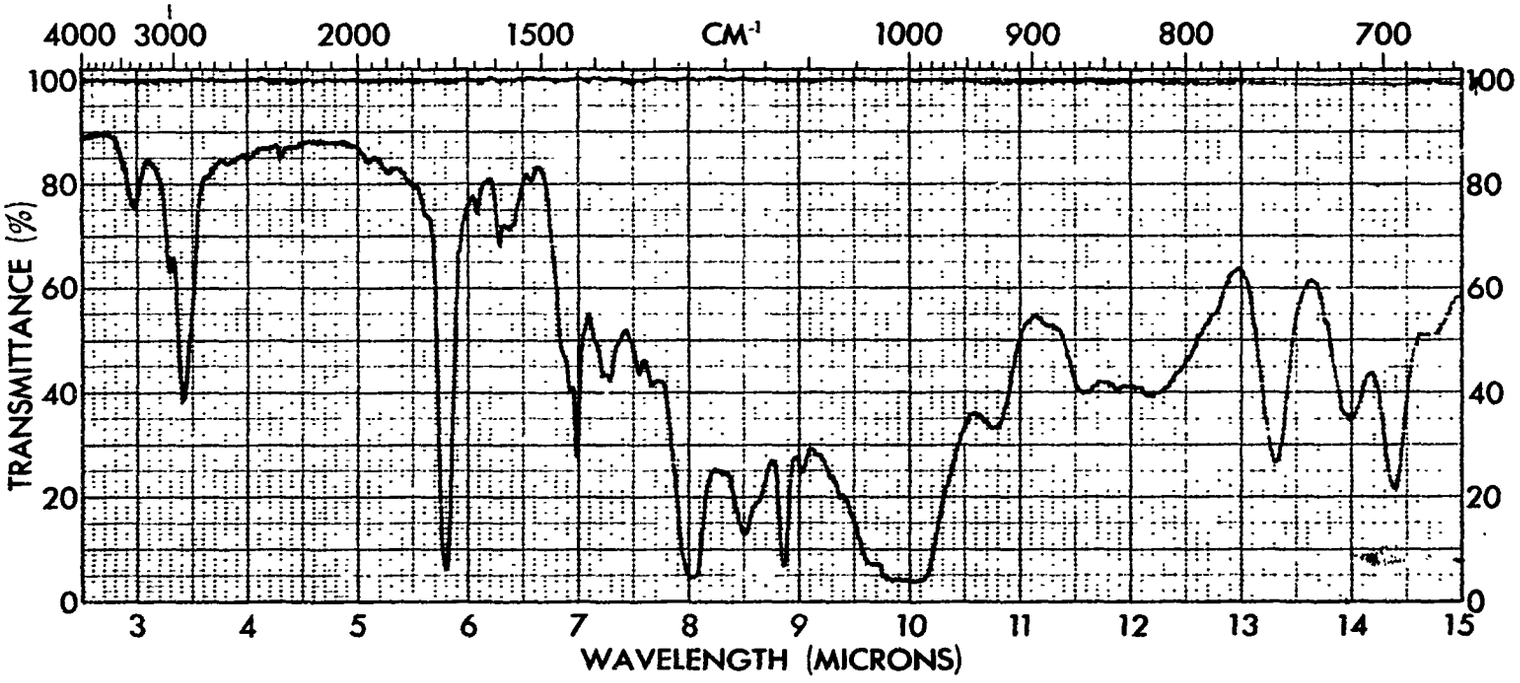


SPECTRUM NO. 40	ORIGIN	LEGEND	REMARKS
SAMPLE EASTMAN KODAK		1 OPTICAL ADHESIVE STUDY	
100-B	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0015"	OPERATOR M. D. WILLIAMS	

