

Target Nos.: 30/301, 301a, 301b, 309

Opportunity - Hamburg

REEL I

I. German Army Specifications

1. Specification for fuel F2 - April 1945
- 1a. " " " B4 and C3 - November 1944
2. " " " J2 and break-in fuel J2 - October 1944
- 2a. " " aviation diesel fuel
3. " " fuel A3
4. Supplement to fuel specification for A3 and B4
5. Specifications for diesel fuel and carburetor fuel
6. Specifications for diesel fuel and carburetor fuel for German Army, Summer 1944
7. Specification for aviation fuels A3 and B4. May 1944
8. Specification for aviation fuels April 1944
9. Gum determination in aviation fuels
10. Specifications for gasoline blending components
11. Determination of inhibitors in aviation gasoline
12. Specifications for blending components of aviation lube oil S3
13. Specification for starter fuel for spark ignition engines
14. Specification for aviation fuels - May 1942
15. " " gear and motor oil - June 1944
16. " " motor oil (winter) - July 1944
17. " " motor oil (summer) - July 1944
18. " " water pump grease
19. " " protective grease 40 L
20. " " airplane instruments grease
21. " " airplane water pump grease
22. " " airplane axle grease
- 22a. " " airplane grease (blue)
23. " " airplane rockerarm grease
24. " " chassis grease
25. " " low-temperature gun oil
26. " " airplane lube oil S5607
27. " " aviation lube oil ASM (V2)
- 27a. " " " " S3 and V2 - May 1943
28. " " " " S3 and V2 - March 1943
29. " " " " S3 (SS960) - March 1943
30. " " " " SS1006
31. " " instrument grease
32. " " hydraulic oil
33. " " rust preventive oil
34. " " hydraulic oil
35. " " rifle cleaning oil for use at low temperature
36. " " protective grease 40
37. " " protective grease 40 (Tropical)
38. " " gun oil
39. " " rust preventive oil 39
40. " " gun grease
41. German Navy specifications

II. Research Reports from the Rhenania-Ossag Laboratory

42. Comprehensive research report for 1942
43. " " " " 1941
44. " " " " 1940
45. " " " " 1939
46. Report on: The separation of constituents from synthetic lube oils by selective adsorption

47. Report on: Effect of cracking conditions on the properties of the products
48. Report on: The structure of gel greases and their change
49. Report on: Effect of the amount of HCl on the speed of polymerization and the viscosity of oils
50. Report on: The reaction mechanism of the polymerization of cracked distillates to olefins
51. Report on: Chromatographic analysis of mineral oils
52. Report on: Regeneration of used oils containing voltolized oil
53. Report on: Regeneration of filter clay
54. Report on: Decomposition of  $AlCl_3$  sludge from manufacture of synthetic lube oil
55. Report on: Use of  $AlCl_3$  sludge for cracking of paraffin hydrocarbons
56. Report on: The composition and refining of oil from  $AlCl_3$  sludge.
57. Report on: Reactions in the cracking process
58. Report on: Resistance against spent sulfuric acid of various tank linings
59. Report on: Chemical composition of voltolized oil and the reactions during voltolization - I, part
60. Report on: Same - II, part
61. Report on: Filter aids for dewaxing
62. Report on: Regeneration of filter clay
63. Report on: Practical experiences with the extraction of filter clay
64. Report on: Neutralization and refining of crude lube oil polymerizates
65. Report on: Polymerization of cracked distillates to lube oils

**III. ZWB Reports and DVL Reports**

66. Determination of peroxides in fuel and their effect on engine behavior
67. Effect of tetraethyl lead in fuel on the construction materials of the engine.
68. Same - supplement
69. Collected papers from meeting on lubricants, May 1943 (oxidation resistance)
70. Collected papers from meeting on lubricants, December 1941 (wear and friction)
71. Collected papers from meeting on behavior and storage stability of fuels
72. Ring sticking tests with light metal pistons in the Siemens test engine

**IV. Reports on lube oil tests in the BMW - one cylinder engine carried out at the Rhenania-Ossag laboratory**

73. Experimental synthetic oil blends
74. SS1060
75. Control test runs on production batches
76. Effect of the addition of inhibitor on ringsticking and sludge formation
77. SS1006, 200 ton batch
78. Army winter oil with and without the addition of Oppanol
79. Summary of all previous test reports
80. Rotting oil with and without special voltolized oil

