Case History
# 0-78

# Field Test For Desalters and Atmospheric Tower Corrosion

## Background

A Latin American crude upgrader currently processes approximately 150,000 BDO (23,000 tons/day) of crude XP diluted to 16° API with naphtha.

Continuous field tests were conducted for seven days to assess the efficiency of ChemTreat products for corrosion control for the CDU Upgrader Unit.

## Desalter Results

As shown in Table 1, the parameters monitored were efficiency desalting, BSW in the desalted crude, and oil content in the brine. In all cases, the specifications were exceeded with an efficiency of 92.7 percent, The BSW was 0.69 percent with an oil content of 683 ppm.

*Table 1. Desalters Results*

| | D-1201[a] | | | | |
|---|---|---|---|---|---|
| Day | Salt Crude | | Desalted crude | | Brine |
| | Crude Charge | Salt content | Efficiency desalted | % BSW | Oil content in water |
| | Ton/day | PTB | > 90 % | < 0,7 % | < 800 ppm |
| 1 | 22000 | 47,9 | 92,7 | 0,6 | 462 |
| 1 | 22300 | 51,0 | 90,8 | 0,8 | 762 |
| 1 | 22000 | 44,1 | 92,3 | 0,6 | 551 |
| 2 | 22000 | 42,2 | 90,3 | 0,8 | 800 |
| 2 | 22300 | 53,6 | 93,5 | 0,6 | 450 |
| 2 | 22480 | 43,7 | 92,9 | 0,6 | 1240 |
| 3 | 22600 | 52,5 | 93,0 | 0,8 | 695 |
| 3 | 23200 | 57,3 | 92,4 | 0,8 | 540 |
| 3 | 23000 | 45,5 | 93,8 | 0,6 | 1300 |
| 4 | 22900 | 52,0 | 92,6 | 0,8 | 1100 |
| 4 | 21500 | 54,8 | 94,0 | 0,7 | 371 |
| 4 | 23500 | 42,4 | 93,2 | 0,7 | 1220 |
| 5 | 23200 | 61,4 | 94,1 | 0,8 | 246 |
| 5 | 23295 | 51,7 | 93,2 | 0,6 | 291 |
| 6 | 23150 | 49,1 | 92,3 | 0,6 | 219 |
| ***AVERAGE*** | ***22723*** | ***49,9*** | ***92,7*** | ***0,69*** | ***683*** |

Conditions: P: 7,25-10,20 psi, % water washing: 5,0

*Results are examples only. They are not guaranteed. Actual results may vary.*

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## Obtained Results on CDU Top

The values monitored in table 2 are pH, chloride, and iron in sour water. In all cases, the specifications were met. The pH was 5.8, chlorides were at 39.4, and iron was at 0.9 ppm, ChemTreat formulated the neutralizing amine and a filming amine to obtain these results.

*Table 2. CDU Top Obtained Results*

| Day | V-107 | | |
|---|---|---|---|
| | pH Adim. | Cloruros (ppm) | Fe total (ppm) |
| | (5,5 - 6,5) | < 50 | < 2 |
| 1 | 4,9 | 27,7 | 1,2 |
| 1 | 6,2 | 35,4 | 1,1 |
| 2 | 5,5 | 35,1 | 1,0 |
| 2 | 6,2 | 30,7 | 0,9 |
| 2 | 6,0 | 32,7 | 0,9 |
| 3 | 6,1 | 37,1 | 1,2 |
| 3 | 5,5 | 31,4 | 1,6 |
| 3 | 5,6 | 41,7 | 0,1 |
| 4 | 5,6 | 45,9 | 1,2 |
| 4 | 6,0 | 29,8 | 0,5 |
| 4 | 6,8 | 46,4 | 0,7 |
| 5 | 5,5 | 32,3 | 0,5 |
| 5 | 5,6 | 34,2 | 0,9 |
| 5 | 5,0 | 43,1 | 1,4 |
| 6 | 6,5 | 35,2 | 0,3 |
| 7 | 5,9 | 85,5 | 0,8 |
| 7 | 5,5 | 45,6 | 1,0 |
| ***AVERAGE*** | ***5,8*** | ***39,4*** | ***0,9*** |

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## Product Dosage

42 ppm of demulsifier was used for the crude charge. 46 ppm of neutralizing amine and 5 ppm of filmic amine were used. Both the neutralizing and filmic amine are related to the total flow over the atmospheric column less the reflux flow to the tower.

## Conclusions

**ChemTreat met 100 percent of the required specifications using competitive doses through their product development and application expertise.**