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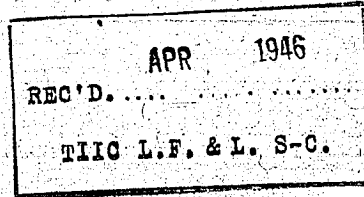
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I. G. FARBENINDUSTRIE A. G. FUER
STICKSTOFF-DUENGER KNAPSACK

Hasche + Brandy



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COMBINED INTELLIGENCE OBJECTIVES
SUB-COMMITTEE

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REPORT ON
I.G. FARBENINDUSTRIE, AKTIEN-GESSELLSCHAFT
FUER STICKSTOFF-DUENGER, KNAPSACK

Reported by:

R. L. Hasche, U. S.
R. H. Boundy, U. S.

~~on behalf of~~

U. S. Technical Industrial Intelligence Committee

CIOS Target No. 22/184
Miscellaneous Chemicals

July 10, 1945

COMBINED INTELLIGENCE OBJECTIVES SUB-COMMITTEE
G-2 Division, SHAEF (Rear) APO 413

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REPORT OF VISIT TO I.G. FARBENINDUSTRIE, AKTIEN-
GESSELLSCHAFT FUER STICKSTOFF-DUENGER, KNAPSACK

1. INTRODUCTION

The Knapsack plant of the I.G. Farbenindustrie is located about 15 kilometers west of Cologne, at the site of one of the largest brown coal deposits in Germany.

The open pit mine is owned and operated by the I.G. plant and generates power for the second largest calcium carbide operations in Germany.

2. MINING AND POWER GENERATION

The mining operations and power generation were discussed with the manager of this division. They were currently mining and briquetting 9,000 tons per day of brown coal as compared with their peak of 75,000 tons per day on full operation of the chemical plant.

The coal as removed with the excavators has a B.t.u. value of 3,300 per lb., and an ash and moisture content of 2% and 62% respectively. It is dried and briquetted at a pressure of 12 00 Kg/cm². The finished briquets have a heating value of 8600 B.t.u./lb. and were transferred to the plant at a price of M 1.6/kg.

The total generating capacity was 140,000 Kw-a. Steam was generated at 100 atmospheres and 500° C. Bleed was at 8-12 atmospheres and about 10% of feed water was used as make-up.

3. PRODUCTIVE CAPACITY

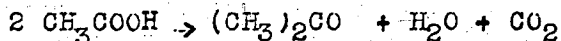
Following were figures for the productive capacity of the chemical plant as submitted by Dr. Meyer, Director:

	<u>Tons/Mo.</u>
Calcium Carbide	25,000
Calcium Cyanamide	6,000
Acetylene	12,000
Acetaldehyde	6,000
Acetone	800

Of the total acetylene production, 7,000 tons per month were sold for welding purposes.

4. PRODUCTION OF ACETONE

Acetone is produced from acetic acid by a vapor phase catalytic method in accordance with the following equation:



The reaction is carried out in 5 furnaces each containing 1400 liters of catalyst. The catalyst contains 10% of cerium oxide deposited on pumice as the acetate. The temperature is 400° C. The feed rate is 400 liters of acetic acid vapor per hour per unit and the contact time is 1-2 seconds. Since the reaction is endothermic heating is required. For the purpose, producer gas, having a heating value of 4500 calories, is circulated with air admixture for tempering. The gas rate is 70 cubic meters per hour. ~~The catalyst is contained in an annular space 150 mm inside diameter and 165 mm outside diameter.~~ The heating gas is passed through the inside shell and an outer jacket. The yield is 95%.

5. PLANNED OPERATION

The plant has suffered considerable bomb damage. The attached schedule of renewing operation was submitted to the American Military Government by the Director, Dr. Meyer. However, the plant is now in the British Zone of Occupation and the schedule of operation is not known.

