

H₂S Scavenger

Innovation Improves Safety and Optimizes Chemical Treatment Program



The chemistry of results™

Background and Challenges

A mid-continent refinery produces about 5,000 barrels of FCCU slurry oil per week. The slurry is routed to on-site storage and then loaded onto a truck to be sold as carbon black oil feedstock. The slurry oil, however, averages 250 ppm or higher of hydrogen sulfide (H₂S) in the vapor space. In order for the slurry to be stored and transported, the hydrogen sulfide has to be scavenged to reduce the risk of danger and to manage the odor. The refinery's treatment plan targets 10 ppm of H₂S in the vapor space and has historically met this specification with use of a standard H₂S scavenger. Operational changes had unforeseen impact on the quality of the slurry oil and consistent H₂S levels became difficult to achieve.

Athlon Solutions' Recommendation

Athlon Solutions developed non-nitrogen based H₂S scavenger RPA-891 with the intent to improve slurry oil handling safety, while maintaining carbon black feedstock integrity. A field trial was carried out and RPA-891 was commercially implemented after a noted improvement in performance was recorded. Results of the trial are in Chart 1.

Performance Results

Since implementation, H₂S levels have remained on-spec, improving overall safety of the plant, its operators and its customers. Scavenger injection volumes have been reduced more than 90% and reliability has improved by nearly 70%. Operational fluctuations have not impacted the treatment program.

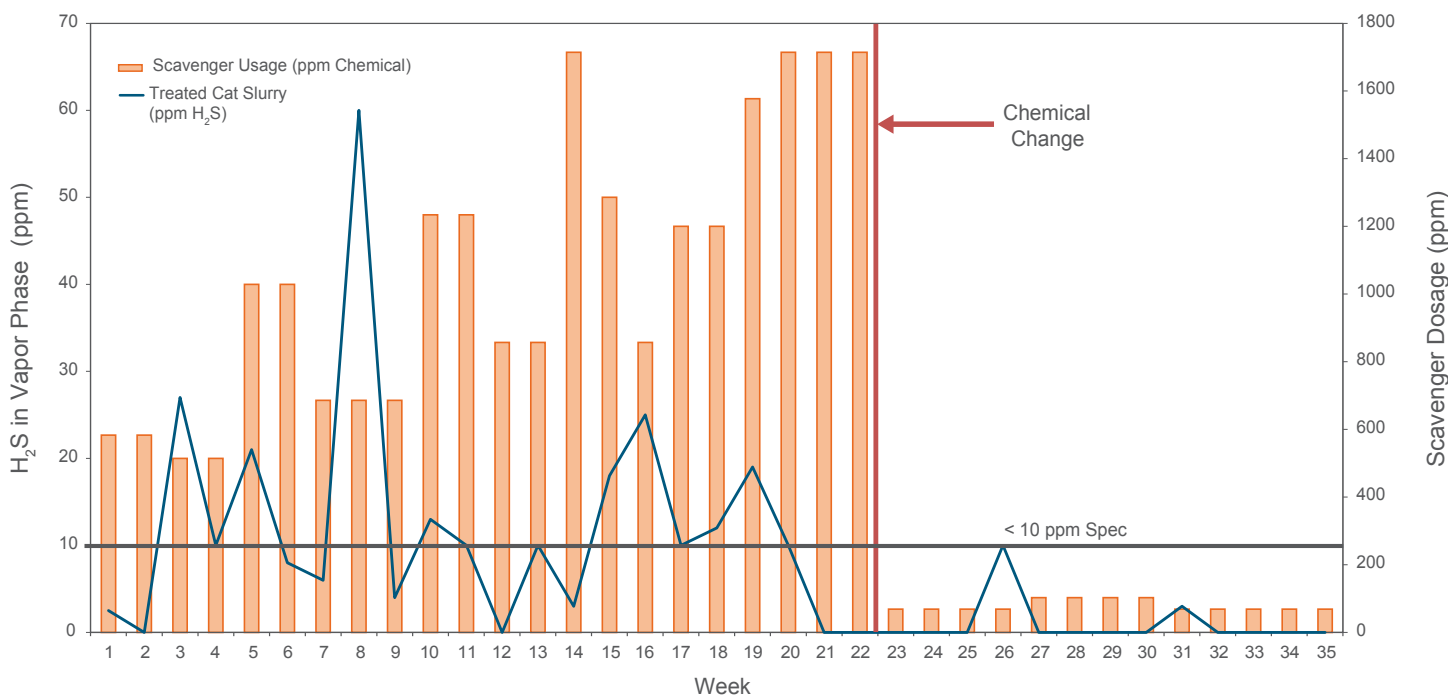


Chart 1 - Scavenger Usage and Impact, RPA-891 Field Trial on Refinery Slurry Oil, Weekly Averages

