

Case Study: CH-1689

NALCO CHAMPION ACTRENE™ IMPROVES LIGHT ENDS RELIABILITY



INTRODUCTION

One of the most common and costly issues faced in ethylene plants is fouling in the light ends fractionation area. The results of unwanted polymerization span from the costs of swapping and cleaning reboilers to reduced throughput and ultimately unit shutdowns. Nalco Champion is the industry leader in reducing the impacts of fouling in light ends fractionation with the Actrene™ product line, unparalleled monitoring tools, and onsite expertise.

PROBLEM

A North American ethylene plant was experiencing fouling in the depropanizer tower on a regular basis. This fouling caused a throughput restriction that necessitated turnarounds for cleaning every 2.5-3 years. Two different competitors were unable to improve the run lengths before Nalco Champion was brought in to help.

SOLUTION

Nalco Champion surveyed the system using a total system problem-solving approach from a mechanical,

operational, and chemical (MOC) standpoint. A team was formed with subject matter experts from both companies. A combination of laboratory testing, computer modeling, and use of the Nalco Champion proprietary Light Ends Fouling Model were also employed.

Using the knowledge gained from the comprehensive system survey, Nalco Champion worked with the customer to develop and implement a new Actrene™ antifouling program on the depropanizer tower.

RESULTS

As a result of the Actrene™ program, depropanizer fouling was greatly reduced, dramatically increasing the tower run length from 2.5-3 years to 5-8 year runs. Whereas during previous runs, fouling resulted in a shutdown to clean the depropanizer. On the Actrene program, the tower was exceptionally clean when inspected. During the run, the depropanizer was not a production restriction due to fouling.

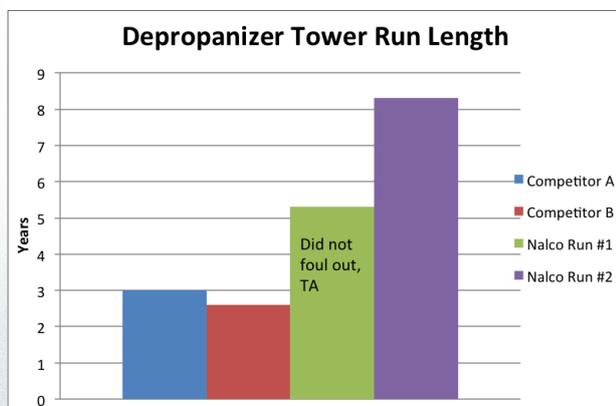


FIGURE 1

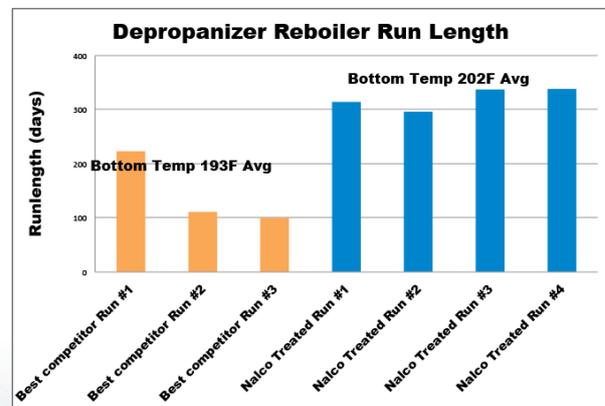


FIGURE 2

In addition, depropanizer reboiler performance improved after implementation of Actrene™, increasing from run lengths of 100-200 days to over 300 days between cleaning.

CONCLUSION

As a result of the comprehensive problem-solving approach and the implementation of the Nalco Champion Actrene™ antifoulant program, fouling in the depropanizer tower and reboilers was greatly reduced; eliminating the light ends fractionation area as a throughput limitation and allowing the customer to operate on a scheduled turnaround basis.

The safer, more reliable operation saved the customer millions of dollars in lost production, maintenance, cleaning, and turnaround costs.

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