

FILM STUDY GROUP

SUBJECT INDEX AND REPORT

T.O.M. REEL NO. 104

Prepared by

CALIFORNIA RESEARCH CORPORATION

CALIFORNIA RESEARCH CORPORATION

RICHMOND, CALIFORNIA

INDEX OF TECHNICAL OIL MISSION MICROFILM

REEL NO. 104

(Prepared by California
Research Corporation)

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CALIFORNIA RESEARCH CORPORATION

RICHMOND, CALIFORNIA

ABSTRACT OF TECHNICAL OIL MISSION

MICROFILM

REEL NO. 104

Prepared by California Research Corporation

May 1, 1941 LUBRICANT TESTS OF LUBRICANTS
IN THE BMW SINGLE CYLINDER TEST ENGINE F. 26974-26986

A lubricating oil called "Rotring" (Rotring) with an inhibitor additive R of 0.02% has been tested in ring sticking tests. The result is described as not having improved the quality of the original oil. The experiments and engine wear are discussed and the report is illustrated by some charts and pictures.

Aug. 14, 1941 OIL FOAM F. 26987-26988

This is a brief report on oil foam formed during operation of a pump by irregular pressure and contains a suggestion how to remedy the trouble.

Feb. 21, 1941 LUBRICATING OIL DILUTION F. 26989

Such dilution occurred by gasoline seeping into the lubricating oil during operation of the engine. A different construction of the injection nozzle is mentioned as an improvement decreasing the trouble by 50%.

Oct. 15, 1940 LUBRICATING OIL DILUTION F. 26990-26996

This brief report is concerned with engine tests to find out the reason for the seeping of gasoline into the lubricating oil system of some aircraft engines. The experiments are described and the injection nozzle construction is blamed, particularly if the engine runs at half load.

Oct. 10, 1940 LUBRICATING OIL DILUTION F. 26997-26999

This is another report on this problem. The reasons are discussed and the possibility is mentioned that the gasoline might be responsible for imperfect performance of the injection nozzles.

Nov./Dec. 1939 SEVERAL REPORTS ON
Jan. 1940 UNIDENTIFIED LUBRICATING OILS F. 27000-27066

These reports refer to test-engine experiments which are described. The results are charted and discussed and the engine wear is illustrated by some pictures.

Sept. 9, 1939 LUBRICATING TESTS WITH ITALIAN CASTOR OIL F. 27067-27087

The test engine experiments with this lubricant are described, the results are charted and discussed and the engine wear is illustrated by pictures.

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FURTHER REPORTS ON
UNIDENTIFIED LUBRICATING OILS
AND ITALIAN CASTOR OILS

F. 27088-27123

Aug./Sept. 1939

These reports are similar to former reports.

TECHNICAL SPECIFICATIONS
FOR AVIATION GASOLINE

F. 27124-27128

Sept. 15, 1937

These are specifications and standards for a German aviation gasoline.

TEST WITH AN UNIDENTIFIED
"UNITY" (EINHEITS) LUBRICATING OIL

F. 27129-27132

Nov. 22, 1939

This is a report on engine wear tests with this lubricating oil and a discussion of some properties of the oil.

REPORT ON KNOCK-TESTS
WITH TEST ENGINES IN APRIL 1941

F. 27133-27140

May 29, 1941

This report describes knock tests in test engines concerning 4 automobile and 4 aviation gasolines. The motor method and the research method were employed and the results compared and commented on. They are said to be more exact than in former test experiments.

LUBRICATION OF
INTERNAL COMBUSTION ENGINES

F. 27141-27145

July 10, 1944

Since it is still a problem to find good lubricating oils that can stand low temperatures without solidifying or crystallizing a new method of solving the lubricating problem is described, patent for which has been applied for: The lubricating is done by two lubricants which do not mix at ordinary temperature, one a paraffin base regular lubricating oil and the other an ester of a monocarboxylic acid of the aliphatic series or some other suitable ester with a specific gravity greater than that of the first oil and with a solidifying point low enough to keep it liquid at the lowest temperature the engine might have to start in. Since these two layers of lubricants do not mix at ordinary temperatures the ester layer would collect in the bottom of the crankcase. Starting up the engine the circulation of the ester would liquefy the solidified lubricating oil. Moreover, all the slush would deposit in the lower part of the crankcase so that it might often be sufficient to change just the lower layer and thus economize on oil. Some experimental driving with such a mixture is described.

