



For the customer experiencing operational challenges related to hydrogen sulfide contamination, the implementation of an effective oil-soluble H₂S scavenger is essential. Hydrogen sulfide, when dissolved in the hydrocarbon phase, presents multifaceted risks including accelerated corrosion, safety hazards due to toxic exposure, and compromised process integrity.

An oil-soluble scavenger facilitates in situ neutralization of H₂S within the oil matrix, thereby mitigating its transfer into the gas phase and preventing associated deleterious effects on downstream equipment and infrastructure. This mode of scavenging ensures enhanced control over sulfide concentrations directly at their locus of dissolution, leading to improved system reliability, extended asset lifespan, and compliance with stringent environmental and safety regulations.

PROBLEM IDENTITY



A customer operating under rigorous hydrogen sulfide (H₂S) specifications for both crude oil and vapor phase headspace sought technical support from Coastal Chemical to mitigate H₂S concentrations to below 10 ppm.

Initial trials using a novel, non-triazine-based scavenger demonstrated enhanced scavenging efficiency compared to conventional triazine and oil-soluble chemistries. Although the treatment was technically effective in achieving the desired H₂S reduction, it was not economically viable due to excessive chemical consumption rates. Compounding the issue, the high inlet H₂S concentration of 1,430 ppm required continuous, high-volume injection that exceeded the sustainable capacity of the pump, leading to increased maintenance demands and operational strain. This scenario presents a need for an optimized, cost-effective H₂S abatement strategy capable of handling high contaminant loads without compromising system reliability.

SOLUTION



Coastal faced the technical challenge of identifying an alternative hydrogen sulfide (H₂S) scavenger capable of achieving effective treatment at reduced dosage rates while concurrently delivering measurable cost savings to the end user. SulfaGuard SG-17, a newly introduced formulation within Coastal's H₂S scavenger portfolio, was subjected to performance evaluation and was determined to be effective at a significantly lower treatment concentration of 430 ppm.

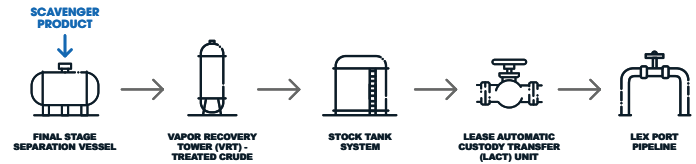
BENEFITS

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- **Absence of Solid Byproducts:** The scavenging reaction proceeds cleanly without the formation of precipitates or solid residues, thereby mitigating the risk of downstream fouling or flow assurance issues.
 - **Reduced Chemical Consumption:** Daily treatment volume was successfully reduced from 600 gallons per day (GPD) to 163 GPD, reflecting a substantial improvement in dosage efficiency.
 - **Enhanced Scavenger Utilization:** The treatment achieved an H₂S scavenging efficiency of 73%, indicating optimized chemical reactivity and conversion.
 - **Decreased Mechanical Wear:** The reduction in injection rate and system load resulted in a marked decline in chemical pump component wear and associated maintenance requirements.
 - **Volatile Component Mitigation:** The formulation facilitated the effective removal of volatile sulfur species, contributing to improved process safety and product quality.
 - **Logistics and Sustainability Improvements:** The decrease in chemical volume necessitated fewer deliveries, leading to tangible benefits in health, safety, and environmental (HS&E) performance, as well as a measurable reduction in carbon footprint.
 - **Significant Cost Savings:** The optimized treatment protocol yielded operational cost reductions estimated at \$2,500 per day, translating to approximately \$900,000 in annualized savings.

COASTAL CHEMICAL SOLUTION

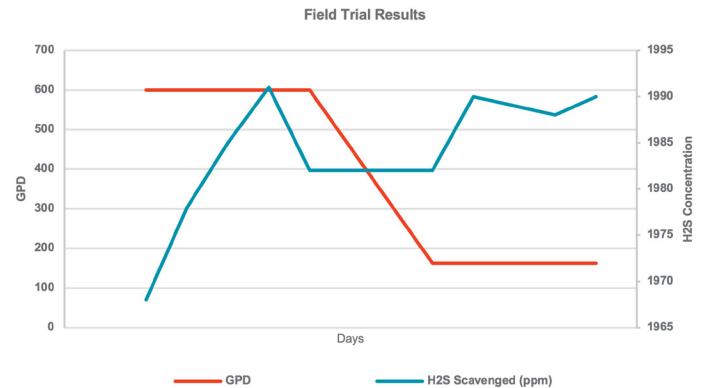
FIELD TRIAL

The scavenger product is introduced into the oil phase at the outlet of the final stage separation vessel. From this point, the treated crude is conveyed through the Vapor Recovery Tower (VRT) and subsequently directed into the stock tank system. Prior to custody transfer, the oil is then pumped through the Lease Automatic Custody Transfer (LACT) unit and into the export pipeline.



TECHNOLOGY

CoastalChemicalOil-soluble non-triazine scavenger technology represents a modern class of hydrogen sulfide (H_2S) mitigation chemistries engineered for enhanced performance in crude oil systems where water-based triazine scavengers exhibit limitations. Unlike conventional triazine-based solutions, which are primarily water-soluble and dependent on emulsification or dispersion for oil-phase interaction, SulfaGuard SG-17 is fully oil-soluble, allowing for direct and efficient reactivity with dissolved or entrained H_2S in the hydrocarbon stream. It is designed to react selectively with H_2S without producing solids such as dithiazines or polymeric residues that may contribute to fouling, emulsions, or downstream operational issues. The oil solubility ensures uniform distribution within the oil phase, providing deeper penetration into H_2S -laden matrices and improving reaction kinetics.



25% COST SAVINGS

73% REDUCTION IN USAGE

ZERO SOLIDS FORMING

CONCLUSION

Coastal Chemical customer is now able to market specification-compliant sweet crude oil while realizing a reduction in lease operating expenses (LOE), as no financial penalties or pricing deductions are imposed by the midstream purchaser due to hydrogen sulfide (H_2S) content.



COASTAL CHEMICAL
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Contact Coastal Chemical today and get the Energy **LEADER** on your side.

Sales Office
377-261-0796

Customer Service
800-456-3696

Email
CoastalCSRS@Brenntag.com

Website
coastalchem.com

