

INDEX - MICROFILM REEL 179
(Original designation Navy 5868-4)

Part 14.

4061-4370

1. "Exchange of Experiences" (USAC) November 1938 (39 pages).
A report marked confidential concerns a conference on the Fischer-Tropsch Synthesis and related processes. Participants included representatives of Kellogg Co., Standard Oil, N. V. Bataafsche I. H. P., I. G. Farben and Ruhrchemie. The table of contents lists hydrocarbon synthesis and synthesis gas production as the main topics which are further subdivided. Under hydrocarbon synthesis, "Details of the synthesis process," "Sulfur purification, reduction and manufacture of catalyst," are some subjects discussed. "Methane cracking and the use of exhaust gas from the synthesis process as a source for synthesis gas" appears under synthesis gas production. 3 flow sheets covering the overall installation, the catalyst production and the reduction installation are included in the reports.
2. "A contribution on the working of the centrifuge," D. Backmann (46 pages.) A technical paper appearing in the *Verfahrenstechnik* No. 2, 1940, by D. Backmann is divided into two parts: 1- Motion with dry grinding matter, and 2- Action with wet working materials. Besides a mathematical discussion of the action, a comparison with other methods are shown in charts and graphs. Literature references are given.

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3. "Cost development work in Schwarzeheide," Kollmar, No. 112, Feb. 12, 1941. Cost ratios of the production of motor fuel from 1936-1940 at the Schwarzeheide plant of Braun-Kohle-Benzin Co., 28 pages with charts.
4. "Development work Magdeburg," Kollmar, No. 323, June 28, 1941. Costs and fuel production of the Magdeburg plant from 1936-1940. 21 pages with charts.
5. "Comprehensive survey of the entire 4. Brabag plants (1936-1940)" Kollmar, No. 323, June 28, 1941. The cost profit and production situation, 17 pages with charts.
6. "Management report on the Blechhammer calculation plan 1944/1, May 11, 1944. Monthly production figures of gasoline at the Leuna plant.
7. "Merseburg hydrogenation plant situation at the monthly report, February 1944," No. 3, 45 pages of charts.
8. "Hydrogenation plant at Politz, management monthly report for August 1944," Dr. Pier, 34 pages of production charts.
9. "Neopentane (tetramethylmethane) and triptane (trimethylbutane) Bueren, high pressure investigations, Lu 558, June 5, 1942. One page discussion of the synthesis of neopentane and triptane.
10. "Measurement of the indexes of high speed motors," Kurt Schnauffer, Rundschau, July 26, 1930, 1 page with graphs.
"The power in the tool-machine," Schesinger, Rundschau, July 26, 1930. 1 page with charts.
11. "Suden motor fuel plants, aktiengesellschaft," Monthly production report No. 6 for Jan. 1943.

Part 15.

4371-4821

- (1) Lubricant - rotation experiments on BMW - 801 one cylinder motor. Dr. Burkart, 4 pages text, including 5 illustrations. A research paper (#117) under the auspices of the Institute of Aviation and Truck Engines.
- (2) Knocking limits and their variability through the influence of production factors. Dr. Burkart, 3 May, 1943. 45 pages text, including 34 illustrations. A research paper (#134) under the auspices of the Institute of Aviation and Truck Engines.
- (3) "Synthesis of a JWL (German Institute for Air) power (combustion) material - testing method" - Dr. Burkart, 10/17/44. 8 pages of text and 12 pages of illustrations and drawings. A research paper (Report #151) under the auspices of the Institute of Aviation and Truck Engines.
- (4) "Reaction kinetics - investigation of knocking" - W. Jost. A reprint from Zeitschrift für Elektrochemie 47, 262-264.
- (5) "Measurement of Oscillating compression - indicative of high speed motors according to the condensation method" - K. Schnauffer. A reprint from Archiv für Technisches Mesen 1931-T83 (2 pgs.)