TECHNICAL SPECIFICATIONS AND
TESTS FOR SOLID FUELS
FOR GENERATORS SUPPLYING FUEL
FOR INTERNAL COMBUSTION ENGINES

Sept. 1944

F. 27147-27205

This report specifies how to take samples and how to test the samples and which test standards have to be met. The tests are quite comprehensive. Determination of heating value, contents of hydrogen, carbon, sulfur, ashes, tar, etc. are required. Some sketches of test apparatus are included.

TESTS OF LUBRICATING OILS BY
THE ALMEN-WIELAND MACHINE

Aug. 20, 1943

F. 26786-26799

The report is partly illegible. The Almen-Wieland machine is not described, but only particular details of the experiments. The materials used are not identified except by numbers. Some pictures and charts accompany the report.

VALVE CORROSION CAUSED BY THE
USE OF LEADED AVIATION GASOLINE

Mar. 18, 1943

F. 26800-26807

These wear experiments are nearly identical with F. N. 26752-26757.

SPECIFICATIONS FOR LUBRICATING OIL
USED FOR FIRE-ARMS

This is only a brief summary.

F. 26809-26810

LUBRICATING OIL TEST IN THE
BMW SINGLE CYLINDER TEST ENGINE

Mar. 28, 1941

F. 26811-26826

This report concerns an unidentified lubricating oil. It describes the experiments and their results. Charts and some pictures are added.

EXPERIMENTS WITH LUBRICATING OIL
DILUTED WITH GASOLINE

May 21, 1941

F. 26827-26856

These experiments were made in order to check certain complaints about lubricating oil dilution. It seemed that the gasoline was driven into the ~~lubricating oil during operation of the high compression engine over the~~ piston rings. Charts illustrate the experimental results.

DESCRIPTION OF SOME AMERICAN AND
ENGLISH CAPTURED AVIATION GASOLINES

June 17, 1943

F. 26858-26861

The characteristics of these gasolines are given and compared to German standards, which all of them satisfy.

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MILITARY INSTRUCTIONS CONCERNING THE
GASOLINES TO BE USED IN AIRCRAFT ENGINES F. 26862-268

A list of gasolines to be used for the various types of German aircraft engines is given and some additional instructions.

Sept. 1, 1944 BOUNDARY SURFACE
(SUPER-HYDRODYNAMIC) LUBRICATION F. 26870-26902

Investigation of the lubricating process, wear and other problems of boundary surface lubrication are the subject and purpose of a new experimental machine which is described and illustrated by sketches. It is a machine operating with 4 balls. The various problems of wear and lubrication, involving tensile strength of the metals, viscosity, atmospheric pressure, surface tension, friction coefficient, etc. are discussed theoretically and the method of the measurements and experiments are explained. Results are tabulated and discussed.

May 22, 1944 REPORT ON THE TEST OF AN UNIDENTIFIED
LUBRICATING OIL ADDITIVE IN
ENGINE TESTS AT GENSHAGEN F. 26905-26922

These are mainly wear tests in test engines. The results are discussed and tabulated and said to be satisfactory.

June 4, 1944 TESTS WITH LUBRICATING OILS F. 26923-26942

Unidentified lubricating oils have been subjected to tests in a Berlin Research laboratory with a special instrument called P.T.R. Machine which is briefly described. The results are tabulated and said to give no clear concept of the behavior of the lubricating oil in engine lubricating practice. Several other test instruments for lubrication investigation are mentioned and described. They are said to be unfit for the experiments.

TECHNICAL SPECIFICATIONS FOR
DIESEL FUELS TO BE USED FOR THE NAVY F. 26943-26947

This is a brief summary of data.

