

ADDRESS NAVY DEPARTMENT,
BUREAU OF SHIPS

Section 341

REFER TO FILE NO.

QC/NTMB(341)

NAVY DEPARTMENT

BUREAU OF SHIPS
WASHINGTON 25, D. C.



7 November 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 micro-filmed 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. There follows an index to one box of these documents, and a microfilm of the original documents in the same sequence that they appear in the index. The box number is for convenience only. The contents of this film are not to be taken as a complete record of the information obtained on any subject nor have they been grouped by topic.
3. The Bureau of Ships Research Branch, would appreciate receiving a copy of any translations that may be made of these data in order to complete its technical files.

T. A. Solberg
By direction of
Chief of Bureau

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

Listing of German Technical
Documents by Title and Brief Abstracts

Box I.

Item No.

- 1 Layout plan of Hoesch Benzoin Fischer-Tropsch plant (1:1000).
Location of buildings and major equipment areas.
- 2 Thermal investigation and determination of flow resistance of
different fluids in a unit cooler.
A research report of eighty-four pages of the Hydrogenation
Works at Leuna, dated March 3, 1931, using a specially
designed experimental tubular cooler. The flow resistance,
and heat transfer characteristics of methanol, water, gasoline,
middle oil, tar fractions and residues are studied. Many
graphs of experimental data are included.
- 3 Investigations and theories concerning catalysts' Regeneration
in Catalytic Cracking Processes.
The report of approximately sixty pages by K. Otto of Leuna
Works dated August 1, 1943. First portion of report deals with
experimental work on regeneration of the catalyst with air
under various conditions of operation. The second part of
the report deals with the theory of catalyst regeneration with
pure air. Many drawings and graphs are included at the end of
this report.
- 4 Calculations and Construction of High Pressure Synthesis
Chambers with Cooling System Similar to Steam Boilers.
A research report of about fifty pages by Wirth (Company *M and*
location unknown) dated July 27, 1944. A theoretical study
of heat transfer from catalysts such as are used in the synthesis
of methanol to boiling water using tubular methods of con-
struction.
- 5 The Design of Catalyst Chambers and Catalytic Exothermic and
Endothermic Reactions.
The report of fourteen pages by Wirth of Leuna Works dated
April, 1942. The theory of catalyst chamber design where heat
transfer is involved using various schemes of heat conducting
plates and tubes for heat removal or heat input. Includes
several graphs of data.
- 6 Application of Official Regulations for the Selection of Con-
struction Material, especially steel and iron in the Merseburg
Ammonia Works.
A report of fifty-six pages covering the application of various
materials to the design of buildings and equipment in the
Ammonia Plant at Merseburg dated about 1937. Includes various
photographs of buildings and equipment as well as structural
line drawings.

Item No.

- 7 Investigation of the Preparation of Active Carbon from Brown Coal.
A research report by Dr. Hanisch dated about 1933 of twelve pages plus several large tables of data and various graphs. Describes pilot plant tests on the production of active carbon by treating brown coal with mixtures of air and steam or oxygen and steam using a dancing fuel bed such as is used in a Winkler Generator. The yield was very low. By using a fixed fuel bed in a shaft oven there was obtained a good yield of highly active carbon.
- 8 Possibilities of using Coke Breeze in Leuna.
The memorandum of Leuna Works dated August 12, 1935, discussing possibilities of using coke breeze in the Winkler Generators at Leuna and the changes that would be necessary to use this material.
- 9 Drawing showing Layout Plan for Winkler Generator Plant of 80,000 cubic meters per hour. (Bamag-Meguin)
- 10 Typical Operating Data of Winkler Generator.
Several sheets of gas analysis and typical operating data sheets.
- 11 Not labeled.
Drawing (Merseburg Ammonia Works) of a portion of Winkler Generator Plant tubular equipment.
- 12 Diagrammatic Layout of Tubes in Equipment, Nature of which is not indicated at Böhlen Works of Braunkohle-Benzin, A.G.
- 13 Two Graphs, First showing Velocity of Gas Flow at different locations in the waste heat boiler and the second showing cross sections and temperatures at different locations in the waste heat boiler.
Possibly refers to Winkler Generator Plant.
- 14 Unlabeled and undated free hand sketch possibly of a Winkler Generator.
- 15 A report on repairs of waste heat boiler III.
A report of the Böhlen Works of Brabag dated March 3, 1943, containing nine pages and various photographs describing the condition of this particular waste heat boiler from the Winkler Generator Plant. There is a description and various photographs of the condition of the tubes and conditions of the refractory, including the build up of slag etc.
- 16 Investigation of Sieving.
A nineteen page report with location and date unknown. Deals with test of sieving dried brown coal, apparently as related to operation of a Winkler Generator. These are laboratory tests dealing mostly with the fall of the coal through tubes

Item No.