- (6) "Reaction kinetic investigation of knocking II. The auto-ignition of hydrocarbon-air mixtures and knocking in the Otto engine" - H. Teichmann. A reprint from Zeitschrift für Elektrochemie 47, 297-307. (1941).
- (7) The "knocking" of combustion engines - K. Schnauffer. Report #251 of the German Institute for Air Travel-Engine. A reprint from the DVL yearbook 1931 (4 pages).
- (8) "Measurement of incandescent combustion temperatures in high speed combustion engines," Kurt Schnauffer. 26 Aug. 1933. 5 pages, 13 sketches and graphs.
- (9) "Lubricating properties of eleven aviation motor oils," R. Halder. Report #567 of Technical Testing Oppau, 4/20/44. I. G. Farben, Ludwigshafen. 9 pages and 20 graphs.
- (10) "The testing of lubricating material in small apparatus in regard to lubricating quality," R. Halder. Report #537. Technical Testing Oppau, 3/8/43. I. G. Farben, Ludwigshafen. 17 pages, plus 4 graphs.
- (11) Influence of rotating lubricating oils masses on the knocking condition of the motor (a preliminary report). 20 Aug. 1942. 7 pages text, 6 illustrations. Dr. Burkart. A research paper (#125) prepared under the auspices of the Institute of Aviation and Truck Engines.
- (12) Investigation of the soiling of a lubricant rod ring L45 with the help of long runs on a BMW-801, one cylinder motor, running with and without lubricant centrifuge. Dr. Burkart. 9 pages text, including 12 illustrations. 17 March 1942. A research paper (# 115) prepared under the auspices of the Institute of Aviation and Truck Engines.
- (13) Influence of the release valve on the knocking condition of the BMW 801, one cylinder motor. 5 pages text, including 3 illustrations. Dr. Burkart. 10 April, 1943. A research paper (#131) prepared under the auspices of the Institute of Aviation and Truck Engines.
- (14) Experiences with lubricating material - ram testing method on ring piston retention, W. Lauer. Report #505, Technical Testing Methods, Oppau. July 1, 1942; I. G. Farben, Ludwigshafen. 21 pages, 3 graphs.
- (15) "Lubrication testing by wear measurements," R. Holder. Report #548 of Technical Testing Oppau, 6/29/43. I. G. Farben, Ludwigshafen. 13 pages, plus 3 graphs.
- (16) Contribution on "external hydromanic" lubrication - I. Morghen Sept. 1, 1944. 29 pages, plus graphs and tables. Research paper under the auspices of the German Institute for Air.
- (17) Sulfur content and lubrication quality of aviation motor oils, A. V. Philippovich. July 28, 1943. 12 pages, plus tables and graphs. A research paper under the auspices of the German Institute for Air.

Part 15 - Cont'd.

- (18) Testing of high anti-knock synthetic combustion materials. F. Seeber, Institute for Propellant Research of the German Research Foundation for Air Travel. 13 pages, 13 charts and 1 page of graphs.
- (19) "Overload-limit curves issued by Technical Testing Oppau," I. G. Farben, Ludwigshafen. Contains all the graphs from different reports on knock of engines and the overloading of fuels from various aspects (31 pages).
- (20) "Determination of inhibitors "R" and "S" in lubricating oils," I. Morhen. Aug. 3, 1943. 5 pages. Research paper under auspices of the German Institute for Air.
- (21) "Reaction kinetics consideration of knocking in motors," W. Jost and L. von Miiffing. A reprint from "Zeitschrift für Elektrochemie" 45, 93-99 (1939).
- (22) "Liquified gases" - F. Rosendahl. A reprint from Oel u Kohle #5, Feb. 1, 1942. Use of low-carbon hydrocarbons as internal combustion fuels. 7 pages and charts.
- (23) Indication of lubricating film destruction by measurement of the electrical transmission resistance between piston ring and cylinder - R. Poppinga, Feb. 15, 1940. 27 pages plus graphs and drawings.
- (24) "Anti-knock qualities of triptane in I. G. test motor and with overloading," Fuel Test No. 283, Technical Testing Center at Oppau. 4 pages with charts.
- (25) "Lubricating oil additions to hinder ring sticking," (anti ring sticking-dopes). Report #4 IV. A report in three parts:
1- The developmental work of shell between 1935-38 on various addition (9 compounds listed) to lubricating oil;
2- Report of the Testing Station at Delft;
3- "Voltol"- its manufacture and motor behavior; and
4- An appendix consisting of graphs on the data.
Total of 23 pages, plus 13 graphs.

Part 16.

