

FILM STUDY GROUP
REPORT ON MICROFILM REEL NO. 13
Prepared by
M. W. KELLOGG AND COMPANY

RESTRICTED

This document contains information affecting the National Defense of the United States within the meaning of the Espionage Act, 50 U.S.C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

U.S. GOVERNMENT TECHNICAL OIL MISSION
INDEX - MICROFILM - REEL - 13
(Orig. Indent. Reel 13A)

<u>Item Index</u>	<u>No. of Pages</u>
<u>BAG 3500 TARGET NO. 30/4.05 - BOHLEN</u>	
<u>(a) Alkylation (Brabag)</u>	
71 - Utility Requirements for 50,000 T/Yr. Alkylation Plants - July 22, 1941.	1
72 - Alkylation Operating Schedule, 1941, 1942, and 1945. Bohlen - September 17, 1942.	1
73 - Isuna Alkylation Operating Conditions and Relation of Oct. Number to Isobutane Concentration 11/3/42.	1
74 - Production of High Antiknock Gasoline through Alkylation of Isobutane with Butane-1 in a Semi-technical Pilot Plant - January 20, 1942.	15
75 - Comparison of the Production of Alkylate with Butylene Production by Catalytic Dehydrogenation and with Chlorine Dehydrogenation by the Bahr method.	19
76 - Cost Study for Production of Alkylate Blend Agent and ET 100 by Various Methods - October 15, 1942.	22
77 - Acid Requirements and Production for Alkylate Manufacture - September 3, 1941.	3
78 - Conference on Alkylation Acid Procurement 8/25/41	3
79 - Conference on Recovery of Alkylation Acid 8/22/41	2
80 - Oleum Requirements for Fortifying Alkylation Acid (12 plants) - August 19, 1941.	1
81 - Acid Supply for Alkylation Plants 7/29/41	2
82 - Alkylation Acid Regeneration 7/25/40	1
83 - Mixture Rule 8/18/41	1
84 - Alkylation: Utilization of Fischer Butane 6/30/43	3

RESTRICTED

RESTRICTED

Technical Oil Mission
Index - No. 1 - 13

No. of
Pages

85 - Map of Bohlen Area.	1
86 - Plot Plan of Light Ends Plants, Bohlen 8/8/41.	1
87 - Alkylation Plant Flow Diagram Politz, 25,000 T./Yr. January 6, 1941.	2
88 - Alkylation Plant Plot Plan, Politz. 1/18/41.	1
89 - Layout of Stettin showing Location of Alkylation Plant - August 3, 1941.	1
90 - Alkylation Plant Flow Diagram, Politz, 40,000 T./Yr. January 6, 1941.	2
91 - Layout of Politz Caustic and Water Wash Facilities - January 25, 1941.	1
92 - Plot Plan of Alkylation Plant of Wesseling 8/8/41.	1
93 - Map of Magdeburg Area Showing Location of Brabag Plant (no date)	1
94 - Layout of Brabag Works at Magdeburg Showing Location of Alkylation Plant (no date).	1
95 - Layout of Brabag Works at Magdeburg, FIB 114 - August 27, 1941.	2
96 - Layout of Plant at Moosbierbaum. 8/5/41.	2
97 - Elevation of an Alkylation Plant (no date).	1
98 - Layout of an Alkylation Plant - January 23, 1941.	1
99 - Elevation and Plot Plan of an Alkylation Plant - January 22, 1941.	1
100 - Elevation and Plot Plan of the Distillation Equipment for an Alkylation Plant.	1
101 - Drawing of Reactor House for Butane Dehydrogenation - August 6, 1941.	1
102 - Value Arrangement of Condensation System, Alkylation Plant - July 25, 1940.	2
103 - Refrigeration House for Alkylation Plant 3/29/40	1
104 - Reactor House for Alkylation Plant 5/9/41	2