- 16 and the carrying away of the dust in a stream of air or carbon dioxide.
- 17 Investigation of the Gasification of "filter" dust. A research report of thirteen pages and various drawings and graphs dated October 24, 1931, on the gasification of coal dust with high ash content in a (cyclone) generator. Results of pilot plant test on a continuous gasification of coal dust in a special type of generator.
- 18 Investigation on the gasification of coal and coke by the Winkler process. A report of eighteen pages and several large tables and graphs by Dr. Hanisch of Leuna Works dated June 29, 1932. Describes the results of experiments in a small generator of 1150mm diameter on the continuous gasification of coal and coke. Principle used was that of the dancing fuel bed of the Winkler Generator. Complete material balances, temperatures, etc., are given.
- 19 Study of Boiler Destruction by Rupture of Tubes as shown by the examination of waste-heat boiler of Winkler Generator, 1A, A report from the Böhlen Works of Brabag dated March 21, 1942, containing five pages and various photographs and graphs. A discussion of the causes of the breakage of tubes in the waste-heat boilers of the Winkler Generator.
- 20 Drawing of Ground Plan of Atmospheric Water Cooling Power (system Balcke) for Zeitz Works, Brabag.
- 21 Various methods of operating Winkler Plant with oxygen. A brief three page memorandum from Leuna dated June 9, 1932, indicating different methods of operation of the Winkler Generator Plant.
- 22 Preparation of power gas forming char. A brief memorandum of five pages from Leuna dated December 14, 1936, giving the results of gasification of brown coal char in a gas generator.
- 23 Preliminary degassing of char for Winkler Generator gas. A brief report of five pages presumably from Leuna dated December 23, 1936. Describes various ways of degassing the brown coal char before it is used in a Winkler Generator.
- 24 One page letter of Brabag dated January 22, 1941, regarding fuel consumption, etc., in a Winkler Generator for production of water gas that is eventually to be made into synthesis gas.
- 25 Proposal and installation of a Winkler Generator for 30,000 cubic meters of water gas for preparation of synthesis gas instead of Koppers' plant.

Item No.

20004

25

A project proposal of six pages dated January 5, 1941, for a Winkler Generator Plant to make water gas which would then be converted into synthesis gas as an alternative to a synthesis gas plant proposed by Koppers. This project gives the characteristics and quantities of fuel required, the oxygen requirement, power requirement unit and removal of carbon dioxide etc. Also figures on the cost of the plant are given.

26

A report on Methane Cracking.

This very rough undated and unsigned report is in long hand and apparently had not yet been typed. It gives some of the principles of methane cracking, a description of some of the methane cracking plants, such as Koppers and Bmag, and also gives the results of an investigation of methane cracking in a Winkler Generator.

27

A series of extremely brief reports from Böhlen in 1942 and 1943 regarding the removal of dust from gas waste waters, oxygen plant and various other matters.

28

A series of brief reports of various dates on dust content of gas, gas analysis, analysis of char used as fuel in the Winkler Generators, dust removal from gas, etc.

29

Inspection of various characteristics of the gas production of Suedenlandischen Treibstoffwerke, A.-G. at Brück.
A very brief report dated May 11, 1944, on construction details of the Winkler Generator, waste heat boilers, cyclone dust separators, etc., at this plant.

30

Daily operating results of water gas generator at Leuna.
An undated long hand report on daily operating results of the Winkler Generator at Leuna in which an attempt is made to correlate various operating and analytical figures. Report includes several graphs of results.

31

Various brief reports, some in long hand, on various details of operation of Winkler generators.

32

Graph location and date not known.
Showing the relationship of carbon ash presumably entering the Winkler Generator by different methods.

33

File Folder constituting hand book of data from Ruhrchemie, A.G. Includes such data as power requirements for pumps and blowers, pressure loss in pipe linings, Reynolds No. for pipes, thermal conductivity of various materials, physical characteristics of various gas vapors, and many other data in tabular or graph form useful in fuel technology.

34-A

A brief two page resumé dated October 16, 1942 on various methods for production of hydrogen.

34-B

A catalog of Lurgi describing the Lurgi Krupp process for production of a coke from briquetted coal.

*Typed on
Jan 96 S*

Item No.