Feb. 13, 1943 TEST REPORTS AT OPPAU ON LUBRICATING OILS F. 26949-26952

These tests on unidentified lubricating oils were made to investigate ~~claims regarding failures. Some technical details are discussed.~~

July 28, 1943 SULFUR CONTAINING ADDITIVES FOR AVIATION OILS F. 26953-26973

This report is a print contained also in Reel 103. F.N. 7474-7495. It discusses the great general difficulties in evaluating the lubricating effect (oiliness) of lubricants. ~~Two different lubricating oils have been tested by various methods. These are discussed and the comparative results listed in~~

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tables. It has been found that certain sulfur containing additives in lubricating oils increase their lubricating action (oiliness). One table exhibits some relation between sulfur content and lubricating properties listing various appropriate sulfur compounds as additives. Several charts containing auxiliary data are added to the report.

METHODS TO DETECT AND TO ELIMINATE
TETRAETHYL LEAD FROM GASOLINE

F. 26724-26739

These methods are briefly outlined. The outlines are handwritten and accompanied by some sheets with notes and formulas. Some typewritten reports refer to experiments with active carbon for removal of "lead" from gasoline. The results are generally called unsatisfactory.

INSTRUCTIONS

Mar. 16, 1943

HOW TO MIX ETHYLENE BROMIDE WITH B4

F. 26740-26741

These instructions ask for good stirring and suggest stirring equipment, since the heavy additive has a tendency to sink to the bottom of the tank and remain there.

REPORT ON EXPERIMENTS FOR REMOVING
"LEAD" FROM B4 GASOLINE

F. 26742-26743

This is a short summary of some experiments.

VALVE CORROSION CAUSED BY THE USE
OF LEADED AVIATION GASOLINES

Sept. 17, 1943

F. 26744-26745

Wear experiments are described and discussed. The corrosion decreases with higher engine temperatures.

MORE EXPERIMENTS FOR REMOVAL
OF "LEAD" FROM B4 GASOLINE

March/April, 1943

F. 26746-26751

These experiments are only briefly described and condemned as not suitable for practical use.

VALVE CORROSION CAUSED BY THE
USE OF LEADED AVIATION GASOLINES

March 18, 1943

F. 26752-26757

These experiments with aviation gas in automobile engines are described and briefly discussed.

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MORE EXPERIMENTS FOR REMOVAL OF
"LEAD" FROM B4 GASOLINE

F. 26758-26784

Various experiments are briefly reviewed. Distillation is said to be the best method because the lead compound decomposes gradually and accumulates in the residue. Attention is also given to absorption methods.

PHYSICAL DATA ON
IRON CARBONYL AND NICKEL CARBONYL

F. 26665-26682

This is a series of comparative data on these two materials, giving their physical characteristics such as mol. wt. and volume, surface tension, vapor pressures, specific gravities, melting points, etc.

THE EGERSDORF EQUIPMENT FOR
HEAVY OIL INTERNAL COMBUSTION ENGINES
(OTTO CYCLE AND DIESEL ENGINES)

F. 26687-26691

This is a report on a construction developed in Egersdorf. It is a nozzle-type and a pump said to be suitable for the use of heavy Diesel oils in Diesel and Otto engines. The report criticizes the construction in several respects and discusses theoretical questions. There is no illustration of the model and the report is said to be only a preliminary one because the model has not been tested in operation.

June, 1939

TECHNICAL SPECIFICATIONS
FOR AVIATION GASOLINES

F. 26692-26712

These form sheets contain the required specifications and characteristics for German aviation gasolines.

Dec. 1943

WEAR TESTS WITH LUBRICATING OILS
CONTAINING A CERTAIN ADDITIVE

F. 26713-26716

These wear tests were made to investigate the effect of the unspecified additive on the lubricating properties (oiliness) of the lubricating oil by comparing the wear in the engine after the tests. The engine wear is described and the data are tabulated.

