

DEGUSSA-HÜLS ENGINEERING DEPARTMENT

T-3910

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|----|--|--|------------------------------|------------------------------|------------------------------|------------------------------|------------|
| 01 | EQUIPMENT NUMBER T-3910 | QUANTITY one | PREPARED BY S. Irby | APPROVED BY | APPROVED BY | DATE: 8/10/00 | |
| 02 | PLANT Phenolchemie | AREA OR UNIT 39-Distillation | RFQ NUMBER | P.O. NUMBER 40770002 | PROJECT NUMBER 4078-00001 | | |
| 03 | SERVICE Distillation Column | ACCOUNT NUMBER | P&ID NUMBER C-39-B-005-00 | CAR NUMBER | | | |
| 04 | PROCESS DATA | | | | | | |
| 05 | COLUMN SECTION | 1 | | | | | |
| 06 | TRAYS PER COLUMN SECTION | 24 * | | | | | |
| 07 | TRAY NUMBER (Top to Bottom) | 1 to 24 * | | | | | |
| 08 | TRAY DESCRIPTION | Valve Trays | | | | | |
| 09 | FLUID DESCRIPTION | PC-Oil | | | | | 0 |
| 10 | FOAMING TENDENCY | None | | | | | 0 |
| 11 | VAPOR TO TRAY | MAXIMUM | MINIMUM | MAXIMUM | MINIMUM | MAXIMUM | MINIMUM |
| 12 | FLOWRATE | PPH | 15000 | 6000 [44] | | | |
| 13 | TEMPERATURE | C | 214 | 126 | | | |
| 14 | PRESSURE | Psia | 9 | 7.2 | | | |
| 15 | DENSITY | #/CF | 0.126 | 0.11 | | | |
| 16 | VISCOSITY | Cps | 0.011 | 0.008 | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | LIQUID FROM TRAY | MAXIMUM | MINIMUM | MAXIMUM | MINIMUM | MAXIMUM | MINIMUM |
| 21 | FLOWRATE | PPH | 20000 | 1500 | | | |
| 22 | TEMPERATURE | C | 214 | 126 | | | |
| 23 | DENSITY | #/CF | 54.20 | 48.1 | | | |
| 24 | VISCOSITY | Cps | 0.65 | 0.27 | | | |
| 25 | SURFACE TENSION | Dynes/Cm | 22.9 | 17.6 | | | |
| 26 | | | | | | | |
| 27 | | | | | | | |
| 28 | | | | | | | |
| 29 | LIMITING VALUES | @ MAX Flow | @ MIN Flow | @ MAX Flow | @ MIN Flow | @ MAX Flow | @ MIN Flow |
| 30 | MAXIMUM DELTA P PER TRAY [41] | mm Hg | 4 | | | | |
| 31 | MAXIMUM DELTA P PER SECTION [41] | mm Hg | 96 | | | | |
| 32 | SYSTEM FACTOR | | 1.0 | | | | 0 |
| 33 | MAXIMUM FLOODING FACTOR [41] | % | 70 | | | | |
| 34 | | | | | | | |
| 35 | | | | | | | |
| 36 | MECHANICAL DATA | | | | | | |
| 37 | TRAY TYPE [42] | Koch Flexitrays | | | | | 0 |
| 38 | COLUMN SECTION INSIDE DIAMETER | Feet | 3.5 | | | | |
| 39 | TRAY SPACING | Inches | 20 | | | | |
| 40 | DOWNCOMER RESIDENCE TIME | Seconds | TBD | | | | 0 |
| 41 | NUMBER OF DOWNCOMERS [42] | | 1 per tray | | | | |
| 42 | LIQUID HEIGHT IN DOWNCOMER [42] | Inches | 16.92 | | | | 0 |
| 43 | DESIGN TEMPERATURE | C | 250 | | | | 0 |
| 44 | VALVE TYPE | | Koch "T0" | | | | 0 |
| 45 | MATERIALS OF CONSTRUCTION | | | | | | |
| 46 | TRAY DECK | 316L SS | | | | | |
| 47 | DOWNCOMER | 316L SS | | | | | |
| 48 | TRAY SUPPORTS | 316L SS | | | | | |
| 49 | BUBBLE CAPS | N/A | | | | | |
| 50 | VALVES | 316L SS | | | | | |
| 51 | BOLTING | 316L SS | | | | | |
| 52 | | | | | | | |
| 53 | NOTES | NOTES | | | | | |
| 54 | 41. To be guaranteed by tray vendor | | | | | | |
| 55 | 42. Design of the internals must be specified or confirmed by tray vendor | | | | | | |
| 56 | 43. Trays must be designed for fouling conditions. | | | | | | |
| 57 | 44 See attached hydraulic profile. | | | | | | |
| 58 | 45 Vendor shall provide a hydraulic guarantee of the trays. | | | | | | |
| 59 | 46 Vendor shall supply bottom tray downcomer seal pans. | | | | | | |
| 60 | 47 Vendor shall supply 5% extra installation hardware. | | | | | | |
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| 64 | | | | | | | |
| 65 | | | | | | | |
| 66 | | | | | | | |
| 67 | * DATA MARKED BY AN ASTERISK MUST BE FURNISHED BY VENDOR UNLESS SPECIFIED BY PURCHASER WITH QUOTE. | | | | | | |
| 68 | REVISION: A DATE: 8/10/00 APP'D: TDA | REVISION: 0 DATE: 9/13/00 APP'D: TDA | REVISION: DATE: APP'D: | REVISION: DATE: APP'D: | REVISION: DATE: APP'D: | REVISION: DATE: APP'D: | TRY01R03 |

* Upper 12 trays replaced with packing