

ANNEX I

SUMMARY OF DATA ON  
KNOWN HYDROGENATION PLANTS  
IN AXIS EUROPE

In the discussion of each plant there is summarized the most pertinent information contained in the British reports from aerial reconnaissance, including the British estimate of plant capacity, followed by our comments under the heading "Discussion".

BLECHHAMMER NORTH

Company: Oberschlesische Hydrierwerke (I.G. owned)

Date Coverage: October 6, 1942 (D-183)

Location: 6 Mi. E. of Cosel, on S. bank of Adolf Hitler Canal (Klounitz Canal), canal to Blechhammer South (4 Mi. to the S.W.) under construction.

Plant Area: 10,000' x 5,000' (1,150 acres)

Description: Hydrogenation of Tars

- (a) Power Plant: There appear to be 2 power houses, complete with generator halls, etc., located in 2 different parts of the plant. The one to the N. will be about 440' x 1000', about half complete, 6 cooling towers (4 complete), 2 at 170' and 4 at 130'. The one to the S. consists of 2 buildings 160' x 210' and 280' x 240'.
- (b) L.T.C.: 1 carbonization house 430' x 90' of 10 stacks, with room for 3 more houses (but no work started on them yet). Coke is delivered to Watergas plant and S. power plant.
- (c) Gas manufacture: Watergas plant 350' x 100' with 9 generators, and 9 more generators building, with H<sub>2</sub>S removal (building 290' x 52' with 20 columns D. 15'), etc. A group of large buildings may be a Linde plant. Main compressor house 460' x 110'.
- (d) Hydrogenation: 8 stalls (4 pairs) with room for many more. Size of stall: - 40' x 26'.
- (e) Refinery: 1 section for N.T.C. products (4 dist. columns in and at least 4 more under construction) and 1 section for hydrogenated products (3 columns, no furnaces; only small part of refinery is completed).
- (f) Tankage: Existing tankage in 8 different locations with a total capacity of 70,000 tons.

Estimated Capacity: 500 T/Yr. of gasoline from tar (8 stalls).

## Blechhammer North (continued)

### Discussion:

We concur with the British estimate of capacity.\* Since a large part of the heavy equipment seemed to be in at the date of coverage, we would estimate that the plant would be completed by July 1, 1943, and have put this plant down for a 1943 production of 250,000 Tons.

\*We wish, however, to draw attention to the fact that, if the plant capacity were estimated from the H<sub>2</sub> producing capacity, it might easily be 50% higher.

BLECHHAMMER SOUTH

Company: Unknown

Date Coverage: October 6, 1942 (Rep. D-184)

Location: 4 mi. S.E. of Blechhammer North with which it will be connected by a canal.

Plant Area: 12,700' x 4,000' (1160 acres)

Description: Direct hydrogenation of coal.

(a) Power Plant: Unusual construction-

Boiler House 400 x 270'

Generator Hall 300 x 110' (may be 600' when finished).

S.E. of the refinery is another power plant 160' x 135' which is already in use.

(b) Gas Manufacture: Watergas plant 660' x 55' (120' high) with 18 generators (75% complete) with probably at least 7 more building.

H<sub>2</sub>S removal 510 x 80' with 34 columns 16' D. There are several unidentified buildings which seem to be connected with gas production and/or gas synthesis.

Gas holders, 1 at 67', 1 at 80', 1 at 110', 1 at 135'.

CO<sub>2</sub> removal plant with 20 columns (15 completed).

2 compressor houses:- one of 670' x 107' with 12 compressors, and one of 500' x 107' with 8 compressors.

(c) Hydrogenation Plant:

No. of stalls: 13 pairs and 2 triples (one only fundamentals), namely 22 stalls at 27' x 20', 4 stalls at 20' x 12'.

Stalls in triple stalls 27' x 20' but isolated location and probable lower height (26') make it possible they are for either buna or hydrofining.

(d) Refinery: 2 rows of distilling columns as at

Leuna:- 1st row, 6 col. at 60' high and 4 col. at 40' high, 2nd Row, 8 col. at 60' high. There is some unidentified

Blechhammer South (Contd).

construction in the refinery section which looks as if it might have a small throughput of some valuable product.

- (e) Tankage: 4 groups of tanks with total capacity 41,000 Tons.

Estimated Capacity: 500 T/yr. of gasoline from coal.