RESTRICTED

- 105 - Compressor House for Alkylation Plant 5/30/41 1
- 106 - Layout of Alkylation Plant Working Storage 6/20/41 2
- 107 - Butane Isomerization Plant, Louisa 8/8/41 1
- 108 - Construction Costs for Alkylation and DHD Plants at Bohlen (no date). 67

RAG 3043 TARGET NO. 30/4.02 - LEUNA

- 1 - Organization chart of Mersburg main laboratory - October 1, 1944. 5
- 2 - Minutes of technical meetings of the I.G. Farben
 - 1) Light hydrocarbon discussions July 24/25, 1940 at Oppau - Isomerization of normal butane over Tungsten sulfide (vapor phase and over aluminum chloride (liquid and vapor phase). 52
Dehydrogenation of hydrocarbon gases over Cr_2O_3 on alumina Alkylation with sulfuric acid Neohexane.
Aromatization of paraffins over Cr_2O_3 on alumina and similar catalysts.
Polymerization gasoline.
 - 2) Light hydrocarbon discussion January 29/30, 1941 at Mersburg Catalytic dehydrogenation. 55
Alkylation with Sulfuric and Hydrofluoric acid.
Olefin concentration.
Isomerization - Polymerization.
 - 3) Petroleum discussion in Berlin April 22, 1941. 14
License and contract discussion.
Coal supply.
Romanian Refineries.
Alkylation, etc.
 - 4) Light petroleum discussion March 16/17, 1942. 25
Dehydrogenation of Butanes.
Butylene concentration with Silver nitrate.
Isomerization.
Alkylation.
polymerization.
 - 5) Petroleum discussion in Berlin July 16, 1942. 7
Fischer Tropsh and similar synthetic oil (synol, cxc - process).

RESTRICTED

Technical Oil Mission
Index - Iss1 - 13

No. of
Pages

Item Index

- | | |
|---|----|
| 6) Conference of November 11, 1942
Report on Leuna Research
Production Problems
Projects in Foreign Countries
Contracts | 13 |
| 7) Conference of January 20, 1943
Development of spectrographic methods of analysis
Discussion of the Waldenburg plant
Methanol, Toluene and nitric acid plants
Preparation of binders for briquets | 17 |
| 3 - Synol (straight chain alcohols from water gas) and
hydrocarbon synthesis (Mostly very illegible) 1941 & later | |
| 1) Use of high boiling alcohols as soap substitutes | 3 |
| 2) Cost analysis of plant | 21 |
| 3) Design discussions and reports and catalyst evaluation) | |
| 4) Photographs of experimental Synol plant | 7 |
| 5) Expansion and improvement of iron melt catalyst
reduction plant for Synol synthesis - March 6, 1943. | 6 |
| 6) Note on possibility of patenting iron melt cata-
lyst - March 9, 1943. | 8 |
| 7) Process data of Leuna Synol plant 4/21/43 | 3 |
| 8) Exchange of information on paraffin, olefin and
alcohol - Synthesis from CO and H ₂ 4/21/43 | 4 |
| 9) Flowsheets of synol plant for manufacture of gasoline
and diesel oil with description 6/17/43 | 5 |
| 10) Reduction of iron melt catalyst 7/15/43 | 4 |
| 11) Authorization for construction of a Synol plant for
the production of gasoline, gasoil and paraffin at
Leuna 8/18/43. | 12 |
| 12) Report on hydrocarbon synthesis from water gas over
sintered iron catalyst by the "Umwalz" (recycling)
"Michael Process" method at intermediate pressures
9-23-38. | 13 |
| 13) Comparison of Fischer-Tropsch and Michael synthesis
11-21-38. | 12 |
| 14) Progress report on the Michael process 12-20-38. | 9 |
| 15) Geneva report on hydrocarbon synthesis from water
gas over iron catalyst with hot gas recycling
4-18-39. | 12 |
| 16) Discussion of Fischer-Tropsch process (largely con-
cerned with specialty products such as toluene, lube
oil, etc.) 11-24-39. | 7 |

