

AD-753 491

METHOD OF IMPROVING THE LUBRICATING
PROPERTIES OF MINERAL OIL

V. P. Babichev, et al

Foreign Technology Division
Wright-Patterson Air Force Base, Ohio

17 November 1972

DISTRIBUTED BY:

NTIS

National Technical Information Service
U. S. DEPARTMENT OF COMMERCE
5285 Port Royal Road, Springfield Va. 22151

AD 753491

FTD-HT-23-1220-72

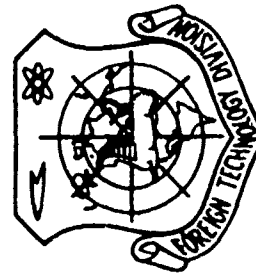
FOREIGN TECHNOLOGY DIVISION



METHOD OF IMPROVING THE LUBRICATING PROPERTIES OF MINERAL OIL

by

V. P. Babichev, P. Ye. Nechayev et al.



Approved for public release;
distribution unlimited.

Reproduced by
NATIONAL TECHNICAL
INFORMATION SERVICE
U S Department of Commerce
Springfield, VA 22151

6

UNCLASSIFIED
Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) Foreign Technology Division Air Force Systems Command U. S. Air Force		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	
		2b. GROUP	
3. REPORT TITLE METHOD OF IMPROVING THE LUBRICATING PROPERTIES OF MINERAL OIL			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Translation			
5. AUTHOR(S) (First name, middle initial, last name) Babichev, V.P.; Nechayev, P.Ye.			
6. REPORT DATE 20 May 1968		7a. TOTAL NO. OF PAGES 6	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO.		8b. ORIGINATOR'S REPORT NUMBER(S) FTD-HT-23-1220-72	
b. PROJECT NO.			
c.		9a. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Foreign Technology Division Wright-Patterson AFB, Ohio	
13. ABSTRACT The method of improving the lubricating properties of mineral oil for internal combustion engines by the simultaneous addition into the lubrication system of iodine and a solid inhibitor in the form of an alloy (for example, sodium with tin), placing them in filter-stabilizer cassettes, is distinguished by the fact that for the purpose of improving the formation of protective film, iodine is added in crystalline form and dissolved directly in the oil which circulates in the lubrication system of the engine.			

-1-

DD FORM 1473
1 NOV 65

UNCLASSIFIED

Security Classification

UNCLASSIFIED
Security Classification

14.

KEY WORDS

Mineral Oil
Iodine
Lubrication System

LINK A

LINK B

LINK C

ROLE

WT

ROLE

WT

ROLE

WT

ec
- 11 -

UNCLASSIFIED
Security Classification

FTD-HT- 23-1220-72

EDITED TRANSLATION

FTD-HT-23-1220-72

METHOD OF IMPROVING THE LUBRICATING PROPERTIES
OF MINERAL OIL

By: V. P. Babichev, P. Ye. Nechayev et al.

English pages: 2

Source: USSR Patent No. 266501 (Appl. No.
1241267/24-6, May 20 1968), 1970,
1 page.

Requester: ASD

Translated by: SSgt René E. Courville

Approved for public release;
distribution unlimited.

THIS TRANSLATION IS A RENDITION OF THE ORIGINAL FOREIGN TEXT WITHOUT ANY ANALYTICAL OR EDITORIAL COMMENT. STATEMENTS OR THEORIES ADVOCATED OR IMPLIED ARE THOSE OF THE SOURCE AND DO NOT NECESSARILY REFLECT THE POSITION OR OPINION OF THE FOREIGN TECHNOLOGY DIVISION.

PREPARED BY:

TRANSLATION DIVISION
FOREIGN TECHNOLOGY DIVISION
WP-AFB, OHIO.

FTD-HT- 23-1220-72

Date 17 Nov 19 72

**METHOD OF IMPROVING THE LUBRICATING
PROPERTIES OF MINERAL OIL**

V. P. Babichev, P. Ye. Nechayev,
A. V. Antsevich, B. P. Grigor'yev,
P. K. Yegorov, and A. P. Pimoshenko

APPLICANT: Central Planning,
Design and Technological Office
of the Main Administration of the
Fishing Industry for the Northern
Basin "Sevryba"

The method is intended for use principally in internal combustion engines.

Methods exist for improving the lubricating properties of mineral oil by the simultaneous addition into the lubrication system of an internal combustion engine of iodine and a solid inhibitor (for example, a sodium-tin alloy) and by placement of the components in the cassettes of the filter-stabilizer. Here, the iodine is first mixed in an organic solvent, for instance in benzene, and hygroscopic material is saturated with this solution.

Drawbacks of existing methods include their flammability and the great consumption of iodine and the solvent. Moreover, for accomplishment it requires a ventilated room in which to dissolve the iodine.

The purpose of the invention is the formation of a protective organometallic film on the working surfaces of parts.

For this, iodine is dissolved directly into the lubrication system of the engine and iodine together with an inhibitor is added to the lubricant.

The proposed method differs from the existing ones by the fact that iodine is added in crystalline form and is dissolved directly in the oil circulating in the engine lubrication system. In addition to this the iodine crystals are charged into a little gauze bag and then it is sealed up in a mesh package and placed into the filter-stabilizer cassette.

Tests show that crystalline iodine added in the amount of 0.03-0.05% of the weight of the oil completely dissolves in it at a temperature of 30-60°C, uniformly disperses throughout the entire lubrication system, and together with the inhibitor forms a protective organometallic film in the form of a bright coating.

A comparison of the sizes of the parts before the beginning of the experiment and over 2500 h of engine operation showed that the clearances in the bearings did not vary.

Object of the Invention

The method of improving the lubricating properties of mineral oil for internal combustion engines by the simultaneous addition into the lubrication system of iodine and a solid inhibitor in the form of an alloy (for example, sodium with tin), placing them in filter-stabilizer cassettes, *is distinguished* by the fact that for the purpose of improving the formation of a protective film, iodine is added in crystalline form and dissolved directly in the oil which circulates in the lubrication system of the engine.