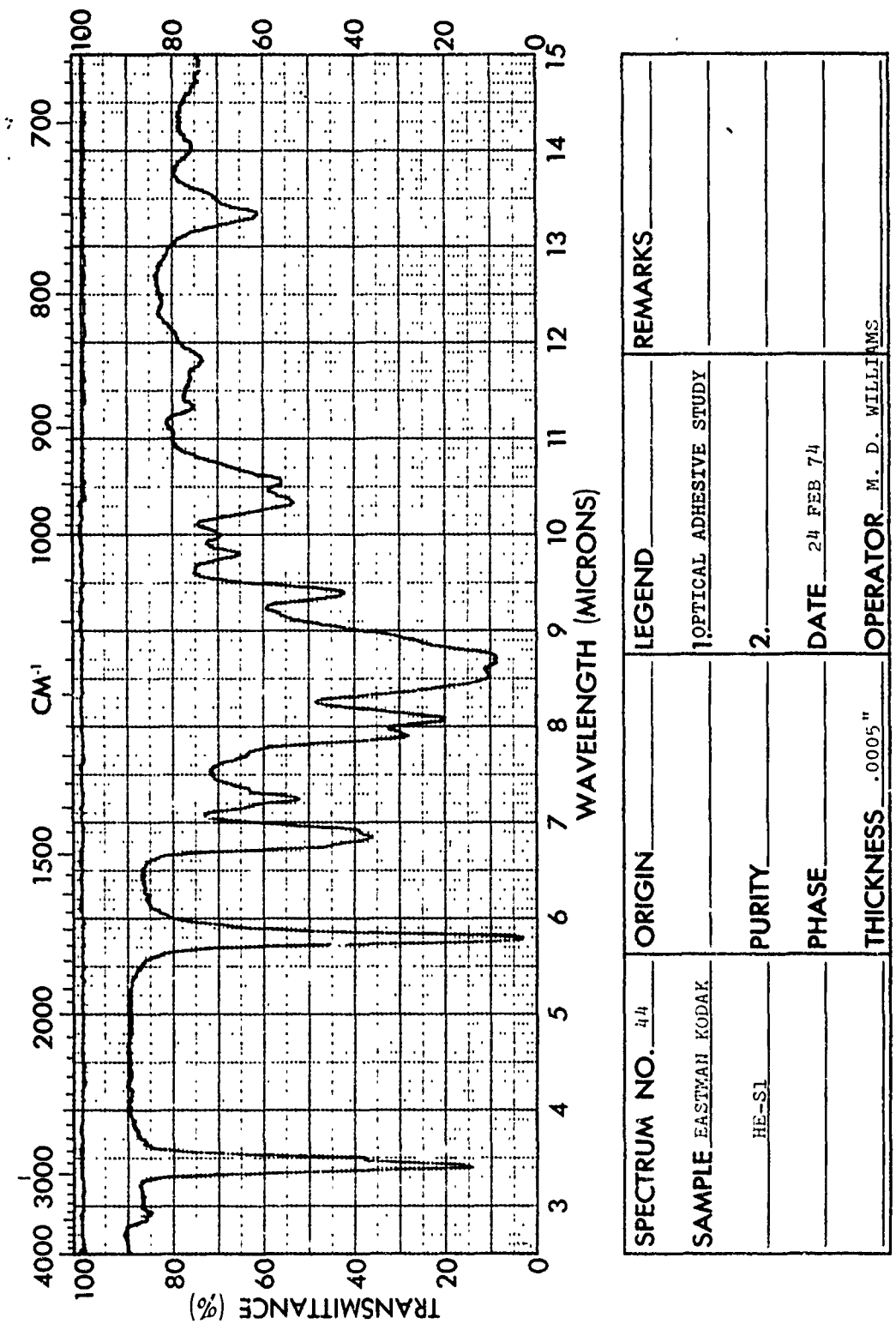

TRANSMITTANCE (%)
CM-1
WAVELENGTH (MICRONS)
SPECTRUM NO. 41
SAMPLE EASTMAN KODAK
100-X
ORIGIN
PURITY
PHASE
THICKNESS .001"
LEGEND
1. OPTICAL ADHESIVE STUDY
2.
DATE 24 FEB 74
OPERATOR M. D. WILLIAMS
REMARKS

