Mr. Wiley

1547

T-447

IRON FOR REPAIRS IN HYDROGENATION PLANTS

May 17, 1948

1548

January 13, 1944
Kg/te

High Pressure Experiments
Ludwigshafen, 1.

IRON FOR REPAIRS OF HYDRO PLANTS

1). Our estimate from the costs of repairs:

	Installation costs RM/te/ann.	Percent repair costs	Repair costs RM/te/ann.	Iron consumption 1000 RM rep. 1250 kg iron =
700 ctm. bitum. coal plant	1,200.— (5 gasol.)	4	48.—	12 kg Fe/te/ann gasoline
300 " brown coal plant	1,050	"	42.—	10.5 " " "
Brown coal l.t.c. (?) gas	540.0 "	"	22.—	5.3 " "
TID Plant	70.— (DHD gasol.)	10	7.—	1.75 "

A distribution of the installation costs among hydrogenation, hydrogen production, power production, auxiliary installations and special capital requirements will be found in append. 1.

2). Take supplied by the different works on the consumption of iron for repairs:

Reference	Date	Costs of repairs	Percent repair costs	Repair costs	Iron consumption
Relsbergs	view of 1/30/44	Reports for 1943	16.4 kg/te gasoline, "		
			12.5 " " gasoline + LPG		
Scholven	" 3/29/44	Costs of repairs, 1942/1943	45.— 48 RM/te VT 705 is		
	" 3/31/44	at least 1/3, i.e. 15.— to 16.— RM/te VT 705/iron material. Iron requirements: at least 23 kg/te VT 705 + DHD + T 52 gasoline (LPG not included).			
Ludwigshafen	" 1/9/44	Iron consumption, 43 12.5 kg/te liquid products.			
		" allotment, 1943 8.5 " "			
Leuna	" 1/20/44	Iron consumption, 14.7 kg/te liquid product + LPG + SS oil + T 52 (no DHD)			
	" 2/10/44	Repair costs, 1943 55.50 RM for hydrogenation + H2 + power + LPG + SS oil + T 52 (no DHD), i.e. 1000 RM repair costs = 250 kg Fe			
Scholven					
Leuna					
Gelsenberg	" 1/10/44	Iron consumption	10	kg/te liquid products	
Welheim			7.3	" "	
			9.1	" "	

An estimate of the total repair iron requirements are found in appendix 2.

Appendix 1.

Installation and Repair Costs in Hydrogenation Plants

	Install. costs per te/ann. gasoline	Repairs %		Repair costs RM/te/ann. gas.
Bit. coal to L gasoline				
Hydrogenation proper	422.-	x 0.065	=	27.40
H_2	172.-	x 0.065	=	11.40
Power	228.-	x 0.02	=	4.55
Aux. inst.	222.-	x 0.02	=	4.45
Add. capital investment	167.-	-		
	1211.-			47.80
Brown coal to L gasoline				
Hydrogenation proper	390.-	x 0.065	=	25.40
H_2	144.-	x 0.065	=	9.40
Power	184.-	x 0.02	=	3.70
Aux. inst.	195.-	x 0.02	=	3.90
Add. capital investment	136.-			
	1049.-			42.40
Brown coal tar to L gasol.				
Hydrogenation proper	209.-	x 0.065	=	13.60
H_2	70.50	x 0.065	=	4.60
Power	90.50	x 0.02	=	1.80
Aux. inst.	99.-	x 0.02	=	2.-
Add. capital investment	70.50			
	539.50			22.00
DHD				
DHD	59.-	x 0.1	=	5.90
Power	17.-	x 0.02	=	-.35
Aux. inst.	7.50	x 0.02	=	-.15
Add. capital investment	5.-	-		
	88.50			6.40 = about 7.-

Appendix 2.

Iron Requirements in Hydrogenation Works

Works	Production	Installation costs[2]	Iron consts.[9]	Yearly iron requirements
	te/ann.	Mill. M.	1000 te	1000 to
Leuna [8]	600 000.-	235	188	6.5[6]
Scholven	215 000	167	133	2.0
Gelsenberg	535 000	333	300	4.0[7]
Rheinbraun	210 000	180	150	2.0[5]
Pölitz	620 000	350	234	3.84
Döhlen	200 000			
Magdeburg	220 000	310	245	3.5
Zeitz	230 000			
Brüx [3]	600 000	375	402	4.35
Blechhammer	500 000	635	420	0.87
Welheim	130 000	95	75	1.33
Lützkendorf	50 000[4]	40	22	0.33
	5 000 000 t./ann.	3687 Mill. M.	2166 000 te	28 720 te

/s/ v. Hochstetter

1) 1.- repair costs = 0.25 kg iron. Calculated from the total repair costs assumed as 4% of the installation cost.

2) No "additional capital investment".

3) Including low temperature carbonization

4) Theoretical production

5) Data given by the works: 12.5 kg iron/te ill. prod. = 2.6 x 10³ to.

6) " " " " " 14.7 " " " " " = 8.0 x 10³ "

7) " " " " " 21.5 " " " " " = 4.2 x 10³ "

8) In this case the repair costs are assumed to be 85% because of the older and more cheaply-built plant.

9) Estimated values.