Estimated Date Completion: Second half 1943

Discussion:

We concur with the British estimates of capacity\* and approximate date of completion, and have tentatively put this plant down for a 1943 production of 200,000 Tons of gasoline.

\*We wish, however, to draw attention to the fact that, if the plant capacity were estimated from the  $H_2$  producing capacity, it might easily be 50% higher.

## POELITZ

Company: Hydrierwerke Poelitz A.G.

Date Coverage: January 6, 1942 (Rep. D-57, D-13, D-32)

Location: Situated W., N.W. of Poelitz, W. of the river Oder, in the Poelitzer Stadtwald.

Plant Area: 5,500' x 3,600' (450 acres).

Description: Hydrogenation plant of great flexibility, capable of treating practically any type of raw material.

- (a) Power Plant: Buildings 550' x 380'.
- (b) Gas Plant: There is a watergas plant and a methane steam plant. There are three gas holders; there appears to be a Winkler generator, compressor house 715' x 97'. Extensions to the hydrogenation plant were evident in late 1941.
- (c) Hydrogenation: There seem to be at least 29 stalls (of which 22 appear completed), viz., 10 sets of double stalls measuring 97' x 25' and 3 or more sets of triple stalls (under construction) measuring 126' x 29'.
- (d) Refinery: There appears to be adequate refinery capacity.
- (e) Tankage: Much larger tankage than is apparent at Lelna.

### Estimated Capacity:

Discussion: It is known from prewar plans that this plant was to have a capacity for producing 200,000 T. of gasoline per year from bituminous coal and in addition up to 650,000 tons of gasoline and diesel oil from reduced crude or tar--a total of 850,000 tons. In 1941 there were additions to the hydrogen producing capacity of the plant which may reflect the need of hydrogen capacity when using coal tar instead of reduced crude as feed stock, but there may be an overall increase in capacity of the plant as would also appear from the increase in the number of stalls. In our estimate of 1940, it was assumed that a large part of the plant was operating on fuel oil from Roumania or Estonian shale oil, but we now believe that at least in subsequent years the capacity has been predominantly devoted to synthesis of coals and tars to improve the overall oil position in Axis Europe. We have estimated that for 1943 Poelitz would produce 700,000 Tons from these sources alone.

## GELSENKIRCHEN

Company: Gelsenberg Benzin A.G.

Date Coverage: June 2, 1942

Location: Along E. side of Nordstern III mine, N.W. of Gelsenkirchen on the N. side of the Emscher Canal.

Area: Triangular shape 4,500 x 3,000 (about 160 acres).

Description: Bit. coal hydrogenation (700 At.)

- (a) Power Plant: 380' x 307', 3 chimneys, 4 cooling towers D. 84'. In Sept. 1939 only 2/3 of the power plant was ready, the rest was completed by Dec. 1940.
- (b) Gas Plant: There seem to be 3 independent plants:
  - (i) Direct gasification of coal (probably Winkler type), building 90' x 70', 8 columns, gasholders D. 95'.
  - (ii) Watergas plant: 20 generators in line 450 x 72; of them in '39, 12 were completed and 8 in action, by March 1940 all complete but 8 were not used. 2 gas holders D. 143' and 90'.
  - (iii) A third plant erected between March 1940 and March 1941. Building 100' x 40' with 4 chimneys.

It is suggested that the gasplant is over-size and supplies Huelz with gas through a pipeline laid in 1941.

(c) Hydro:

- (i) Compressor house 600' x 87', probably 12 compressors.
- (ii) Number of stalls: 12 (6 pairs)
  - 5 pairs at 89 x 30 overall
  - 1 pair at 107 x 30 "of them only 6 stalls were complete in Sept. 1939.
- (iii) Carbonization of residue: 6 ovens at 47' x 37', of which 3 were operating in Sept. 1939 and all by Dec. 1940.

Gelsenkirchen (continued)

(d) Refining: 9 furnaces (since March 1941) of which in Sept. 1939 only 4 complete. There is a separate section for the working up of light ends that may include a poly or alkylation plant.

(e) Storage Tanks: Prim. Prod. 58,000 T.  
Fin. Prod. 29,000 T.

Capacity: 300,000 T/Yr. (or more) of which half running in Sept. 1939, the remainder by the end of 1940.  
There are no indications of recent expansion.

