

Bag 2:077

Target 30/4.03

J. G. Farbenindustrie A. G.

Ludwigshafen

Continued from reel 027.

Reel 028 begins with item 70.

	<u>Butol Manufacture (Butane-diol 1.3)</u>	image 0001
70	L-146301-2	Flow sheet
71	L-14631h-2	Flow sheet-high pressure steam
72	L-11879-4	Reactor details
73	L-6257-1	Distillation details
74	L-6127-1	" "
75	L-6128-1	" "
76	L-5540b-1	" "
	<u>Butadiene Fractionation</u>	image 0015
77		Flowsheet
78	L-5936b-1	Distillation details
79	L-5937c-1	" "
80	L-5938c-1	" "
81	L-121586-4	" "

Bag No 2167

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Drawings.

A. Isooctane from Isobutylalcohol (OPPAU).

image 0028

1. N 4186-4 Fractionation of raw isobutylalcohol.
2. Kd 1464 Flowsheet for fractionation of isobutylalcohol.
3. Kd 1848 " " " " " "
4. Kd 539 Material balance for the manufacture of 50,000 tons per year of isooctane.
5. N 5392-4 Butylalcohol fractionation.
6. N 2640-1 Detail Flowsheet for isobutylalcohol fractionation, Part 1.
7. N 2641-1 " " " " " Part 2.
8. N 2427e-1 " " " " " Part 3.
9. N 5321-8 Isobutylalcohol fractionation. Details column I.
10. N 5322-8 " " " " " II.
11. N 5323-8 " " " " " IIIa.
12. N 5324-8 " " " " " III.
13. N 5325-8 " " " " " IV.
14. N 5326-8 " " " " " V.
15. N 5327-8 " " " " " VI.
16. BKOB 5 1978-8 " " Instrument details I.
17. BKOB 5 1978-8-a " " " " " II.
18. " Material balance for 4000 tons per year of isooctane.
19. KD 2226 Proposed tankage.
20. N 5533-2 Summary flowsheet for the manufacture of isooctane from isobutyl alcohol.
21. N 2607-1 Dehydration of isobutylalcohol, polymerization of isobutylene and depolymerization of tri-isobutylene.
22. N 4903-4 Dehydration of isobutyl alcohol, 800 mm. diam.reactpr.
23. Kd 2209 " " " " 1300 mm.diam.reactor.
24. Kd 2208 Flowsheet for the polymerization of isobutylene and fractionation of polymers.
25. N 3707-4 Hydrogenation of di-isobutylene.
26. N 6373b-2 " " " " " "
27. N 12419-2 " " " " " "
28. E 913-2 " " " " " (Electrical wiring diagram).
29. N 3462b-1 Hydrogenation of di-isobutylene. Piping details.

B. Alternate Proposal for Isooctane Manufacture (OPPAU). Image 0069

30. Material balance for the manufacture of isooctane from mixed C₄ hydrocarbon by chlorination.

C. Allylchloride Manufacture. Image 0072

31. N 10251-4 General flowsheet for allylchloride manufacture.
32. N 10255-4 Prehydrogenation of propane.
33. - Flowsheet for allylchloride manufacture/
34. N 5947-1 Detail flowsheet. Part I (chlorination).
35. Kd 1865 Proposed chlorination process.
36. Kd 1880a Details of quartz illumination arrangement for chlorination.
37. Kd 1903 Assembly of internal illuminating apparatus.
38. N 5946-1 Detail flowsheet. Part II (distillation).
39. N 5948-1 Detail flowsheet. Part III (dehydrochlorination)
40. Kd 1871 Details of dehydrochlorination apparatus.
41. N 10253-4 Detail flowsheet. Part IV (fractionation after dehydrochlorination.
42. N 5949-1 Detail flowsheet. Part V. (removal of HCl).
43. N 13734-2 Plot Plan of distillation.
44. N 13730-2 Plot plan of chlorination.
45. N 13731-2 Plot plan of dehydrochlorination.
46. N 13733-2 Plot plan of HCl removal.
47. Kd 1886a Plan and elevation of chlorination apparatus.

- 48. - Flowsheet for an alternate method of allylchloride manufacture (using propylene).
- 49. - Allylchloride from propylene. Alternate distillation method.

D. Butadiene Manufacture (OPPAU). Image 0095

- 50. P282 Flowsheet for butadiene manufacture.
- 51. P283 Material balance.
- 52. N 8537-4 Material balance for the manufacture of butadiene, from butylene.
- 53. Kd 454 Preliminary flowsheet for the chlorination of butylene.
- 54. N 11801-2 Dehydrochlorination of dichlorobutane.
- 55. Kd 1516 Butadiene washing and distillation.
- 56. Kd 480 Flowsheet for butadiene distillation under pressure.
- 57. Kd 523 Flowsheet for butadiene distillation with refrigeration.
- 58. N 3686a-1 Plan and elevations for butadiene equipment.

