ADDRESS NAVY DEPARTMENT,
BUREAU OF SHIPS
Section 341
REFER TO FILE NO.
QC/NTME(341)

NAVY DEPARTMENT

BUREAU OF SHIPS
WASHINGTON 25, D. C.

FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

14 December 1945

Subj: Microfilm of German Technical Documents - Introductory Statement for.

1. During the course of its field trips to examine German synthetic oil plants and to interrogate German technical personnel, the members of the Oil Team of the U.S. Naval Technical Mission in Europe obtained a number of technical documents for examination. Some of these documents were directly related to certain subjects in which immediate reports were desired and were incorporated in Technical Reports as microfilm appendices. Other documents, while probably of equal technical value were, due to limitations of time and translation facilities, saved for more detail study and examination. These latter documents have been indexed and microfilmed by the Bureau of Ships to preserve the technical information therein for future use and to make possible the dissemination necessary to give each activity an opportunity to study the particular topics of interest to it.

2. The documents in this series cover a variety of subjects. They are not arranged in any particular sequence, but have been separated arbitrarily into sections of a convenient size. An index to each section has been prepared and appears at the beginning of the appropriate section. In addition, the indexes of all sections have been photographed at the beginning of the first reel.

3. The contents of this film are not to be taken as a complete record of the information on any subject obtained by the U.S. Naval Technical Mission in Europe. Rather, reference should be made to the complete set of films which have been prepared by the Bureau of Ships if it is desired to review all the data available.

4. The Bureau of Ships, Research and Standards Branch, would appreciate receiving, for its technical files, a copy of any translations made of these data.

T A Solberg

T. A. Solberg
By direction of
Chief of Bureau

FROM BUREAU OF SHIPS, NAVY DEPARTMENT, WASHINGTON 25, D. C.

04061-04370 04061

I

"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.

I 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 exhaust gas from the Synthesis process as a source for Synthesis gas appears under Synthesis gas production.

Three flow sheets covering the overall installation, the catalyst production and the reduction installation are included in the reports.

A contribution on the working of the Centrifuge" D. Backmann. (46 pages).

A technical paper appearing in the Verfahrentechnik No. 2, 1940 by D. Backmann is divided into two parts: - 1 - Action with Dry Grinding Matter and - 2 - Action with wet working materials.

2 Besides a mathematical discussion of the action, a comparison with other methods are shown in charts and graphs. Literature references are given.

3 "Cost development work in Schwarzheide, " Kollmar, No. 112, Feb. 12, 1941 Cost ratios of the production of motor fuel from 1936-1940 at the

Schwarzheide 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. Twenty-one 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, forty-five pages of charts.

8 "Hydrogenation plant at Pölitz, management monthly report for August 1944," Dr. Pier, thirty-four pages of production charts.

9 "Neopentane (tetramethylmethane) and triptane (trimelhylbutane)", Bueren, high pressure investigations, Lu 558, June 5, 1942, one page discussion of the synthesis of neopentane and triptane.

"Measurement of the indexes of high speed motors," Kurt Schnauffer, Rundschau, July 26, 1930, one page with graphs.

10

"The power in the tool-machine", Schesinger. Rundschau, July 26, 1930, one page with charts.

"Suden motor fuel plants, aktiengesellschaft," monthly production report No. 6 for Jan. 1943.

11

Part 15 04371

(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 DVL (German Institute for Air) Power (Combustion) Material - Testing Method" - Dr. Burkart 10/17/44. 8 pages of text and 12 pages of illustrations and drawing. 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 pages).

(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).

04372

(8) Measurement of incandescent combustion temperatures in high speed combustion engines Kurt Schnauffer.
26 August 1933.
Five pages, thirteen 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 #587 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 red 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.

(13) 5 pages test 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 Hydrodymanic" 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.

(18) Testing of high anti-knock synthetic combustion materials. F. Seeber Institute for propellant research of the German Research Foundation for air travel.
Thirteen pages, thirteen charts and one 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. Morghen Aug. 3, 1943. 5 pages. Research paper under auspices of the German Institute for air.

(21) "Reaction Kinetics considerations of knocking in motors" - W. Jost and L. von Miiffling. 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 - Four pages with charts.