Discussion: We do not see any reason to change our original estimate of 400,000 tons, at least for the years 1941, 1942, and 1943, in view of the large hydrogen producing capacity as well as the refinery capacity (nine heater houses). These are in line with the twelve stalls of large size and the fact that this is a modern 700 ats. plant. The considerable extensions, particularly in hydrogen capacity, during 1940 suggest that the capacities for 1939-1940 should be somewhat reduced and we have rated this plant for a capacity of 150,000 tons for 1939 and 200,000 tons for 1940.



## SCHOLVEN

Company: Hibernia A.G.

Date Coverage: April 16, 1942

Location: S. of village Niederscholven (near Becklinghausen), on Buerdorster Rd., immediately E. of Scholven I and II coal mines, coking plant and power station. 3/4 MI. E. of mine Bergmannsgluck.

Plant Area:

Description: Bit. coal hydrogenation (300 at.) connected with ammonia plant.

- (a) Power: From pithead combined with  $\text{NH}_3$  plant.
- (b) Gas Manufacture: From 4 watergas generators combined with  $\text{NH}_3$  plant.  $\text{H}_2$  plant is being extended.
- (c) Hydrogenation: Old plant 6 stalls of 37' x 27'.  
New hydro unit has 4 stalls completed (in Dec. 1940) and 4 more under construction (in April 1942).

Refinery: New refining construction.

Tankage:

Estimated Capacity: Original 6 stalls est. at 150000 T/  
1941 and 1942 (10 stalls) 250000 T/  
1943 (14 stalls) 350000 T/

Discussion: According to information, in Dec. 1936, Scholven had 5 stalls operating, viz. 3 stalls on coal and 2 on vapor phase. The coal stalls had 3 ovens each with a total reaction volume per stall of 36  $\text{M}^3$ , the vapor phase stalls had 2 ovens each with a total reaction volume of about 20  $\text{M}^3$  per stall.

The plant also had Demag watergas generators; the distillation plant was built by Borsig under license from Foster Wheeler. There was also a Linde plant for the recovery of  $\text{H}_2$  from release gas.

We concur with the British estimate.

## WELTHEIM

Company: Ruhroel A.G.

Date Coverage: April 12, 1944 (Rep. D-118)

Location: Zeche Vereinigte Weltheim, S. of road from Bottropp to Horst and N. W. of railway Bottropp to Geisenkirchen.

Plant Area: 150 acres (triangle 3150' x 3150' x 2100')

Description: Hydrogenation (700 ats) of Pott Broche extract.

(a) Power Plant: Large power plant with two chimneys.

(b) Gas manufacture: Linde separation of  $H_2$  from coke oven gas 250' x 110'. 2

(c) Pott Broche Process: Two towers and a filter house (180' x 90' for P. B. Process).

(d) Hydrogenation: 5 Stalls, viz.,  
2 of 45 x 28'  
1 " 55 x 28'  
1 " 60 x 25'  
1 " 40 x 25'

(e) Refinery: Three furnaces (1 large, 2 small)

(f) Tankage:

Estimated Capacity: 100,000 T/Yr.

### Discussion:

In June 1938, Weltheim had been operating for eight months with one stall of a total reaction volume of 14.7 M<sup>3</sup>, at an output rate of 80,000 T/Yr. of a synthetic crude, consisting of 60-68% fuel, 20-25% gas oil and 12-15% gasoline, which gasoline upon hydrofining produces a highly aromatic gasoline (60% aromatics, 25 O.N.). It is our interpretation that the five stalls now operate to convert all the product into gasoline with three stalls operating sump phase and two gas phase, with a total capacity of 150,000 tons per year. We have revised our estimate accordingly.

## BRUEX

Company: Sudetenlaendische Treibstoffwerke  
(Sometimes this plant is also referred to as  
Brabag V).

Date of Coverage: May 7, 1942 (Report D-100)

Location: Lies immediately S.E. of the village of  
Maltheuern and three miles N.W. of Bruex.  
The Julius III coal mine lies immediately  
to the S.E. of the works.

Plant Area: 6700' North and South by 3570' East and West.

Description: This is a plant for the hydrogenation of brown  
coal L.T.C. lignite tar which is also produced  
at the plant.

