

FIM STUDY GROUP
SUBJECT INDEX AND REPORT

T.O.M. REEL NO. 85

Prepared by
SOCONY VACUUM OIL COMPANY

SOCONY-VACUUM LABORATORIES
(A Division of Socony-Vacuum Oil Co., Inc.)
Research and Development Laboratories
Paulsboro, N. J.

Review of Microfilm Reel #85
U. S. Government Technical Oil Mission

I. G. Farbenindustrie-Leuna

Compiled by P. D. Branton
and P. D. Caesar
(Socony-Vacuum Oil Co.)
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Subject Index

Technical Oil Mission Microfilm Reel No. 85

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I. G. Farbenindustrie, in Leuna
(cont'd from T.O.M. Reel #84)

Description of Individual Items (#6-52)

Bag #3979 Target #30/4.02

6 182p frames 122-304

Specifications for High-Pressure Equipment (cont'd)

A list is given of standards for various metal parts used in hydrogenation equipment operating under a pressure of 325 atmospheres.

7-18 13p frames 305-317

Hydrogenation Equipment

These items are blueprints, many of which are partially or totally illegible. Their titles are listed below:

<u>Item</u>	<u>Drawing No.</u>	<u>Title</u>
7	M-5934-1	Abstich Generator
8	M-11688-2	Abstich Generator
9	M-4461d-1	DHD Converter
10	N-10379c-2	Modified Cone Joint
11	M-9078-2	Extended Vessel
12	M-5496b-1	Maulwurf Pump
13	M-4892-1	Silver-lined Converter
14	M-4427a-1	1000-atm. Pressure Vessel
15	M-5145-2	Modified Converter Cover
16	M-6126-1	1200 mm. Converter
17	M-8561-4	Lined Double Bend for Pressure Hydrogenation
18	M-9850-4	Gas H.O.L.D. Exchanger

19 20p frames 318-337 8/9/38

Comparison of Laboratory and Road

Tests on Knocking - by Dr. von Huhn and Scholz

This report describes 3 laboratory methods for measuring knocking; the CFR-Motor, the CFR-research, and the CFR-L3 methods.

27

12p

frames 966-977

5/22/37

Lubricating Oils from Ethylene - Laboratory
Communication from Dr. Von der Horst

The synthesis of lube-oil by polymerizing ethylene, as developed in Oppau, is accomplished by compressing the gas into an autoclave filled with a solvent and aluminum chloride. The ethylene can be prepared by cracking ethane or hydrogenating acetylene. The reaction sets in at 60°C. whereupon the temperature rises spontaneously to 170°C., and even to 200°C. It is brought down to 120° and kept constant until the reaction is completed. The contents of the autoclave are then expanded and the following products, solvent, aluminum-chloride sludge, light distillate, (which can be reused as a solvent), and crude lube oil, are separated. Before erecting a full scale synthetic plant at Leuna, a series of experiments was performed to clarify certain technical and operational problems. On the basis of those experiments, it was ascertained that N6 steel as building material leads to oils of better VI values than V2A at maximum temperatures below 200°C; above this limit, no difference can be observed. The VI curve shows a maximum for a maximum temperature of 200°C., then slumps down. Heat elimination is slower in N-6 autoclaves, so that a new cooler design is necessary. The yield of lube-oil is 80% with respect to ethylene in N6 and V2A alike. Dilution of ethylene by inert gases has an unfavorable effect on yield and quality. As for aluminum chloride, the only requirement is that it be anhydrous.

Note: For fuller details of this process see T.O.M. Reel #135.

32-52

23p

frames 979-1001

Drawings of Synthetic Lubricating Oil Plant

Blueprints and flowsheets are given pertaining to the synthetic lube-oil installation described in item #27. Items #28-31, which complete this set of drawings, are included in T.O.M. Reel #86. Many drawings are blurred or illegible. The titles of these drawings can be found in the following list:

<u>Item</u>	<u>Drawing No.</u>	<u>Title</u>	<u>Frame</u>
32	M-2095-16	Flow sheet - Purification of cracked gases, before Linde plant operation	979
32a	M-5104-4	Reaction Vessel for Hydrogenation of acetylene	980

<u>Item</u>	<u>Drawing No.</u>	<u>Title</u>	<u>Frame</u>
33	M-3720-2	Benzol Washer	1001
34	M-3779-16	Flow Sheet - Alkazid Plant	981
35	M-1748-16	" " - Linde Plant	982
36	M-2620a-4	" " - Polymeriza- tion Plant, January, 1937	983
37	M-2424-1	" " - Polymeriza- tion & Distillation, November 1938	984
38	M-2500-1	" " - Polymeriza- tion & Distillation December, 1938	985
39	M-2614a-1	Plan & Elevations, Polymer- ization Equipment, February 1939	1000
40	M-3546-1	Flow Sheet - Polymerization & Distillation August, 1940	986
41	M-3648-1	Plan & Elevations, Polymer- ization Equipment, September 1940	999
42	M-4581-1	C ₂ H ₄ - Polymerization Reactor	998
43	M-1573-8	Stuffing-Box, Polymer- ization Autoclave	988
44	M-2623-4	Flow Sheet - Equipment following reactors	989
45	M-5509-2	Layout of Scraper Centri- fuges	992
46	M-7574-2	Lube-oil treatment	993
47	M-6404a-2	Bubble-cap column, oil fractionation	997
48	M-3035-2	Flow sheet - proposed vacuum fractionation (1936)	996
49	M-5289-2	Water and Steam Summary - 4 reactors	995
50	M-3034-2	Flow Sheet - Atmospheric Distillation (Proposed)	994

<u>Item</u>	<u>Drawing No.</u>	<u>Title</u>	<u>Frame</u>
51	M-2694a-8	Flow Sheet - Distillation equipment	990
52	M-3090-4	Electrical Flow Sheet	991

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2/17/47