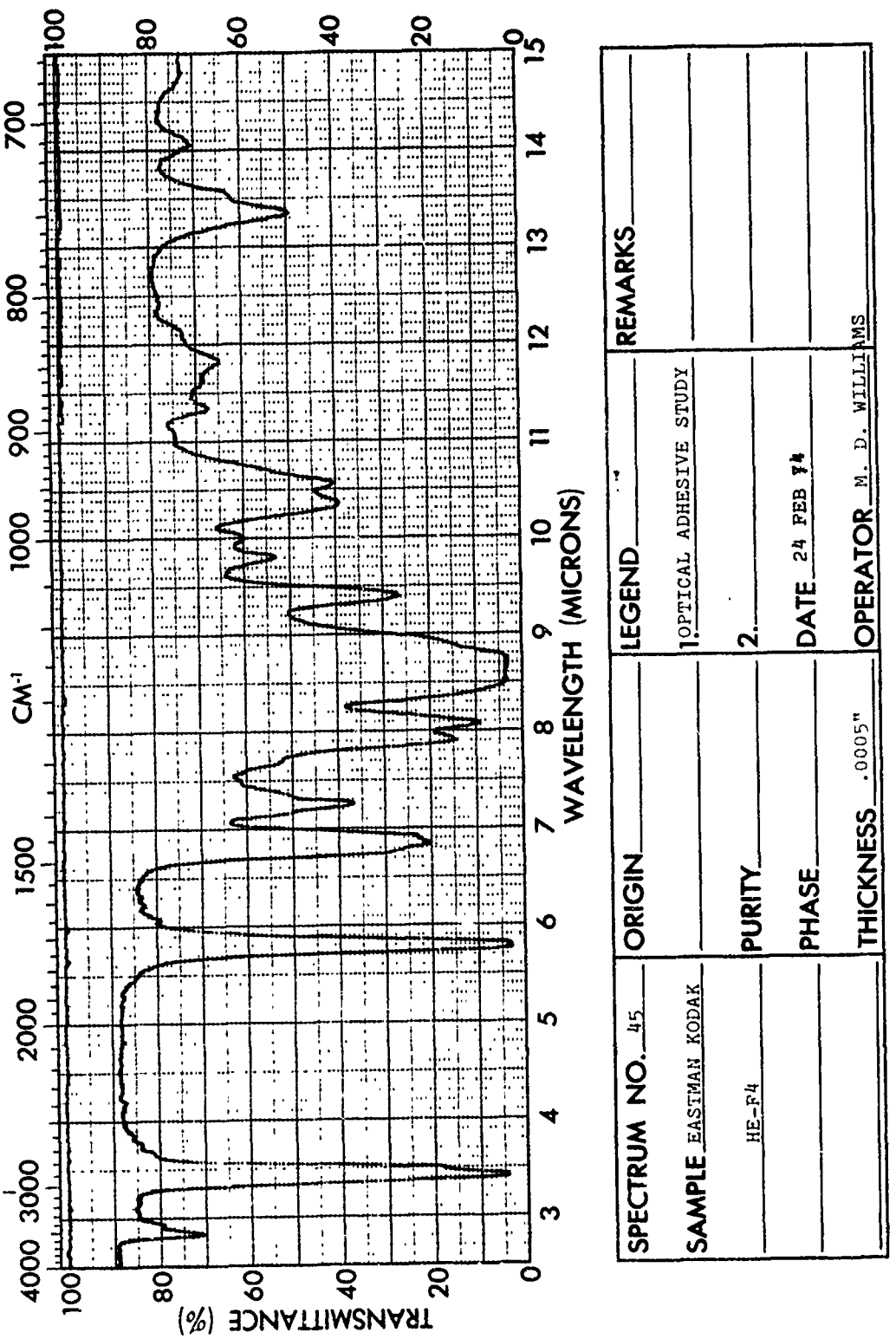


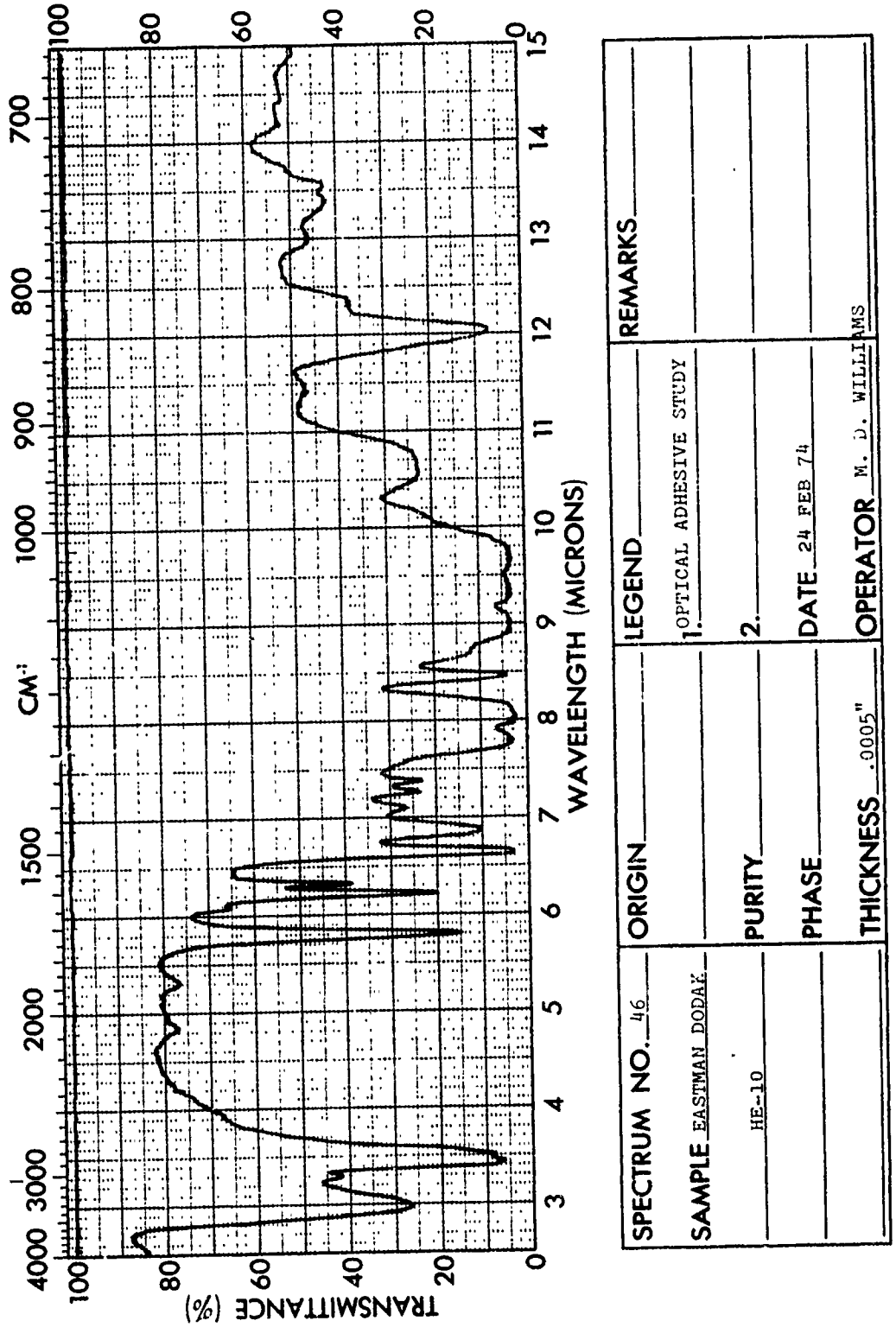
SPECTRUM NO. 42	ORIGIN	LEGEND	REMARKS
SAMPLE EASTMAN KODAK		1. OPTICAL ADHESIVE STUDY	
HE-2	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0005"	OPERATOR M. D. WILLIAMS	