RESTRICTED

17)	Comparison of the Michael and the Wenzel-Wiesner-Virth process of synthesizing hydrocarbons, for "Nopasin" raw material 6/11/40.	4
18)	Operating conditions with iron catalyst 6/15/40	2
19)	Discussion of a modification of the Michael process to prepare change for the Oxo process July 22, 1940.	5
20)	Discussion of construction problems in Fischer pilot plant 7/17/40.	2
21)	Life test with a special catalyst for paraffin production ($\text{CoO-Co}_2\text{O}_3$) 8/7/40.	7
22)	Exchange of information on iron catalysts 9/19/40.	2
23)	Chart comparing various catalysts for hydrocarbon synthesis from water gas (Co on diatomaceous earth, Co-ZnO on Al_2O_3 , iron melt, sintered and precipitated, ZnO- Cr_2O_3) 11-30-40.	1
24)	Details for the construction of a Synol plant 12-24-40.	18
25)	Preparation of water gas for Synol plant from Isobutyl 1-6-41.	4
26)	Catalyst plant for synol plant 1-22-41.	3
27)	Discussion of preparation and use of Synol process: Alcohols 2-10-41.	3
28)	Preparation of water gas of the proper CO:H_2 ratio for Synol synthesis. 2-26-41.	7
29)	Discussion of conversion of Fischer-Tropsch plant to iron catalyst 3-11-41.	3
30)	Charts showing detailed analysis of products from Synol plant, 1941.	5
31)	Solubility of monoolefins in a ethanolamine-caproic nitrate solution 3-25-41.	3
32)	Letter on experiments for the production of paraffin from water gas over iron catalysts 2-10-41.	2
33)	Cost Analysis of Synol Plant 3-28-41.	11
34)	Production of paraffin from water gas over iron catalyst (experiments) 3-25-41.	4
35)	Discussion of experimental Synol plant 4-25-41.	2
36)	Discussion of problem in experiments of the Synol process 4-17-41.	8
37)	Use and capacity of the Michael processes particularly the liquid phase Synol synthesis 5-12-41.	10
38)	Properties of Synol synthesis product from liquid and vapor phase 5-30-41.	2
39)	Processing of products from Synol synthesis 5-24-41	2
40)	Removal of hydrocarbons from gases in the Synol plant at Auschwitz 5-29-41	9

R E S T R I C T E D

	<u>No. of</u> <u>Pages</u>
41) Note on the progress of the Lurgi Company with iron catalyst for Fischer-Tropsch 6-9-41.	1
42) Flowsheets for Synol plant at Leuna with quantities.	4
43) Analysis of synol products (Michael catalyst) both vapor and liquid phase 7-2-41.	7
44) Correspondence of I.G. concerning the Lurgi Co.	2
45) High pressure water washing for CO ₂ removal at the Leuna Synol plant 7-21-41.	2
46) Analytical methods for determining alcohols in Synol process products 7-22-41.	2
47) General notes on Fischer-Tropsch 7-17-41.	3
48) Meeting on carbon monoxide-hydrogen synthesis Gas recycle process } Michael Porous plate process } Oil Recycle process Paraffin and Synol process Chart comparing processes 7-1-41	13
49) Oxidation of alcohols to fatty acids (discussion).	1
50) Discussion on a contract with Ruhrchemie concerning manufacture of alcohols 8-1-41.	2
51) Production and regeneration of iron-melt catalyst 9-8-41.	1
52) Expansion of the Leuna Synol project 8-15-41.	3
53) Description of a large scale synol plant 9-11-41.	1
54) Analysis of synol products 10-6-41	4
55) Procurement of compressed gas for the Synol plant 10-15-41.	13
56) Report on experience with catalyst F1 1249 for hydrocarbon synthesis, reduction of catalysts 12-12-41.	4

R E S T R I C T E D