4822-4850

DRAWINGS UNDERGROUND PLANT - KUKU:

1. No number, title or date. - Conveyor system for coal unloading.
2. Arrangement for oxygen holders. Drawing #M12744-2, Ammoniakwerk, Merseburg, Dec. 1, 1944. A scale drawing of underground arrangement of oxygen chambers.
3. Arrangement for methanol synthesis. Drawing #M12741-2, Ammoniakwerk, Merseburg, 11/3/44. A scale drawing of underground arrangement for methanol synthesis.
4. Linde-oxygen installation. Drawing #M12733-2, Ammoniakwerk, Merseburg, Nov. 23, 1944. Layout for manufacture of oxygen (9000 m³/h).
5. Linde-oxygen installation. Duplication of Item #4.

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6. Conveyor system for coal feed. Drawing #M12732-2, Ammoniakwerk, Merseburg, Nov. 23, 1944. A layout diagram to scale.
7. Methanol-tank storage. Drawing #M12718-2, Ammoniakwerk Merseburg, Nov. 15, 1944. Layout.
8. Gas generating installation ($\text{CO} + \text{H}_2$). Drawing #M12717-2, Ammoniakwerk, Merseburg, 11/15/44. Layout for gas generation from coke.
9. Arrangement for copper lye regeneration installation. Drawing #M12715-2, Ammoniakwerk, Merseburg, 11/15/44. Scale drawing of underground arrangement.
10. Contract chamber arrangement - nitrogen installation. Drawing #M12714-2, Ammoniakwerk, Merseburg, 11/14/44.
11. Arrangement of a CO_2 - hydraulic wash. Drawing #M12711-2 Ammoniakwerk, Merseburg, 11/14/44.
12. Arrangement of stalls (3) and sections in each stall - Project ku. Drawing #M12617-2, Ammoniakwerk, Merseburg. 9/25/44.
13. Methanol synthesis - chamber arrangement. Drawing #M10234-4.
14. Arrangement for water works - pressure filtration installation. Drawing #M10214a-4, Nov. 9, 1944.
15. Methanol synthesis chamber (standing) arrangement. Drawing #M10236-4, Ammoniakwerk, Merseburg, 11/23/44.
16. Isobutyl distillation installation arrangement. Drawing #M10235-4. Ammoniakwerk, Merseburg. 11/23/44.
17. Summary arrangement of a methanol and nitrogen installation. Drawing #M10199-4, Ammoniakwerk, Merseburg, 11/2/44.
18. Arrangement of a power (electric) works. Drawing #M6284-1. Ammoniakwerk, Merseburg, 11/16/44. (2 copies)
19. Arrangement of a methanol synthesis installation. Drawing #M6283-1. Ammoniakwerk, Merseburg. 11/15/44 (2 copies)
20. Summary layout of water works, power station, ammonia synthesis, methanol synthesis and isobutyl installation. Drawing #M5693-1, Ammoniakwerk, Merseburg, 11/24/44 (2 copies).
21. Pipe channels, cable conduits and foundation for machinery and apparatus. Drawing #M5686-1, Ammoniakwerk Merseburg, Nov. 16, 1944.
22. Double chambers for hydrogenation - Project Ku. Drawing #M5685-1, Ammoniakwerk, Merseburg, 11/16/44 (2 copies).

Part 17.

4851-4890

IN ENVELOPE MARKED HYDRO PRINTS:

1. Drawing #A958-4. Scale drawing gasoline oven cooling gas baffles. Undated.

2. Scale drawing #2341-1. Mineralöl Baugesellschaft. Isobutene gas phase converter. 8 Dec. 1937.
3. Scale drawing #2988-2. Mineralöl Baugesellschaft. Cool gas inlet to converter and heat exchanger. 14 Jan. 1938.
4. Scale drawing # 2523-2. Mineralöl Badgesellschaft. Lower head to TTH converter. 12 Aug. 1937.
5. Scale drawing #2713-2. Mineralöl Baugesellschaft. Electric preheater. 22 Nov. 1937.
6. Scale drawing #FA 373. Siegener Maschinenbau Cooler between Steps II and III. 6 Sept. 1935.
7. Scale drawing #FA 374-2. Siegener Maschinenbau Cooler between Steps I and II. 26 Sept. 1935.
8. Scale drawing #FA 372-2. Siegener Maschinenbau cooler between Steps III and IV. 6 Sept. 1935.
9. Scale drawing #A857-8. Braunkohle Benzin - globe return valve NW 30 with insert. 16 Jan. 1942.
10. Scale drawing #A847-8. Braunkohle Benzin - globe return valve NW 30. 13 Dec. 1941.
11. Scale drawing #A1494-2. Braunkohle Benzin experimental valve for HK. (mud free valve). 27 March, 1943.
12. Scale drawing #A1707-2. Braunkohle Benzin experimental quantity measurer. 2 Mar. 1943.
13. Flow sheet #1682c. Coal stall #4 with fittings and control equipment. 3 Feb. 1945.
14. Flow sheet. Tar chamber #2, Bohlen. 14 April, 1939.
15. Flow sheet #1669. Construction office, gas washing-gasoline chamber /stakk/.1. 12 Feb. 1945.
16. Flow sheet #10016. Construction office, tar chamber /stall/3. 13 Feb. 1945.
17. Flow sheet #1613b. Construction office gasoline chamber /stall/12. 13 Feb. 1945.
18. Flow sheet #1797a. Construction office gasoline chamber /stall/10. 13 Feb. 1945.
19. Flow sheet #A4336-2. TTH research with circulated contact /catalyst/ preheater 11. 20 Dec. 1937.
20. Scale drawing #N4295d-1. I. G. Farben. Forging shell. 1000 Min. ϕ 18 m long. 29 July, 1941.
21. Scale drawing #2264-1. Mineralöl Baugesellschaft. Assembly of gas converter. 23 Sept. 1937.
22. Scale drawing #A951-4. Braunkohle Benzin. Cooling gas fittings. 28 Nov. 1944.
23. Flow Sheet #1801a. Gas preheater. 23 Aug. 1941.
24. Scale drawing #25a-4. Braunkohle Benzin. Thermo-couple well tar converter. 7 Aug. 1943.
25. Scale drawing #2512-1. Mineralöl Baugesellschaft. Pipe lines for TTH converters. 10 Feb. 1938.
26. Flow Sheet #N7775-2. I. G. Farben. Slump phase with gas preheater. 10 Nov. 1939.

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27. Scale drawing #671-1. Braunkohle Benzin. Assembly of tar converter 1000 ϕ X 18 m. 4 Jan. 1936.
28. Scale drawing #2287-1. Mineralöl Baugesellschaft. Assembly 600 ϕ converter. 5 Oct. 1937.
29. Scale drawing #N 4047 I-2. I. G. Farben cold separator body. 8 Nov. 1937.
30. Scale drawing #N4278c-2. I. G. Farben. Cold separator assembly. 22 Apr. 1937.
31. Scale drawing #3289-2. Mineralöl Baugesellschaft. Gas cooler. 7 Apr. 1938.
32. Scale drawing #2616-1. Mineralöl Baugesellschaft. Arrangement of lines to centrifuge. 15 Mar. 1938.
33. Scale drawing #2397-1. Mineralöl Baugesellschaft. Intermediate expansion for TTH and gas phase. 23 Dec. 1937.
34. Scale drawing #2398-1. Mineralöl Baugesellschaft. Intermediate expansion for TTH and gas phase. 22 Dec. 1937.
35. Scale drawing #4706-1. Braunkohle Benzin. Cooling gas lines and funnel neck. 6 May, 1942.
36. Scale drawing #22-2. Braunkohle Benzin. Shell 600 ϕ converter. 22 Nov. 1934.

Part 18.

4891-5086

- (1) Problems of the Organic Section, Dec. 1938 - Dec. 1939. 64 pages text and tables. A notebook containing problems of the Organic Section which are divided into:
 - 1- Alcohols from carbon monoxide;
 - 2- Fatty acids from alcohols and aldehydes; and
 - 3- Lubricating oil-polymerization of olefins.
 The research carried on and the present status of the work are summarized.
- (2) "High pressure synthesis chamber with steam cooling" (author not given). 46 pages of text and 43 pages of diagrams and graphs. Dated June 1944. The problem of heat transfer and calculation of heat transfer coefficients using published theoretical and experimental data for a methanol converter using steam.
- (3) Formula book for the compounding of various calypsol greases in code.

Part 19.

5087-5132

- IN ENVELOPE MARKED "HYDRO PRINTS":
1. Drawing #7280-1. Braunkohle Benzin pipe lines for TTH. 25 May, 1939.
 2. 2 drawings #433-2. Braunkohle Benzin flow sheet with valves for tar (Olie) 6 Feb. 1936.
 3. Scale drawing #3524-2. Mineralöl Baugesellschaft. TTH lean gas expansion and cooling. 9 May, 1938.