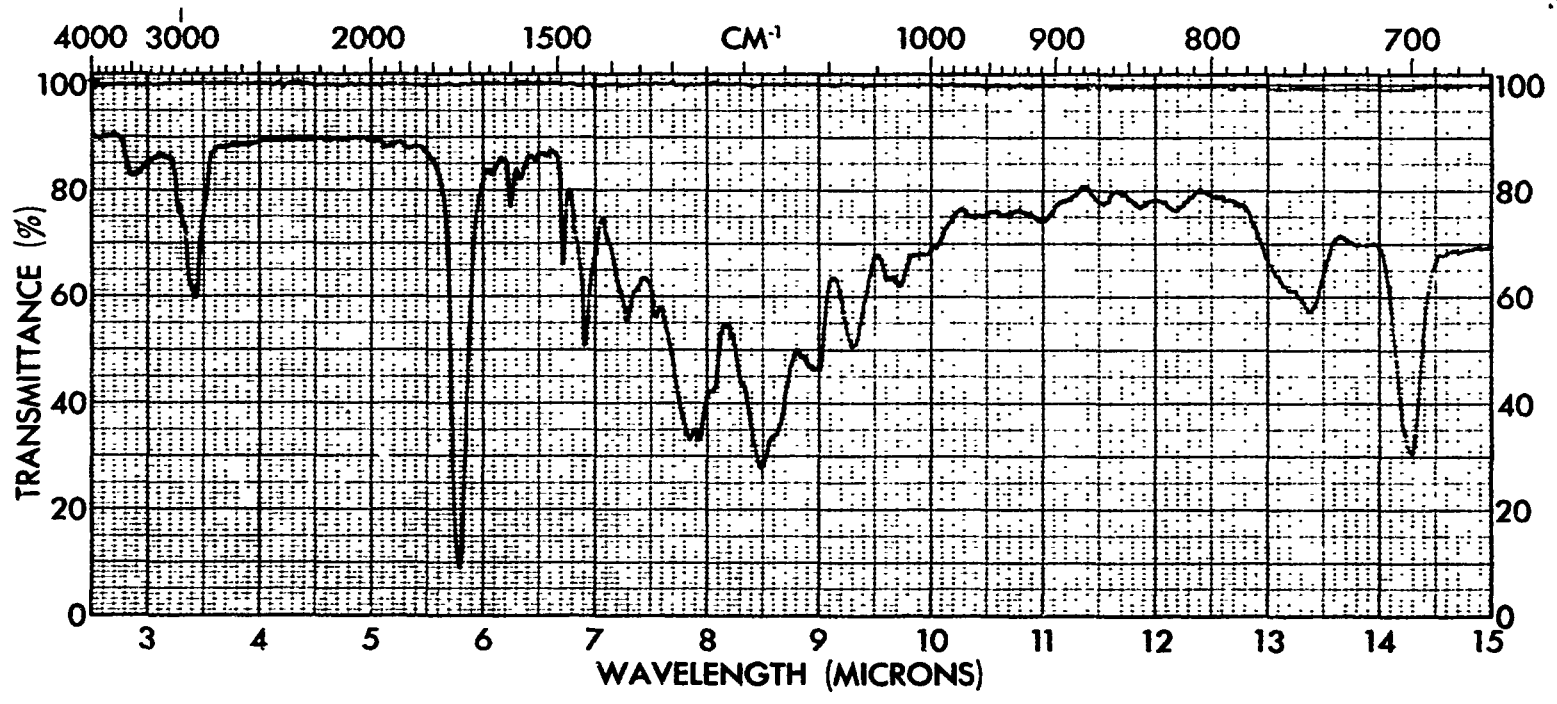


SPECTRUM NO. 43	ORIGIN	LEGEND	REMARKS
SAMPLE EASTMAN KODAK		1. OPTICAL ADHESIVE STUDY	
HE-63	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0005"	OPERATOR M. D. WILLIAMS	

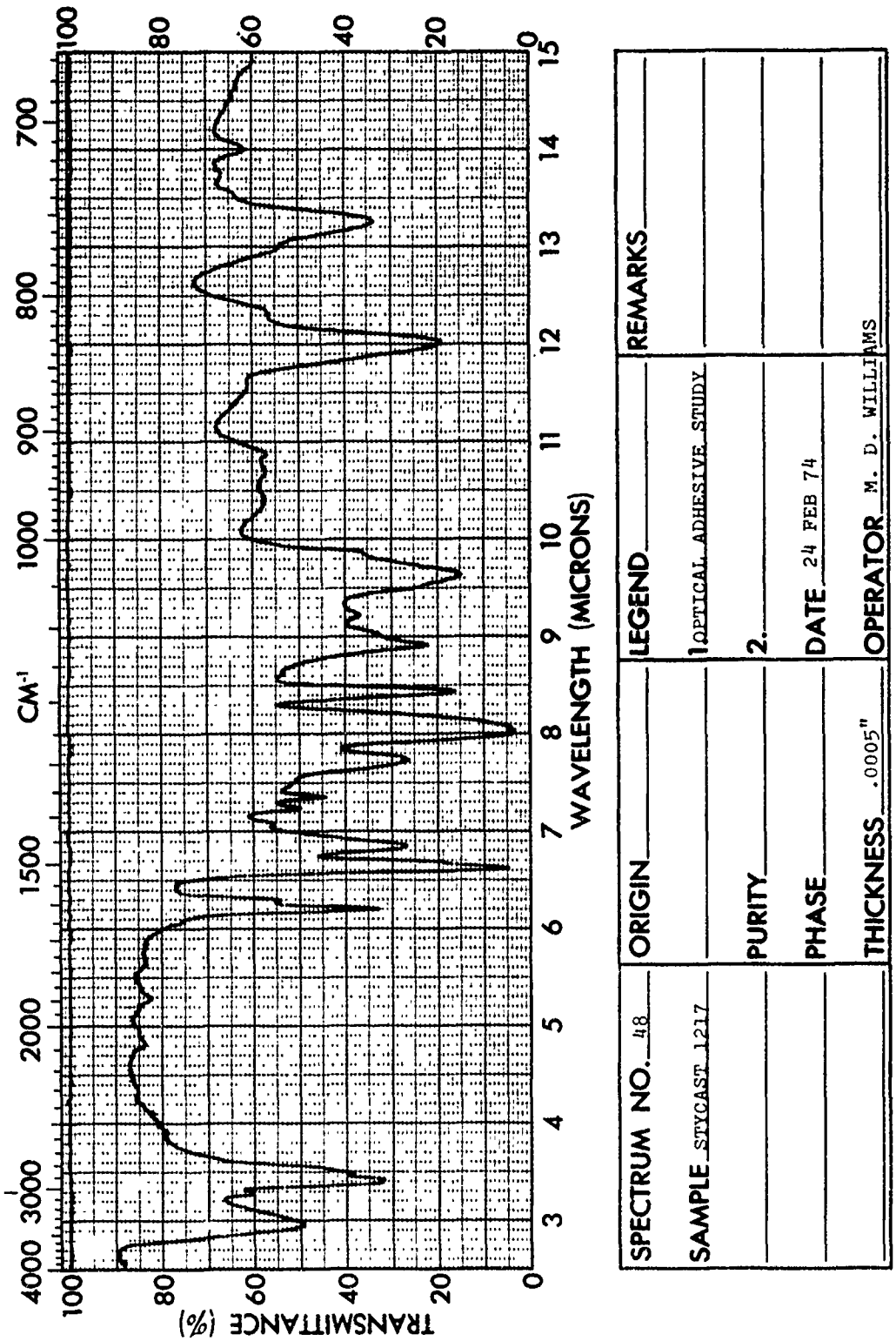

TRANSMITTANCE (%)
CM-1
WAVELENGTH (MICRONS)
SPECTRUM NO. 44
SAMPLE EASTMAN KODAK
HE-S1
ORIGIN
PURITY
PHASE
THICKNESS .0005"
LEGEND
1. OPTICAL ADHESIVE STUDY
2.
DATE 24 FEB 74
OPERATOR M. D. WILLIAMS
REMARKS

