SULFIX PPA-resistant scavenger mitigated H₂S regeneration in treated asphalt

An asphalt terminal in the United States was experiencing issues with hydrogen sulfide (H₂S) regeneration when a polyphosphoric acid (PPA) modifier was added to their asphalt product. Though the terminal had a scavenger program in place for H₂S abatement, it was not controlling the H₂S regeneration problem. This triggered an increase in personal H₂S monitor alarms at the loading area, and violated the terminal’s internal safety regulations. The terminal was faced with the choice of either discontinuing their use of the PPA asphalt modifier or finding an alternate chemical H₂S scavenging program that could effectively mitigate PPA-based H₂S regeneration and help keep their plant personnel safe. They chose to find an alternate chemical scavenger treatment and reached out to Baker Hughes, a GE company (BHGE), for help.

BHGE recommended a SULFIX™ PPA-resistant H₂S scavenger program as an effective single-treatment solution for this application. The scavenger was applied to the asphalt after the addition of elemental sulfur by using the terminal’s existing on-site injection system. This allowed for a quick transition and eliminated the need for additional equipment expenditures.

Initial testing indicated the H₂S concentration dropped to 0 ppm quickly after implementing the SULFIX PPA-resistant scavenger. The PPA modifier was then added to the asphalt to complete the modification process. Three concentrations of the SULFIX scavenger were tested; each dosage achieved the desired effect of reducing the PPA-based H₂S regeneration by 50%, 80%, and 100% relative to the existing scavenger application. See Figure 1.

The implementation of the efficient SULFIX PPA-resistant scavenger treatment program allowed the terminal to continue using PPA as an asphalt modifier to maximize the performance and value of their product, but without the added logistics and CAPEX required by other abatement methods. The terminal’s H₂S levels were reduced beyond target rates, helping to avoid elevated HSE concerns and confirm internal HSE regulations could be achieved.
SULFIX PPA-Resistant H$_2$S Scavenger Performance

Figure 1. SULFIX PPA-resistant scavenger program efficiently reduced H$_2$S levels in asphalt beyond customer target rates.