20005

- 34-C Various drawings of plant for process described above in 34-B.
- 34-D Report of four pages plus one color flow diagram of high pressure generator plant from Böhlen dated October 30, 1942. A very brief description of the continuous gasification of solid fuel by means of steam and oxygen in a high pressure generator.
- 34-E Description of ash removal from bottom of high pressure gas generator.
A brief report of six pages and a color flow diagram showing method of removed ash from bottom of high pressure continuous gas generator such as is described above in 34-D.
- 34-F Measure for prevention of frost damage when gas work is totally shut down.
A brief list of instruction from Böhlen dated January 5, 1945, giving instructions on above.
- 34-G Two tracings showing construction of high pressure gas producers.
- 34-H Three graphs from Böhlen having to do with operation of high pressure producers with oxygen.
- 34-I Several documents having to do with production of Fischer-Tropsch synthesis gas in Japan mainly on project at Fuschin. All of this project data from Lurgi.
- 34-J Lurgi oxygen pressure gasification.
A brief report of seven pages from Leuna Works dated October 25, 1938. This is a very brief resume of the technical features of the process, with no drawings shown. Analyses of the gas are given and figures and cost of the plant are also outlined in this report.
- 34-K Curve showing the relationship between ash melting temperatures and height of testing cone.
- 34-L Data on various processes for production of synthesis gas. A large table prepared by Lurgi giving comparison of various synthesis gas production processes.
- 34-M Schematic drawing of Krupp Lurgi low temperature carbonization oven.
- 34-N Schematic drawing of entire plant for Krupp-Lurgi low temperature carbonization.
- 34-O Krupp-Lurgi low temperature carbonization process. A memorandum of products produced, dimensions of ovens, temperatures, etc. Also line sketches of equipment are included.
- 34-P Krupp-Lurgi low temperature carbonization plant, distillation tests with Weber briquettes.

Item No.

- 34-P A nine page report dated April 17, 1940, on special tests of this process with briquettes.
- 34-Q A memorandum on production of gas for synthetic oil.
A two page memorandum of November 30, 1937, by Lurgi on the production of synthesis gas by the pressure process.
- 34-R Research on pressure gasification at the Böhlen Plant from October 5-12, 1941.
A sixteen page report giving operating results of operation of the continuous gasification by means of steam and oxygen. Includes tables of operating results, graphs and outline and schematic drawings of the test plant.
- 35 Series of drawings and data on the Schmalfeldt Wintershall process.
Series of about a half-dozen reports and about eight drawings describing this process for manufacture of Fischer-Tropsch synthesis gas.
- 36 Includes a large number of drawings and reports on various methods for manufacture of water gas, synthesis gas hydrogen, etc. Details as follows:
- 36-A Diagram of Pintsch process showing quantities at various points of system instruments, etc.
- 36-B Detailed drawing of Pintsch process.
- 36-C Detailed drawing of Pintsch process.
- 36-D Koppers gasification plant at Schwarzeide.
Cross section through the generator plant.
- 36-E Small unlabeled drawing of gasification plant at Böhlen.
- 36-F Koppers gasification process at Schwarzeide showing details of generator.
- 36-G Drawing showing details of Pintsch-Brassert generator.
- 36-H Three small sketches of details of Pintsch generator.
- 36-I Flow scheme for hydrogenation of 200,000 tons per year of tar to 150,000 tons per year of gasoline, Böhlen plant.
- 36-J Schematic drawing of tar distillation by Friedrich Uhde.
- 36-K Schematic diagram of tar overhead oil distillation plan. Ammonia Works, Merseburg.
- 36-L Schematic diagram of filtration of sludge for coking of sulphuric acid hydrogenation residue.

Item No.

20007

- 36-M Schematic diagram of filter residue coking.
- 36-N Two detailed drawings of coking oven and hydrogenation residue.
- 36-O Drawing showing layout of Koppers' coke oven gas cracking plant at Rheinpreussen.
- 36-P Drawing showing details of waste heat boiler, Brabag.
- 36-Q Drawing showing details of Koppers' coke oven gas cracking plant at the Müke plant.
- 36-R Memorandum of I.G. dated January 17, 1936, to Japanese interests on methane cracking plants for Winkler water gas generator
- 36-S Series of brief reports of methane cracking by Koppers' Bamac process and Winkler Generator, etc.
- 36-T Two tracings of data on cracking of methane and coke oven gas.
- 36-U Koppers' process for gasification of coal dust.
A report of five pages and several drawings and diagrams of Heinrich Koppers dated June 4, 1945. Shows the material and heat balance of the process and also a schematic diagram of the operation.
- 36-V Drawing showing details of refractory brick in Koppers synthesis gas oven at the Brabag plant.
- 36-W Drawing showing details of synthesis gas piping for Koppers' process at Brabag.
- 36-X Drawing showing details of gas, air, and steam piping at Koppers synthesis gas plant at Brabag.
- 36-Y Report on Thyssen-Galocsoi Plant at Warne-Heickel.
An eight page report dated September 4, 1944, on changes in the arrangement of burners, apparently having to do with the Thyssen-Galocsoi Generator Plant.
- 36-Z Drawing showing the layout plan of the Thyssen-Galocsoi Plant.
- 36-AA Drawing showing elevation of the Thyssen-Galocsoi Plant.
- 36-BB Drawing showing details of the Thyssen-Galocsoi Generator.

Continued in Reel 189