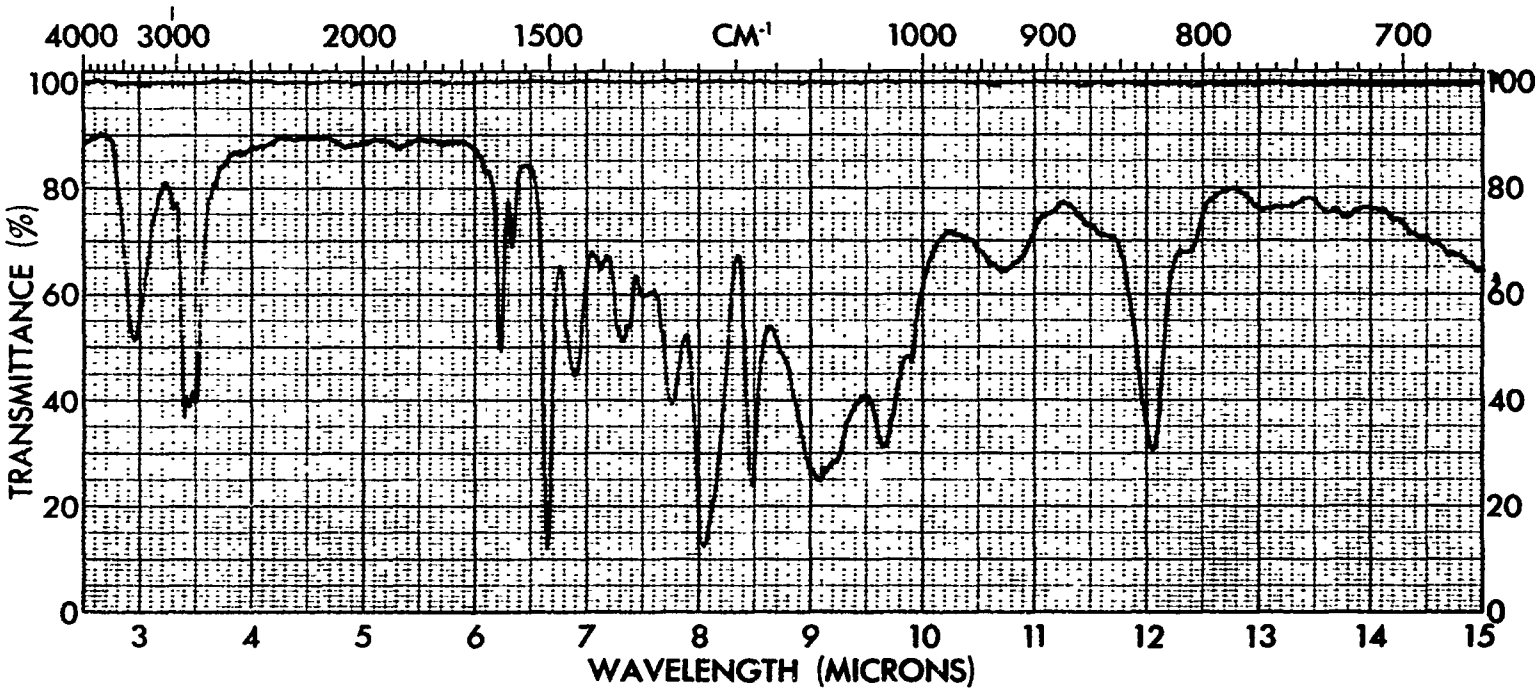

TRANSMITTANCE (%)
CM-1
WAVELENGTH (MICRONS)
SPECTRUM NO. 45
SAMPLE EASTMAN KODAK
HE-F4
ORIGIN
PURITY
PHASE
THICKNESS .0005"
LEGEND
1. OPTICAL ADHESIVE STUDY
2.
DATE 24 FEB 74
OPERATOR M. D. WILLIAMS
REMARKS


TRANSMITTANCE (%)
CM⁻¹
WAVELENGTH (MICRONS)
SPECTRUM NO. 46
SAMPLE EASTMAN DODAK HE-10
ORIGIN
PURITY
PHASE
THICKNESS .0005"
LEGEND
1. OPTICAL ADHESIVE STUDY
2.
DATE 24 FEB 74
OPERATOR M. D. WILLIAMS
REMARKS