- (a) Power House: Three boiler houses 265' x 170',  
one operating, one nearing completion and  
one with foundation.  
Generator halls - 3, - 215' x 100'.
- (b) Low Temperature Carbonization: There are to  
be eight 10 stack Lurgi low temperature  
carbonization units, of which two are at  
least in part operating, two appear to be  
completed, two about half complete and work  
on the remaining two not yet begun.
- (c) Gas Manufacture: Hydrogen produced in Winkler  
ovens, of which there are four (Note: Construc-  
tion under way suggests four more are to be  
built) with a Linde plant for producing oxygen  
and other complementary equipment. A building  
under construction with a row of towers 8' in  
diameter and with traveling crane appears to  
be for organic sulfur removal. Another build-  
ing 300' x 160', with a row of 14 columns, half  
of which is completed, is believed to be the  
CO converters and possibly first stage compres-  
sion. The main compressor house is 300' x 120'.  
While there is room for expansion, there are no  
foundations or other evidence of same. A  
building 115' x 95' with 6 towers 16' D. is  
believed to contain the equipment for scrubbing  
CO<sub>2</sub> out of the hydrogen.

Bruex (Contd.)

(d) Hydrogenation: 14 stalls (7 pairs) of which 12 (6 pairs) are completed; each stall measures 42' x 24' inside. Four of the stalls seem to be ready and contain 6 to 7 towers, each of 3 to 5' D. (The 5' D. towers are probably 1200 mm. ovens with a capacity of about 13-1/2 m<sup>3</sup> reaction volume and the 3' D. towers may be either heat exchanger or 800 mm. ovens.).

(e) Refinery: There are two refinery sections, of which only one is sufficiently advanced for description. This part is in seven sections, of which six contain distillation equipment; five sections contain two heating houses with common chimney, distillation columns, heat exchangers, etc. They are of different sizes indicating the handling of different stages of production.

(f) Tankage: Not complete, but well over 100,000 Tons.

Estimated Capacity: 250,000 T/Yr. (4 stalls), and 750,000 T/Yr. upon completion of 14 stalls.

Estimated Date of completion: Plant construction is to be sufficiently advanced for the first four hydro stalls to go into operation soon after this photographic coverage (May 7, 1942).

Discussion: We concur with the British estimates and believe the plant will be in full production of 750,000 T/Yr. of gasoline from January 1, 1943. Production is estimated to begin about July 1, 1942 at the rate of about 20,000 T/month, increasing to the level of about 65,000 T/month by the end of 1942, or say 100,000 T. for the period from July 1 to December 31, 1942.

The ultimate low temperature carbonization plant when completed will have a capacity of the order of 1,000,000 T. of tar per year. At the time of coverage 50% of the plant was completed and 25% was certainly in operation. There are reports of products moving out of Bruex as early as the beginning of 1942 which must be taken to be low temperature tar products. There is a report that synthetic fats are made at this plant which might stem from the wax produced in the L.T.C. tar or in the larger amount of wax that would be produced from hydrogenation. There is reason to believe that at least part of the low temperature carbonization tar is shipped to Poelitz or some other hydrogenation plants.

LEUNA

Company: I. G. Farbenindustrie

Date Coverage: August 1, 1942 (Report D-196)

Location: Leuna is located in the brown coal area of Central Germany near Merseberg and about one mile from the Saale River. The main line railroad from Frankfort to Berlin borders the plant.

Plant Area: 2 Mi. x  $2/3$  mi. (850 acres). (Inc. Chemical Works and new extensions).

Description: Leuna has the largest fixed nitrogen plant in the world at the rated capacity of 850,000 tons of nitrogen per year with numerous other chemical operations in addition to the synthetic oil plant.

- (a) Power Plant: There are five old boiler houses occupying an area 3,800' long by 90' wide, and since 1935 a new boiler house was built near the synthetic oil plant 575' x 165'. The latter is reported to generate steam of 1500 pounds pressure. The plant is also connected with Gross Kayma, Gross Korbetha, Schkopau, and probably with Bitterfeld, Golpa, Boehlen Rotha, Moelbis and Ober Beuna.
- (b) Gas manufacture: There are two watergas plants and two Winkler generators, and prior to the war a great deal of producer gas was produced for fuel and the generation of power with gas engines. These plants supply the whole works.
- (c) Hydrogenation: There are two rows of 18 stalls, one of which is used for synthesis vessels and the others for heating furnaces, etc. Each stall measures 36' x 30'. The synthetic oil plant operated before the war at 200 atc. pressure which is somewhat less efficient than the more modern plants. The plant is designed to operate on brown coal and tar.
- (d) Refinery: There is considerable refinery equipment
- (e) Tankage: Primary Product 18,600 Tons  
Finished Product 42,200 Tons

Estimated Capacity: 400,000 T.Yr.

