

# Antifoulant Chemistry Reduces Fouling in Carbon Black Plant

FOULING RATE DECREASED BY MORE THAN 80 PERCENT IN SLURRY OIL PREHEAT SYSTEM AND OFF SPEC MATERIAL REDUCED BY 89 PERCENT IN CARBON BLACK PLANT

MEXICO

## BACKGROUND AND CHALLENGES

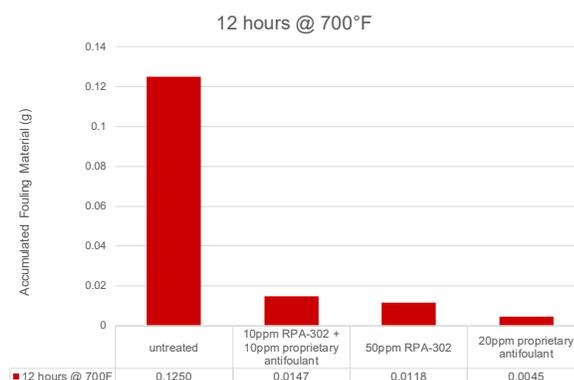
A significant number of carbon black plants experience accelerated fouling in their slurry oil preheat system. A carbon black plant in Mexico was experiencing frequent plugging of preheat filters and reactor tips due to asphaltene precipitation. The customer was using an antifoulant, but they wanted to explore other options that could further reduce maintenance costs, while improving performance and reliability. The proposed solution should be able to perform at temperatures higher than 700°F.

## RECOMMENDATIONS

Athlon, a Halliburton Service, recommended to conduct a bench test between the current polyisobutylene succinic anhydride (PIBSA) based antifoulant (similar to RPA-302) and a proprietary high-temperature asphaltene dispersant. A five-gallon sample of the slurry oil feed was sent to Athlon's Houston laboratory to perform HLPS (Hot Liquid Process Simulation).

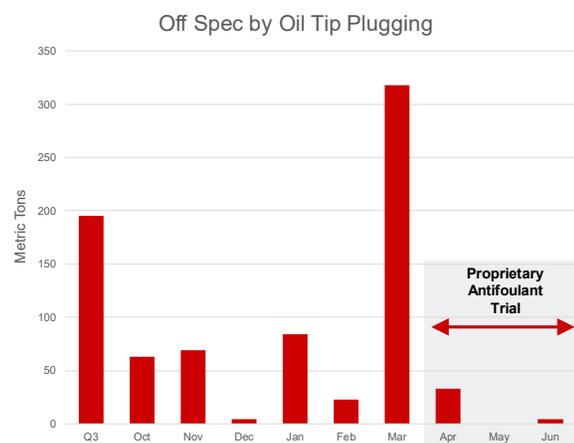
## LAB RESULTS

- » 20 ppm of our proprietary antifoulant demonstrated better antifouling performance on the Carbon Black feedstock than the current treatment of 50 ppm RPA-302.
- » The 10 ppm RPA-302 plus 10 ppm of proprietary antifoulant showed similar performance to current during testing.
- » Lab results indicated the opportunity to reduce fouling in more than 96.4 percent while reducing the treatment dosage to 20 ppm from 50 ppm.



## FIELD RESULTS

- » Oil tip-plugging produces off-spec material that should be sent to hopper (lost production) and then be stored and further reprocessed.
- » Average Off-Spec - seven months previous the trial: 108 MT/Month
- » Average Off-Spec - three months after initiating the trial: 12 MT/Month
- » **Result: 89 percent reduction in off-spec material**
- » Prior to the trial, PIBSA-based product dosage was 250 ppm and was further reduced to only 20 ppm of proprietary antifoulant.



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