(25) "Lubricating Oil Additions to Hinder Ring Sticking" - (Anti Ring Sticking-Dopes). Report #A 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" -

(25) Its manufacture and motor behavior; and 4- An appendix consisting of graphs on the data. Total of 23 pages plus 13 graphs.

04822-04850 Part 76 04822

DRAWINGS

UNDER GROUND 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 Duplicate of item # -4-.

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. 15/44 - Layout.

8. Gas Generating Installation (Co /H2) Drawing # M12717-2 Annoniakwerk, 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 # M10234-2

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 # M101[illegible]-4 Ammoniakwerk, Merseburg 11/2/1944.

18. Arrangement of a Power(Electric) Works Drawing # M6284-1 Ammoniakwerk, Merseburg 11/16/44 (2 copies)

04824

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 # M5686-1 Ammoniakwerk, Merseburg 11/16/44 (2 copies).

04851-04890 Part 17 04851

IN ENVELOPE MARKED HYDRO PRINTS

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

2. Scale drawing # 2341-1 Mineralol Baugesellschaft. Isobutin 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 Baugesellschaft. 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 Böhlen 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 # M 4336-2 TTH research with circulated contact /catalyst/ preheater 11. 20 Dec. 1937.

20. Scale drawing # N4295d-1 I.G. Farben. Forging shell 1000 Min. Ø 18 m long. 29 July, 1941.

21. Scale drawing #2264-1 Mineralöl Baugesellschaft. Assembly of Gas converter. 23 Sept. 1937.

22. Scale drawing # A 951-4 Braunkohle Benzin Cooling gas fittings. 28 Nov. 1944.

23. Flow sheet # 1801a Gas preheater 23 Aug. 1941.

24. Scale drawing # 25a-4 Braunkohle Benzin Thermocouple well tar converter. 7 Aug. 1943.

25. Scale drawing # 2512-1 Mineralöl Baugesellschaft. Pipe lines for TTH converters. 10 Feb. 1938.

26. Flow sheet # N 7775-2 I.G. Farben. Slump phase with gas preheater 10 Nov. 1939.

27. Scale drawing # 671-1 Braunkohle Benzin Assembly of Tar Converter 1000 ø X 18 m. 5 Jan. 1936.

28. Scale drawing # 2287-1 Mineralöl Baugesellschaft. Assembly 600 ø Converter. 5 Oct. 1937.

29. Scale drawing # N 4043 I-2 I.G. Farben cold separator body. 8 Nov. 1937.

30. Scale drawing # N 4278c-2 I.G. Farben. Cold separator assembly. 22 Apr. 1937.

31. Scale drawing # 3289-2 Mineralöl Baugesellschaft. gas cooler. 7 Apr. 1938.

2. 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 # A706-1 Braunkohle Benzin Cooling gas lines and funnel neck. 6 May, 1942.

36. Scale drawing # 22-2 Braunkohle Benzin. Shell 600 Ø converter. 22 Nov. 1934.

04891 - 05086

04891

(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.

05087-25/32

05087

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 (Oile) 6 Feb. 1936.

3. Scale drawing # 3524-2 Mineralöl Baugesellsehaft. 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. Böhlen 1 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 # 4629/201,203. 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 March 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 23 Nov. 1939. Ammoniakwerk, Merseburg.

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 April, 1944.

24. Drawing # 1875b - Gas preheater Gasoline chamber 12, 25 Jan. 1943.

25. Drawing # 1893c Gas preheaters, 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 Ka 15. Thermo sketch. 18 December, 1942.

31. Drawing # A2041-16 Braunkohle Benzine. Specification sheet - "Cold gas tubes to tar oven" 7 Feb. 1945.

32. Drawing # a669c Flow Sheet - Gasoline Chamber. Feb. 1945,

33. Drawing # 1854 d Flow sheet. Gas preheater with control equipment.

34. Drawing # N 9561c-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.

36. Drawing # 8204c-2 Flow sheet and connection diagram for synthesis II - Cooler preheater, etc. 28 Dec. 1939.

37. Drawing # FZe 5030-2 Preliminary diagrm 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.