## Leuna (Continued)

Discussion: Many of the facilities--the hydrogen capacity, refining capacity, etc.--are inadequate for the production of over 1,000,000 tons of gasoline per year. On the other hand, Leuna operates at some disadvantage in hydrogen pressure--200 ats. versus 350 or 700 ats. for modern plants. When the plant capacity is estimated from the number of stalls based on converting brown coal to gasoline, the capacity would be at least 500,000 T/Yr., but if the plant is operated on low temperature brown coal tar, the capacity would be of the order of 1,000,000 T/Yr. In estimating the operating capacity the principal factors favoring low and high capacity are tabulated:

### Low Capacity.

No increase in number of stalls, since outbreak of the war.

The carbonization ovens have been increased from 10 to 13, suggesting increased brown coal hydrogenation.

Visible Tankage - 18,600 Tons for primary product and 42,200 Tons for finished products seemed very small for such a large plant.

### High Capacity.

The number of stalls is, however, adequate when hydrogenating tar.

These carbonization ovens were also used for working up the residue from tar hydrogenation.

There is probably considerable underground tankage built before the war.

Although we believe that there are reasons to feel that our previous estimates for Leuna production (1940: 400,000 T; 1941: 450,000 T; 1942: 500,000 T.) may have been too low, we have left them unchanged for the time being and put Leuna down for a 1943 production of 600,000 Tons.

There are two reasons for estimating the lower capacity for Leuna; the first is that the prewar operations were supposed to be well established at 400,000 T/Yr., with about 75% of the production from the direct hydrogenation of brown coal; the second is the assumption that Leuna still operates predominantly on coal rather than tar. A review of the prewar estimates leaves some doubt that the capacity was as low as 400,000 T/Yr. after 1935, particularly since the rapid expansion of low temperature carbonization in Middle Germany must undoubtedly have made available increasing quantities of tar to Leuna which should be reflected in an overall higher production.

There is considerable extension to the Leuna plant that suggests something closely related to synthetic oil, but which is not sufficiently identified as yet to warrant any rated capacity.

## BOEHLLEN-ROTHA

- Company: Braunkohlen Benzin A.G. (Brabag)
- Date Coverage: March 23, 1942 (Rep. D-77)
- Location: S. of the village of Boehlen, 10 m. south of Leipzig, adjacent to the Staeschische Werke brown coal mine and power station.
- Plant Area: 4500' x 3900' (400 acres).
- Description:
- (a) Power Plant: A large power house with generator hall 725' x 77' and a boiler house 450' x 210'.
  - (b) Low Temperature Carbonization: There is a large L.T.C. plant obscured by smoke and steam. (This L.T.C. carbonization plant has 24 stacks and we believe can be identified with one listed by the Lurgi Company as having a capacity of 250,000 T. of L.T.C. tar per year.
  - (c) Gas Manufacture: There are three Winkler generators and four watergas generators. There are two buildings identified as compressor houses 270' x 30' and 340' x 77'. There are seven gas washing towers.
  - (d) Hydrogenation: There are seven stalls, six arranged in pairs, each stall 30' x 25'.
  - (e) Refinery: There are four furnace houses, each measures 47' x 41', associated with distillation columns and pump houses; also pressure equipment for handling liquefiable gases.
  - (f) Tankage: 105,000 tons.

### Estimated Capacity:

Discussion: Based on the number of stalls, we would estimate the capacity of this plant at 300,000 tons for 1942 and 400,000 tons for 1943. The deficiency in the low temperature carbonization tar may very well be explained by the additional L.T.C. capacity in the nearby Moelbis plant. It is to be noted that the tank capacity of Boehlen is unusually large in proportion to its capacity and may suggest that our above estimate is probably somewhat too low.

## MAGDEBURG

Company: Braunkohlen Benzin A.G. (Brabag)

Date Coverage: April 17, 1942 (Rep. D-93)

Location: Magdeburg is located in the suburb Rothensee, east of the Zweig Canal and 3/4 Mi. from the freight yards of Rothensee.

Plant Area: 3300' x 1600' (about 100 acres).

Description: This is a hydrogenation plant for brown coal tar.