R. L. Hasche

AKTIEN-GESELLSCHAFT FUER STICKSTOFFDUNGER, KNAPSACK

Monthly after

Power	10.6	1.7	1.9	15.12
Men for Production	10,000 kW	20,000 kW	30,000 kW	75,000 kW
Men for Reconstruction	450 men	600 men	750 men	1,225 men
Sum	290 "	900 "	850 "	275 "
	740 men	1,500 men	1,600 men	1,500 men

(present the 10.6)

Carbide	11	11, 12	11, 12, 13	7, 9, 11, 12, 13
Running furnaces	1,500 moto	3,000 moto	3,000 moto	10,500 moto
Production of carbide	1,500 "	3,000 "	3,000 "	10,500 "
of ferro-silicium	850 "	1,700 "	1,700 "	5,800 "
Quick-lime	150 "	300 "	300 "	1,050 "
Coke	45 "	85 "	120 "	200 "
Anthracite coal V	20 "	40 "	55 "	80 "
" IV	7 "	12 "	18 "	30 "
Coke II	7 "	12 "	18 "	30 "
Tar			1,000 "	1,000 "
Pitch			600 "	600 "
Ferro-Silicium			550 "	550 "
Quartz			1,100 kg	2,600 kg
Coke			300 "	300 "
Iron turnings			700 "	1,900 "
Lubricants	640 kg	1,000 kg	65 moto	110 moto
Bush metal	300 "	300 "	1 "	1 "
Copper	350 "	500 "	18 kg	30 kg
Iron and steel	50 moto	55 moto		
Transport-bands	10 t	1 "		
Asbestos cloth	20 kg	6 kg		
"Linde"-plant				
Production	400/1800	800/3600	800/3600	800/3600
Iron and steel	100 t	2.5 moto	2.5 moto	2.5 moto
Machine Oil	1,000 kg	500 kg	500 kg	750 kg
Caustic soda	2,500 "	2,500 "	2,500 "	5,000 "
Ammoniac	1,000 "			1,000 "
Copper, brass	100 "	15 "	15 "	15 "
Cable to suction point	ca.1,200 m			

Monthly after

10.6

1.7

1.9

15.12

Calcium-Cyanamide
Running

3 canal furn. 4 canal furn. 4 canal furn. 3 canal furn. 3 canal furn.
2 turning f.

Carbide

750 moto 1,500 moto 1,500 moto 3,000 moto

Calcium chloride

15 " 30 " 30 "

Calcium fluoride

7.5 " 15 " 15 "

Sodium nitrate

0.55 " 1.10 " 1.10 "

Iron and steel

3 " 3 " 3 "

Paper

0.28 " 0.56 " 0.56 "

Hydrochloric acid

144 "

Sacs

13,300 piece 26,600 piece 26,600 piece 53,300 piece

Dispatch of carbide

7,500 " 15,000 " 15,000 "

Tubes a 90 l

45,000 "

Acetylene plant

Running

2 apparatus

Production

860,000 cbm

Carbide

3,000 moto

Chlorine

5 "

Solution of caustic soda

20 "

Iron and steel

1 "

Lubricants

30 kg

Nitrogen

30,000 cbm

Packing of calcium hydroxide

Running

3 apparatus

Production

1,800 moto

Paper sacs

30,000 piece

Lime-killn

1 furnace

Running

1,800 moto

Production

1,800 moto

Anthracite

60 "

Lubricants

10 kg

	Monthly after
<u>Acetic Aldehyde</u>	15.12
Running apparatus	2
Production	1,600 moto
Sulphuric acid	5 "
Nitric acid	20 "
Sulphate of iron	20 "
Mercury	1 "
Iron	1 "
Remanit	300 kg
V17Fe	300 "
Nitrogen	20,000 cbm
Lubricants	30 kg
Asplit	1,000 kg
S.W.K. cement	1,000 "
Waterglass	4 barrels
<u>Acetic Acid</u>	
Running Apparatus	8
Production	2,000 moto
Acetic aldehyde	1,600 "
Oxygen	400,000 cbm
Nitrogen	80,000 "
Acetate of manganese	2 moto
Acetate of cobaltum	100 kg
Carbonate of copper	100 "
Aluminium	300 "
Asbestos cord	100 m
N.C.T.	300 kg
V4A	300 "
Paraffin wax	50 kg
Liquid Paraffin	10 "
Lubricant	50 "
Silver	75 kg/year
<u>Acetone</u>	
Running furnaces	4
Production	400 moto
Acetic acid	880 "
Carbonated cerium	100 kg
Pumice stone	1,000 "
Solution of caustic soda	20 moto
Gas	200,000 cbm
<u>Activated carbon</u>	
Running	2 separators
	4 wash.v.
	2 furnaces
Production	75 moto
Hydrochloric acid	180 "
Filter cloth	25 m ²
Lubricants	10 kg

Knapsack, 12th of June 1945.