REEL 2  
" 3

- v. Synthetic lube oil manufacture at Pölitz
81. Inspection data on synthetic steam cylinder oil
  82. Flowsheet of Pölitz plant
  83. Memorandum on plant operation
  84. Improvement on plant during 1942-1943
  85. Reports on cracking various waxes
  86. Report on experimental runs of cracking chamber
  87. Plot plan of Pölitz plant
  88. Plot plan and elevation for proposed gas absorption plant
  89. Proposal for gas polymerization
  90. Lurgi proposal for gas polymerization
  91. Memorandum on gas polymerization
  92. Memoranda on oil absorption
  93. Lurgi proposal for gas absorption plant
  94. Proposal for the construction of additional plant facilities for manufacture of aviation lube oil
  95. Same
  96. Inspection data on slack waxes
  97. Memorandum on operational details
  98. Inspection data of plant products
  99. Iodine number of synthetic lube oils
  100. Design calculations for heater
  101. Design calculations for cracking unit
  102. Flowsheet for paraffin wax treating
  103. Flowsheet for polymerization unit
  104. Flowsheet of entire Pölitz plant

VI. Utilization of  $AlCl_3$  sludge from the manufacture of synthetic lube oil

105. Pumps for  $AlCl_3$  sludge
106. Memorandum on  $AlCl_3$
107. Corrosion tests with  $AlCl_3$  solutions
108. Memorandum on utilization of  $AlCl_3$  sludge
109. Same
110. Same
111. By-products obtained at Pölitz
112. Working-up of sludge containing  $AlCl_3$
113. Inspection data on oil from decomposition of  $AlCl_3$  complex
114. Utilization of  $AlCl_3$  sludge
115. Same

VII. Exchange of information on manufacture of synthetic lube oils

116. Memorandum on quality of products from Rhenania
117. Comparison of operations and products of I.G. and Rhenania
118. Laboratory tests on synthetic lube oil manufacture from various cracked waxes
119. Plant experiments at Oppau
120. Same

REEL 3  
" 4

VIII. Research reports from the Amsterdam laboratory of N.V. Bataafsch Petroleum Maatschappij

121. Aniline point of petroleum fractions
122. Relation between the U.O.P. characterization factor and other properties of petroleum fractions (in Dutch)
123. Short review of the work on combatting plant diseases
124. Investigation of the structure of olefins in cracked distillates by the peracetic acid method
125. Glueing of paper with Lubex ( $SO_2$  extract of lube oil)
126. Pilot plant manufacture of propane peroxide
127. Use of Raman spectroscopy in the analysis of hydrocarbons (in Dutch)

128. Problems of synthetic lube oil manufacture
129. Continuous manufacture of lime base greases
130. Physical-chemical behavior of hydrocarbons containing more than twenty carbon atoms
131. Treatment of cracked distillates with selective solvents
132. The effect of cracking conditions on the polymerization of olefins to synthetic lube oil and the quality of the oils
133. The recovery of  $H_2O_2$  from propane peroxides (in Dutch)
134. Effect of the conditions of the polymerization on the course of the synthesis
135. Voltolization
136. Glueing of paper
137. Structure of lubricating oils
138. Analysis of cracked distillates
139. Effect of water content on the properties of greases (in Dutch)
140. Preparation of rust preventive grease (in Dutch)
141. Analysis and characterization of solid paraffin hydrocarbons
142. Summary report on the work on hydrocarbon peroxides during the second half of 1940 (in Dutch)
143. Summary report on work on synthetic lube oils from 1933 to 1937
- 144.a. Principles and limits of accuracy of the analysis of hydrocarbons - Part I
- 144.b. Same - Part II
145. The polymerization of propylene in the presence of  $AlCl_3$
146. Improvement of the oxidation stability of synthetic oils by copolymerization with aromatics
147. Same (in English)
148. Physical constants of the polymerization products of olefins
149. Investigation of the oxidation stability of lube oils including synthetic lubes
150. Monthly progress report, March-April 1944
151. Monthly progress report, Jan-Feb 1944
- ~~152. Monthly progress report, Nov-Dec 1943~~
153. Monthly progress report, October 1943
154. Monthly progress report, September 1943
155. Monthly Progress report, August 1943
156. Monthly progress report, July 1943
157. Monthly progress report, June 1943
158. Monthly progress report, May 1943
159. Monthly progress report, April 1943
160. Flowsheet for the manufacture of propane peroxide
161. Summary report on the extraction of lube oils with  $SbCl_3$
162. Preparation of paraffin emulsions
163. Chlorination of paraffins for the preparation of caterpillar glue
164. Memorandum of discussion on research with Prof. Zerbe
165. Manufacture of gas oil from Iraq and Iran crudes
166. Preparation of paraffin emulsions for the paper industry
167. Status of personnel and projects of the research laboratory, Jan. 1944
168. Organizational chart of Amsterdam laboratory - Aug. 1943
169. Summary of the Investigation on the manufacture of propane peroxide