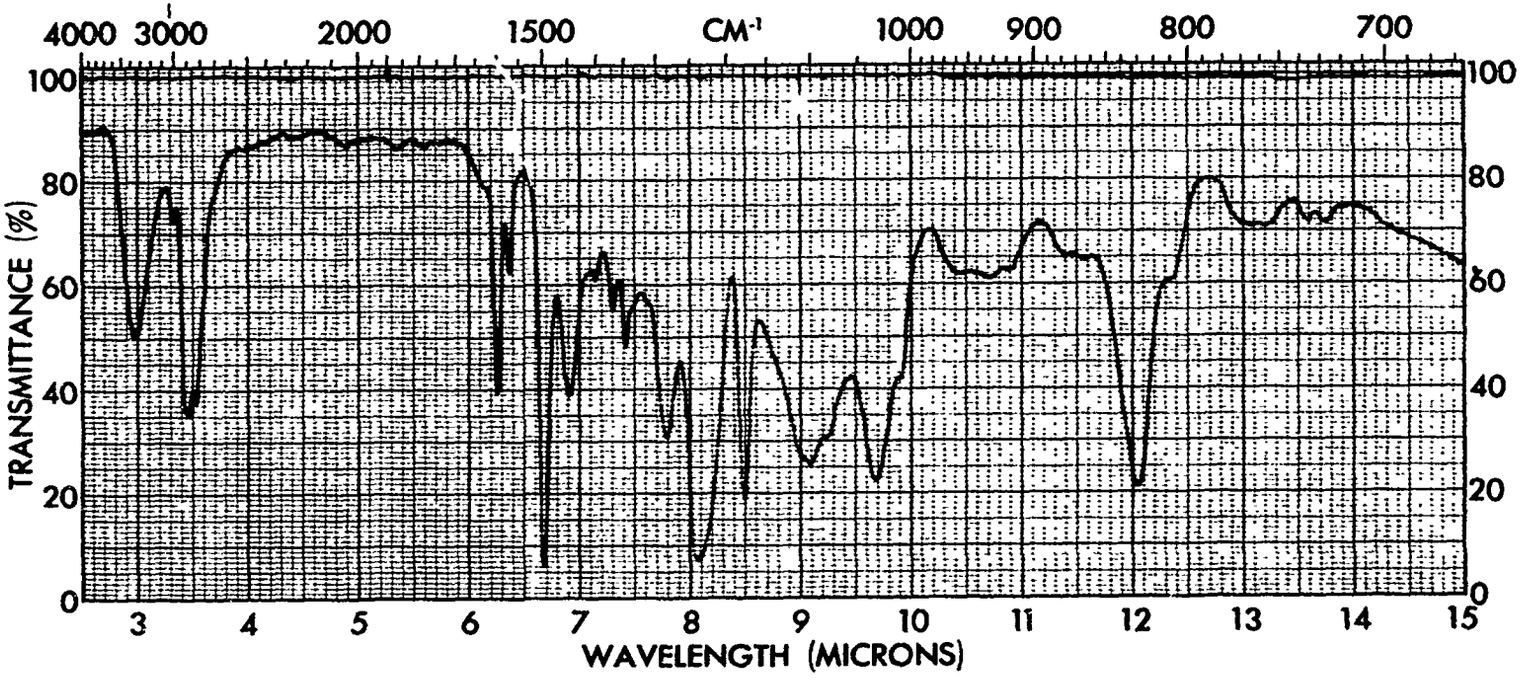


SPECTRUM NO. 47	ORIGIN	LEGEND	REMARKS
SAMPLE EASTMAN KODAK		1. OPTICAL ADHESIVE STUDY	
HE-79	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0005"	OPERATOR M. D. WILLIAMS	

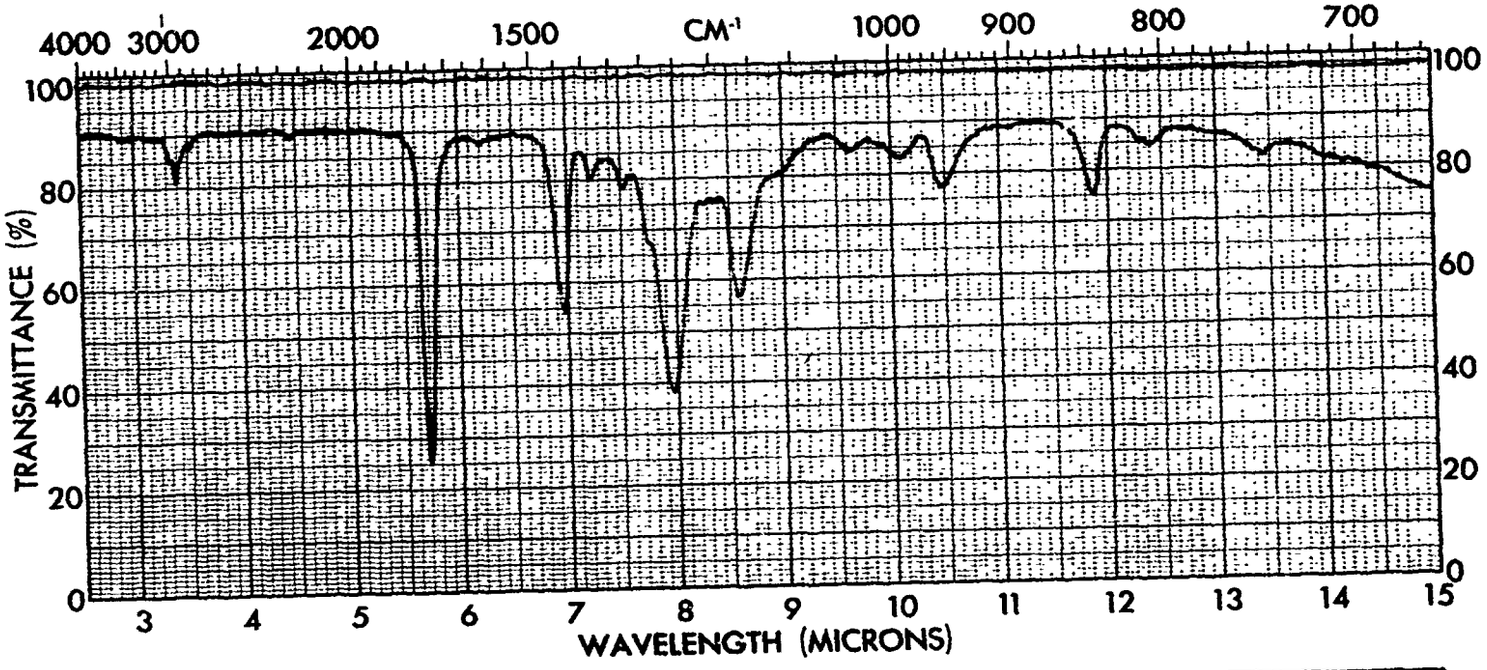

TRANSMITTANCE (%)
100
80
60
40
20
0
4000 3000 2000 1500 1000 900 800 700
CM-1
3 4 5 6 7 8 9 10 11 12 13 14 15
WAVELENGTH (MICRONS)
SPECTRUM NO. 48
SAMPLE STYCAST 1217
ORIGIN
PURITY
PHASE
THICKNESS .0005"
LEGEND
1 OPTICAL ADHESIVE STUDY
2.
DATE 24 FEB 74
OPERATOR M. D. WILLIAMS
REMARKS