E. Butadiene polymerization (Oppau). Image 0106

- 59. N 4202-8 Flowsheet for the manufacture of Buna D.
- 60. N 7321-4 Flowsheet for the polymerization of butadiene.
- 61. N 8218-4 " " " "
- 62. - " " " "

F. Manufacture of Oppanol (Oppau). image 0111

- 63. N 5278-2 Flowsheet of Oppanol plant.
- 64. Kd 731 Details of polymerization reactors.
- 65. N10387-4 Flowsheet for ethylene drying.
- 66. Kd 1954 Piping for polymerization reactors.
- 67. N11800-2 Flowsheet for ethylene refrigeration system.
- 68. Kd 1003 Preparation of oppanol emulsion.
- 69. Kd 1981 " " "

G. Chlorine Recovery from HCl. image 0120

- 70. - Flowsheet for recovery of chlorine from HCl.
- 71. Cl 129-4 Material balance flowsheet.
- 72. Cl 106-2 Detail flowsheet - Part I.
- 73. Cl 107-2 " " II.
- 74. Cl 108-2 " " III.
- 75. Cl 109-2 " " IV.

H. Miscellaneous Chemicals. image 0128

- 76. HV 308 Flowsheet for the manufacture of vinylacetylene.
- 77. Kd 1926a Flowsheet for the fractionation of allyl alcohol.
- 78. - Flowsheet for the manufacture of formic acid.
- 79. N9629-4 Flowsheet for the manufacture of formaldehyde.
- 80. VASch 1001-8 Material balance for the manufacture of Vanol (ethylene glycol)
- 81. N12931-2 Flowsheet for the manufacture of Vanol.
- 82. Material balance for the manufacture of diisopropyl ether.
- 83. Kd 1855 Flowsheet for the manufacture of diisopropyl ether
- 84. B.Sk 68 " " " "
- 85. N12883-2 Flowsheet for the manufacture of isoprene.
- 86. Kd 2224 Flowsheet for the manufacture of pinacolin.
- 87. Kd 2233 Flowsheet for the purification of pinacolin.
- 88. Kd 1452 Flowsheet for the manufacture of methacrylnitrite.
- 89. Kd 1553 Material balance for the manufacture of crotonaldehyde.
- 90. Kd 1551 Flow sheet for the manufacture of crotonaldehyde.

I. Crude Oil Refining (Oppau). Image 0147

91. N 3841-2 General flowsheet of crude oil refining.

J. Synthetic Lube Oil from Ethylene. Image 0150

92. U 777-1 Detail flowsheet, Part I (polymerization, catalyst separation).
93. U 778-1 Detail flowsheet, Part II (AlCl_3 complex decomposition).
94. U 779-1 Detail flowsheet, Part III (final oil refining and methanol recovery).
95. U 780-1 Detail flowsheet, Part IV (gas recovery).
96. U 791-1 Detail flowsheet, Part V (blending of ester oils and final clay treating).

K. Isooctane manufacture from Blechhammer & Brux feed stocks.

97. Kd 1616 Material balance. Image 0160
98. Kd 1615 Material balance.
99. Kd 1651 Butane isomerization.
100. - Proposed flowsheet for dehydrochlorination.
101. Kd 1617 Proposed flowsheet for alkylation of Blechhammer stock
102. B.Sk 16 Alternate proposal for alkylation of Blechhammer stock
103. -

L. Hydabreck Plant. Image 0167

103. Kd 1937 Flowsheet for products from isobutylalcohol.
104. N3989c-1 Isobutylalcohol fractionation.
105. N 9722-2 Flowsheet for the dehydration of isobutylalcohol.
106. N9720a-2 Flowsheet for the fractionation of isobutylene.
107. - General flowsheet for chlorination operations.
108. Kd2006b General flowsheet for the manufacture of 20,000 tons per year of isooctane.
109. Kd 2034 Detail flowsheet for the manufacture of isooctane.
110. Kd 2033 " " " Part I.
111. - " " " Part II.
112. Kd 2005 Flowsheet for the chlorination of isobutane Part III.
(fractionation with gas oil wash in HCl tower).
113. N 10442-2 Flowsheet for the dehydrochlorination of isobutylchloride, polymerization of isobutylene, fractionation of polymers.
114. U 440-16 Flowsheet for the isomerization of butane.
115. Kd 2008a General flowsheet for the manufacture of 20,000 tons per year of butadiene.
116. Kd 2055 Detail flowsheet for the manufacture of butadiene, Part I.
117. Kd 2056 " " " Part II.
118. - Flowsheet for the manufacture of allylchloride.
119. Kd 2007a Material balance for propane dehydrogenation.
120. Kd 1458 Methods of BF_3 manufacture.
121. Kd 1507 Flowsheet for the manufacture of BF_3 .
122. N 9721-2 Flowsheet for the manufacture of Oppanol.
123. N 9719-2 Flowsheet for the liquefaction of ethylene.

BAG No. 2171

I. G. FARBEN

LUDWIGS HAFEN

C.I.O.S. TARGET No.

30/4.03

BAG No. 2171

I.G. FARBENINDUSTRIE, A.G.

LUDWIGSHAFEN

C.I.O.S. Target No. 30/4.03.

Document List

1. Heide - Lube Oil Analysis. image 0192
2. CO Removal (Copper Solution). 0196
3. Alkylation, Dehydrogenation, Isomerization and Exchange Information. 0206
4. Methanization Experiments. 0446
5. Disclosures (Misc.). 0464
6. Isooctane through Chlorination, etc. 0539

Reel 028 ends with item 6.

Bag 2171 continued on reel 029.