- (a) Power Plant: Power is drawn from the Mykramag station located on the canal about 1/2 mile away.
- (b) Gas manufacture: The hydrogen production is from three units of unfamiliar design, possibly of a type similar to Winkler ovens. There appears to be a liquid air plant. Sulfur removal and other equipment are not described in detail.
- (c) Hydrogenation: There are six stalls in pairs, measuring 80' x 25'; only four of the stalls appear to be fully equipped.
- (d) Refinery: Camouflaged.
- (e) Tankage:

Primary Product:	32,400 T.
Finished Product:	8,600 T.
Total	41,000 T.

Estimated Capacity: 200,000 Tons.

Discussion: We agree with the estimated capacity of 200,000 T. for the four stalls but believe that when the other two stalls are put in operation the capacity will be raised to 300,000 T. We have accordingly estimated the capacity of Magdeburg as 200,000 T. for 1942, and at 300,000 T. for 1943. It is noted that the Magdeburg plant has no low temperature carbonization plants and must therefore draw its tar from outside sources. It may be that the rumored Brabag plant in Offleben-Voelpke, about 30 Mi. due west of the Magdeburg plant, is an L.T.C. project which supplies part of the tar to Magdeburg.



## ZEITZ

Company: Braunkohlen Benzin A.G. (Brabag)  
Date Coverage: April 17, 1942 (Rep. D-94, D-203)  
Plant Area: 4500' x 4500' (460 acres)  
Location: Plant is located on the S.E. side of the road from Zeitz to Groitzsch, about 3 mi. N.E. of Zeitz.

Five L.T.C. tar plants are within a radius of 9 mi. at Deuben, Luckenau, Profen, Rositz and Techwitz, from which this plant draws its raw materials.

Description: Hydrogenation of L.T.C. brown coal.

- (a) Power Plant: Large power plant 450' x 325' including a generator hall 215' x 100'.
- (b) Gas manufacture: The gas generator plant covers an area 265' x 215' and is of an unfamiliar type, probably similar to Winkler. There appears to be a good Linde liquid air plant. The sulfur removal plant is similar to that at Magdeburg and is being extended. There is a large plant in the gas generator area with a tall smoke stack and two gas holders, which is not identified.
- (c) Hydrogenation: There are ten stalls, 30' x 21', of which four are under construction.
- (d) Refinery: There is a large amount of refining equipment, including five rows of plants and a group of stills with two furnaces. At the extreme south of the works is a large plant whose nature and purpose is not known. It occupies an area of 530' x 425', contains tall buildings and a cooling tower 65' D. (This may be a propane dewaxing plant for treating primary tar.)
- (e) Tankage: Primary Product: 36,300 T.  
Finished Product: 21,600 T.  

Total 57,900 T.

Estimated Capacity: 300,000 T. or more (6 stalls) and 500,000 T. upon completion of the additional 4 stalls.

Discussion: We concur with the British estimate.

## WESSELING

Company: Union Rheinische Braunkohlen Kraftstoff A.G.

Date Coverage: November 9, 1941 (Rep. D-31)

Location: West bank of Rhine, about 1-1/2 Mi. E, S.E. of railway station of Wesseling.

Plant Area: 4590' x 1800' -

- Description:
- (a) Power Plant: Building 350' x 350' with power brought in from the direction of Knapsack.
  - (b) Gas manufacture: There is a watergas plant connected with a battery of coke ovens and an unidentified row of gas generators of different type. There are six purifying columns and three gasholders 130' L., 118' L., and 87'D.; a compressor house 650' x 85', with a recycle house 400' x -.
  - (c) Hydrogenation: There are eight stalls arranged in four pairs of the following dimensions:
    - 1 Pair, 90' x 35'
    - 1 Pair obscured by crane,
    - 2 Pairs 70' x 35'.
  - (d) Refinery: appears adequate for the estimated capacity.
  - (e) Tankage: Primary Product, 30,000-40,000 T.  
Finished Product, 41,000 T.

Estimated Capacity: 176,000 T/Yr.

### Discussion:

We do not see any reason to change our previous estimate of 200,000 T/Yr. as the capacity of the plant when running wholly on the direct hydrogenation of brown coal. This is the only plant except Leuna, which is assumed to hydrogenate brown coal directly and it may very well be that this plant runs at least in part on tar, in which case there might be an upward revision of our earlier estimate. This view is supported by the relatively large tank capacity and the relatively small residue carbonization capacity.