SPECTRUM NO. 49	ORIGIN	LEGEND	REMARKS
SAMPLE STYCAST 1264		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0004"	OPERATOR M. D. WILLIAMS	

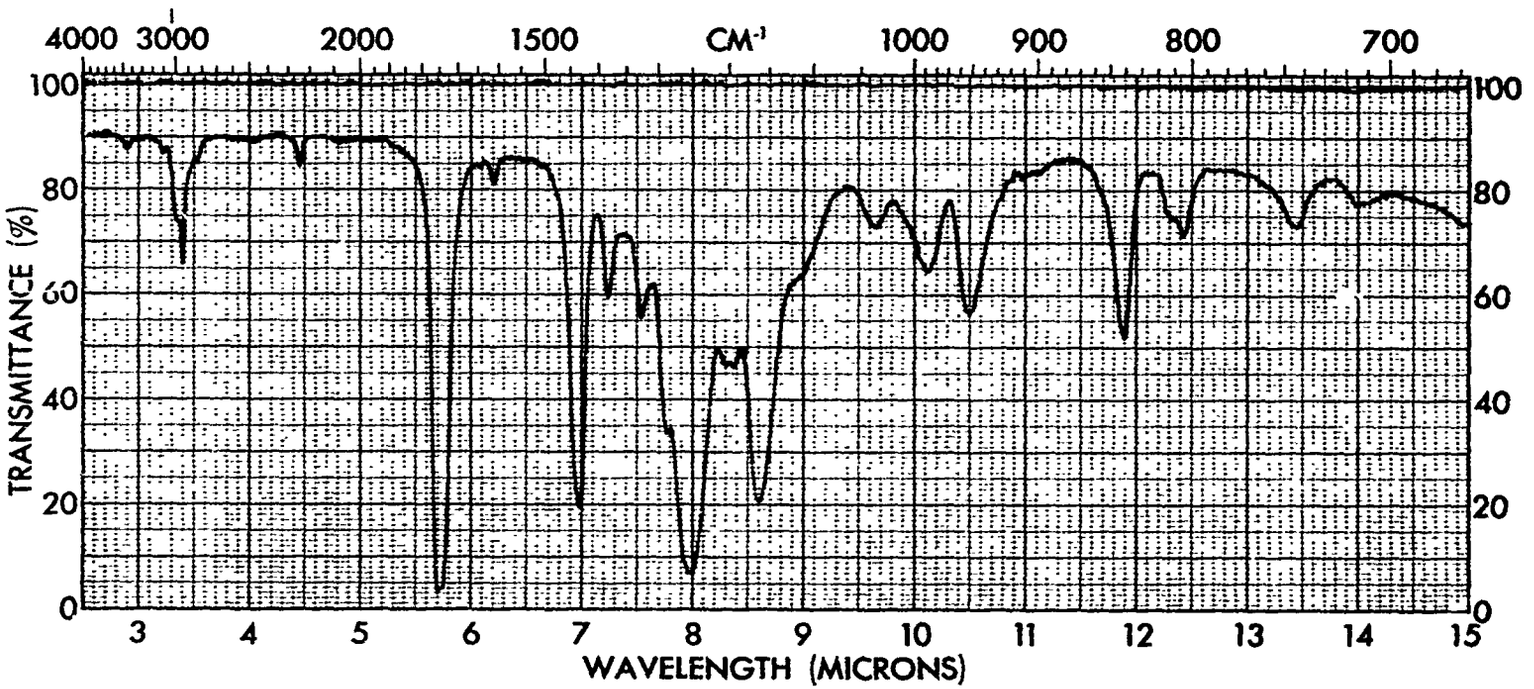


SPECTRUM NO. 50	ORIGIN	LEGEND	REMARKS
SAMPLE STYCAST 1266		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0005"	OPERATOR M. D. WILLIAMS	