COMPARATIVE AUTOMOBILE ROAD TESTS
WITH AVIATION GASOLINE B4 AND B4 + 0.055
ETHYLENE DIBROMIDE

F. 26718-26720

These tests prove that for about 100 hours the aviation fuels can be used in the cars. Longer use causes engine trouble on account of corrosion by the high "lead" content. The additive had no favorable effect on the gasoline mileage or engine performance.

VARIOUS TABLES WITH COMPARATIVE DATA
ON GASOLINES AND GASOLINE MIXTURES

F. 27208-27313

These are tables with no connecting text. They contain data like octane number, viscosity, specific gravity, etc. of many gasolines which usually are not identified except by a key number.

Feb. 1942

COKING AND HYDROGENATION
IN THE I. G. DYE TRUST FACTORY

F. 27314-27324

These are file notes and brief reports on manufacturing details and general production. Defects of some ovens and materials, oven capacity, improvements, new projects, etc. are outlined.

1938/1939

FILE NOTES OF VARIOUS CHARACTER

F. 27325-27364

Samples and minor production items of a routine nature are given, also occasional conference notes, estimates of projects, suggestions, etc.

1937

FILE NOTES OF VARIOUS CHARACTER

F. 27365-27367

Notes on experimental production with another kind of coal, profitability, tables with comparative figures of production, etc.

Oct. 1937

SOLUBILITY OF NITROGEN AND HYDROGEN GAS
AND OTHER GASES IN OIL AT VARIOUS PRESSURES

F. 27368-27372

Experiments and comparative results are discussed. For example, at 600 atm. the solubility of the hydrogen in coal oil is 8% less than its solubility at 300 atm. Some charts illustrate the report, concerning also solubility of nitrogen, methane and mixtures of gases.

Nov. 17, 1937

REPORT ON A NEW HYDROGENATION PLANT
PROJECT NEAR STETTIN

F. 27373-27374

This is a brief financial outline of a project involving the Shell owned Rhenania Oessag and the Standard/D.A.P. Deutsche Gasoline A.G. and I. G. Dye Trust represented by their banks.

Nov. 1941

VARIOUS FILE NOTES REGARDING
PRODUCTION IN FACTORIES
BELONGING TO THE I.G. DYE/TRUST

F. 17373-27393

These notes concern the factories of Ludwigshafen and Politz and contain output figures, suggestions for improvements, results of experimental production changes, etc.

Oct. 11, 1939 REPORT ON THE FISCHER-TROPSCH SYNTHESIS F. 27394-27399

This is a brief report on the results obtained by use of the new cobalt catalyst containing MnO, THO₂ and silica gel in the factory at Weseling (Ruhrchemie A.G.).

July, 1939 REPORT ON NEW OIL DISCOVERY AT REITBROOK F. 27400-27401

The analysis of the new oil discovered at Reitbrook near Hamburg is given. It was not yet in production and was expected to be suitable for gaso- line production. A plan is discussed for operation and financing the new enterprise.

SUBJECTS OF ADDRESS GIVEN DURING A
CONVENTION FOR THE EXCHANGE OF
June, 1939 PRACTICAL FACTORY EXPERIENCES F. 27402-27411

These subjects are listed and have been treated by members of a con- vention. The reports on the subjects are not adcd.

June/July 1944 ON "SMOKE CANDLES" PRODUCTION F. 27412-27427

The composition of the candle material is discussed. The candle is devised for the production of artificial fogs or "smoke screens." The results and ways of improvements are reviewed. Experiments with improved candles of different composition are described. A handwritten report evidently treating the same subject is mostly illegible. Various smoke screen production exper- iments are discussed.

Feb./June/July, 1944 ANALYSIS OF VARIOUS TARS FROM
DIFFERENT PRODUCTION CENTERS F. 27428-27430

These are analytical reports on tars tested in the factory laboratories.

1942-1944 COMPARATIVE DATA ON THE
COMPOSITION OF COAL PASTES AND TARS F. 27431-27478

Coal paste samples have been tested and the results are listed. Other experiments to determine the sand contents of coal pastes are described. Some charts concerning removal of residue and items of minor details such as asphalt production, tables with analysis data on asphalt, tar and tar oil, and blank forms complete the reel.