4. Drawing #189-2. Braunkohle Benzin flow sheet. 3 May, 1935.
5. Drawing #99-1. Flow sheet. Behlen. I June, 1935.
6. Drawing #2109-2. Gas flows for tar hydrogenation. Mineralöl Baugesellschaft. 19 Mar. 1937.
7. Drawing #5713/202, 203. Overall layout for high pressure installation in Lützkendorf (phase). 15 Jan. 1941.
8. Drawing #4529/201, 203. Overall layout for high pressure installation in Lützkendorf (gas phase) flow sheet. 25 Feb. 1939.
9. Drawing #Me888. Sump phase distillation flow sheet. 15 Jan. 1944.
10. Drawing #M8915-4. Ammoniakwerk, Merseburg. Flow sheet of wash oil installation with large reducing machine. 5 Mar. 1943.
11. Drawing #M7756a-4. Ammoniakwerk, Merseburg. Flow sheet of refractory column. 14 Nov. 1941.
12. Thermo diagram #M5216b-1. 8 June 1944.
13. Drawing #M12010b-2. Ammoniakwerk, Merseburg. Sump phase distillation flow sheet. 7 Mar. 1944.
14. Drawing #M3593b-1. Distillation gas phase flow sheet. 19 April, 1944.
15. Drawing #319. Braunkohle Benzin. Heat control circuit diagram. 20 April, 1944.
16. Drawing #1939-a. Gas preheater coal Chamber 15. Ammoniakwerk, Merseburg. 23 Nov. 1939.
17. Drawing #1943. Gas preheater coal chamber 18. Ammoniakwerk, Merseburg. 12 Jan. 1943.
18. Drawing #1671a. Gasoline chamber 1, Gas preheater. 12 Feb. 1941.
19. Drawing #10048. Gas preheater, gasoline chamber 2. 14 Nov. 1944.
20. Drawing #1900a. Gas preheater, gasoline chamber 9. 18 Oct. 1944.
21. Drawing #1867b. Gas preheater, gasoline chamber 10. 16 Nov. 1943.
22. Drawing #1916. Gas preheater, gasoline chamber 11. 12 Nov. 1942.
23. Drawing #1918a. Gas preheater, gasoline chamber 13. 6 Apr. 1944.
24. Drawing #1875b. Gas preheater, gasoline chamber 12. 25 Jan. 1943.
25. Drawing #1893c. Gas preheater, gasoline chamber 16. 23 Aug. 1944.
26. Drawing #10023a. Gas preheater, tar chamber 3. 27 June 1944.
27. Drawing #1672. Gas preheater, Kal thermo sketch. 24 June, 1943.
28. Drawing #1831b. Gas preheater, Ka4 thermo sketch. 7 Aug. 1943.
29. Drawing #1946. Gas preheater, Kal2 thermo sketch. 25 Jan. 1945.
30. Drawing #1807b. Gas preheater, Kal5 thermo sketch. 18 Dec. 1942.
31. Drawing #A2041-16. Braunkohle Benzin. Specification sheet - "Cold gas tubes to tar oven." 7 Feb. 1945.
32. Drawing #a669c. Flow sheet - gasoline chamber 3. Feb. 1945.
33. Drawing #1854 d. Flow sheet - gas preheater with control equipment.
34. Drawing #N9561c-2. Flow sheet - chamber layout for synthesis No. III. Experimental synthesis, I. G. Farben. 30 Jan. 1940.
35. Drawing #7982f-2. Flow sheet and connection diagram for synthesis I, I.G. Farben. 22 Dec. 1939.

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36. Drawing #8204c-2. Flow sheet and connection diagrams for synthesis II - cooler preheater, etc. 28 Dec. 1939.
37. Drawing #FZe 5030-2. Preliminary diagram T.H.H. Layout preheaters and heat transfers. 22 Feb. 1937.
- ~~38. Prospectors Drawing #M1859-1. Basic flow sheet of sump oven chambers. 16 June, 1931.~~
39. Prospectors Drawing #M1860-1. Basic flow sheet of gasoline chamber. 17 June, 1931.
40. Prospectors Drawing #M4185-2. Basic flow sheet. "Obtaining gasoline from ground oil and tar." 17 June, 1931.
41. Prospectors Drawing #M4186-2. Basic flow sheet. Gasoline from coal.