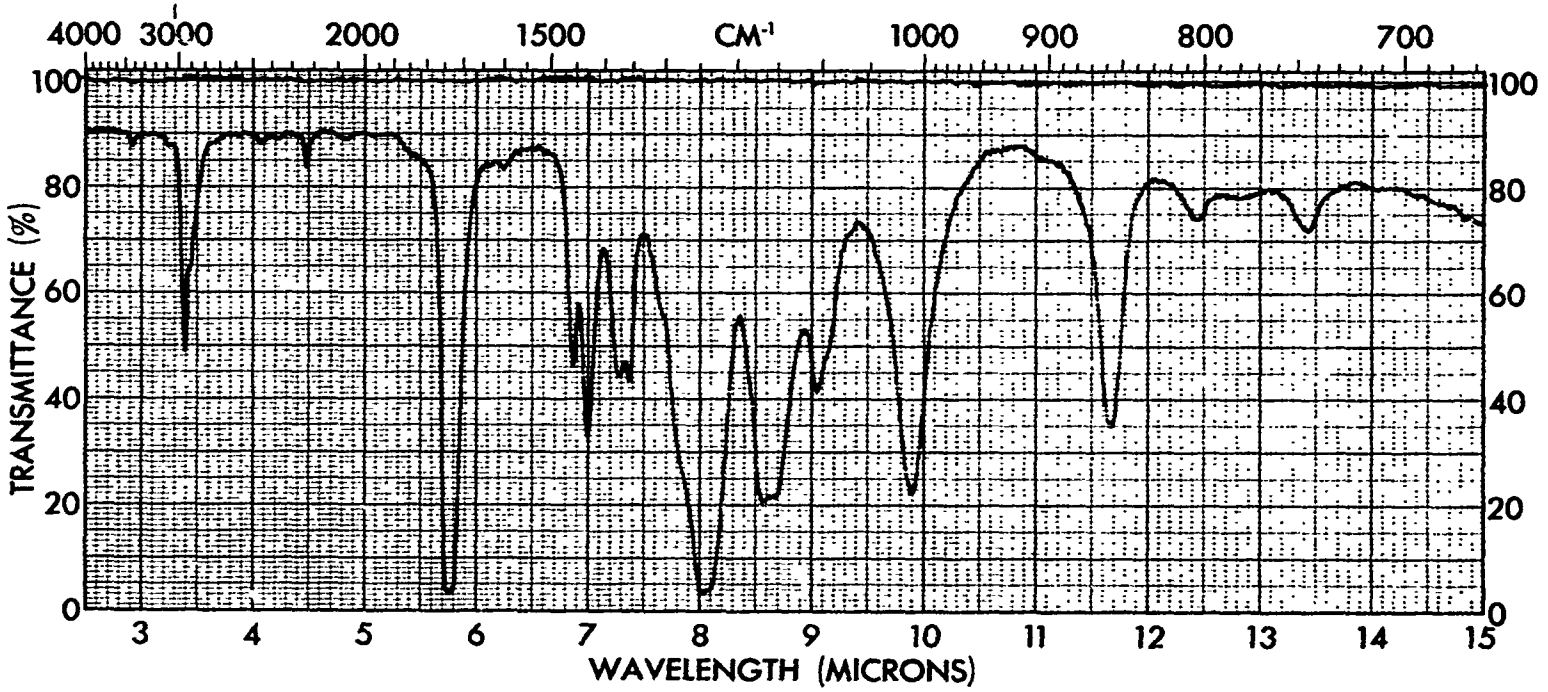


SPECTRUM NO. 51	ORIGIN	LEGEND	REMARKS
SAMPLE ARON ALPHA #101		1 OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0001"	OPERATOR M. D. WILLIAMS	

NWC TP 5583



SPECTRUM NO. 52	ORIGIN	LEGEND	REMARKS
SAMPLE ARON ALPHA #102		1. OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0002"	OPERATOR M. D. WILLIAMS	



SPECTRUM NO. 53	ORIGIN	LEGEND	REMARKS
SAMPLE ARON ALPHA #202		1 OPTICAL ADHESIVE STUDY	
	PURITY	2.	
	PHASE	DATE 24 FEB 74	
	THICKNESS .0002"	OPERATOR M. D. WILLIAMS	

Appendix E
List of Manufacturers

LIST OF MANUFACTURERS

Manufacturer	Product
Bausch & Lomb Optical Co. West Coast Representative 9117 South Main Street Los Angeles, Calif.	Canadian Balsam
Eastman Chemical Products, Inc. Kingsport, Tenn.	Eastman 910
Eastman Kodak Optical Division 343 State Street Rochester, N. Y. 14650	Eastman Kodak HE-100B, HE-2, HE-63, HE-S-1, HE-F-4, HE-10, HE-79
Emerson & Cuming, Inc. 604 West 182nd Street Gardena, Calif. 90247	Stycast 35D, 1217, 1264, 1266, 1269-A
Engineering Product Division Dow-Corning Corporation Midland, Mich. 4864.	Dow-Corning 3118, Silastic 140 (RTV)
Epoxy Technology, Inc. 65 Grove Street Watertown, Mass. 02172	Epo-Tek 301, 360, 360T, 360ST, 305, 201, 310
General Electric Silicone Products Dept. Waterford, N. Y.	RTV 108
Hysol Corporation Olean, N. Y.	Hysol A-4309 and Hardener H2-3404
Loctite Corporation Newington, Conn. 06111	Loctite 307 Adhesive, Loctite Minute Bond 312, Loctite IS-150, IS,-12, IS-03, IS-06, IS-04E
Minnesota Mining & Manufacturing 2501 Hudson Road St. Paul, Minn.	EC-1648 B/A
Naval Weapons Center Optics Section, Code 4082 China Lake, Calif. 93555	Cellulose Caprate
Opticon Chemical 1366 Coil Avenue Wilmington, Calif. 90744	Opticon FMP-13, UV-57, UVF-171, SFA-23
Shell Chemical Company Polymers Division One Shell Plaza Houston, Texas 77002	Epon 828 and Curing Agent V-25

LIST OF MANUFACTURERS (Contd.)

Manufacturer	Product
Summers Laboratories, Inc. Optical Division Fort Washington, Penn.	Lens Bond M-62
Tescom Corporation Instrument Division 2600 Niagara Lane Minneapolis, Minn. 55441	Zipbond Contact Cement
Toagosei Chemical Industry Co., Ltd. (Manufacturer) Tokyo, Japan B. Jadow & Sons, Inc. New York, N. Y. (Distributor)	Aron Alpha 101, 102, 201, 202
Vishay Intertechnology, Inc. Micro-Measurements Division Box 306, 38905 Chase Road Romulus, Mich. 48174	M-Bond 610

EQUIPMENT USED

1. Perkin-Elmer 137 Sodium Chloride Spectrophotometer
   Range: 2.4 to 15 micrometers

2. Perkin-Elmer 202 Spectrophotometer
   Range: visible to ultraviolet

3. Delta Design, Inc., Temperature Test Chamber
   (absolute control oven) Model 1060

INITIAL DISTRIBUTION

2 Naval Air Systems Command (AIR-50174)
2 Naval Ordnance Systems Command (ORD-0632)
12 Defense Documentation Center
1 John Ransom Laboratories, Los Angeles, Calif.
1 Optical Coating Laboratories, Inc., Santa Rosa, Calif.
1 Philco-Ford Corporation, Newport Beach, Calif.
1 Raytheon Company, Bedford, Mass.
1 Raytheon Company, Lowell, Mass.
1 Texas Instruments, Dallas, Tex.
1 Texas Instruments, Ridgecrest, Calif.