- 170. List of subjects of literature searches conducted by patent department from Jan 1941 to April 1943
- 171. List of subjects investigated for patentability from Jan 1941 to April 1943
- 172. List of memoranda submitted to the main office from Jan 1941 to April 1943
- 173. List of reports and patents received by the main office
- 174. Report on the status of the laboratory work up to May 1940 and on the subsequent development
- 175. Review of the work of the oxidation group from 1940 to May 1941
- 176. Same up to Aug 1941 (in Dutch)
- 177. Investigation of the factors controlling dewaxing of lube oils
- 178. Preparation of sodium perborate and similar compounds from propane peroxide (in Dutch)
- 179. Same (in Dutch)
- 180. Summary of the work in the field of catalytic oxidation
- 180a. Memorandum on proposed hydrogen peroxide manufacture from propane

IX. Dutch Patents

- 181. Process for the oxidation of organic compounds
- 182. Manufacture of hydrogen peroxide by distillation of products from the incomplete combustion of gaseous hydrocarbons
- 183. Preparation of hydrogen peroxide by the incomplete combustion of gaseous unsaturated hydrocarbons with more than two carbon atoms
- 184. Manufacture of di-hydroxy compounds containing halogen
- 185. Manufacture of peroxides by incomplete combustion of hydrocarbons
- 186. Report on experiments for dewaxing and fractionation of lube oil by the Nitsche process

X. Patent applications of Rhenania-Ossag, Hamburg.

- 187. Manufacture of Emulsifying Oils in solid form
- 188. Manufacture of extreme pressure lubricants
- ~~189. Sludge carriers in lubricating oils~~
- 190. Manufacture of lube oil
- 191. Manufacture of extreme pressure lubricants
- 192. Same
- 193. Same
- 194. Synthesis of lubricating oils
- 195. Synthesis of lubricating oils
- 196. Same
- 197. Polymerization of olefins
- 198. Synthesis of high grade lubricants
- 199. Manufacture of lube oils
- 200. Synthesis of lube oils
- 201. Manufacture of additives for rubber and synthetics
- 202. Improvement of synthetic rubber
- 203. Fillers for rubber goods
- 204. Additives for rubber goods
- 205. Manufacture of phenol-formaldehyde resins
- 206. Hydrocarbon-aldehyde condensation products as additives for synthetic rubber
- 207. Filler for rubber made from spent filter clay (Metallgesellschaft application)

XI. Flowsheets of Rhenania-Ossag, A.G.

- 208. Plant balance flowsheet, Harburg
- 209. Plant balance flowsheet, Grasbrook

- 210. Plant balance flowsheet, Wilhelmsburg
- 211. Production diagram of grease plant
- 212. Treating scheme of Grasbrook works
- 213. Flowsheet of wax plant, Harburg - Part I
- 214. " " " " " " - Part II
- 215. " " " " " " - Part III
- 216. " " " " " " - Part IV
- 217. Flowsheet of synthetic lube oil plant, Harburg

XII. Miscellaneous

- 218. Research work carried out at Ruhr-chemie
- 219. Activation of methane by high pressure
- 220. Corrosion prevention in distillation equipment
- 221. Proposal for refining Hungarian crude
- 222. Statistics of Hungarian oil production and refinery activities to 1943
- 222a. Raman spectra of olefins in cracked distillates

XIII. Annual and Monthly Reports

- 223. Annual Report - Harburg Works 1939
- 224. " " " " 1940
- 225. " " " " 1941
- 226. " " " " Wilhelmsburg Works 1939
- 227. " " " " " " 1940
- 228. " " " " " " 1941
- 229. " " " " " " 1942
- 230. " " " " " " 1943
- 231. " " " " Freital Works 1939
- 232. " " " " " " 1940
- 233. " " " " " " 1941
- 234. " " " " " " 1942
- 235. " " " " Grasbrook " 1939
- 236. " " " " " " 1940
- 237. " " " " " " 1941
- 238. " " " " Monheim " 1939
- 239. " " " " " " 1940
- 240. " " " " " " 1941
- 241. " " " " " " 1942
- 242. " " " " " " 1943
- 243. " " " " Floridsdorf Works 1939
- 244. " " " " " " 1940
- 245. " " " " " " 1941
- 246. " " " " " " 1942
- 247. " " " " " " 1943
- 248. " " " " Reisholz Works 1939 -
- 249. " " " " " " 1940
- 250. " " " " " " 1941
- 251. " " " " " " 1942
- 252. " " " " " " 1943
- 253. Monthly Report, Harburg Works April 1944
- 254. " " " " Grasbrook Works June 1943
- 255. " " " " " " July 1944