

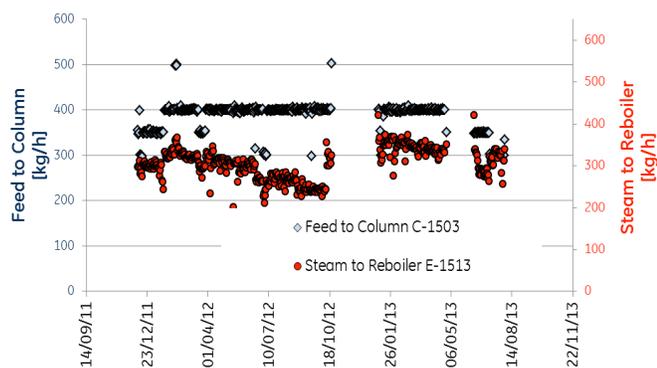
Styrex* technology reduces polymer fouling in a rubber plant (NeoCis & Sol) recovery solvent section

challenge

Polymer fouling, more particular styrene, in solvent recovery sections from synthetic rubber units, e.g. SBR / SIS is a well know phenomenon reducing the unit runlength significantly resulting in high cleaning costs and reduced unit utilization rates. SUEZ conducted a successful 12-month trial in a European Rubber plant (NeoCis & Sol unit) with the objective to increase the reboiler runlength by reducing the fouling tendency in the solvent recovery system. Polystyrene, formed and present in the recovery system is not soluble in solvent mixture (cyclohexane/n-hexane) resulting in reboiler fouling, with subsequently downstream solvent specification issues.

solution

To avoid the formation and presence of polystyrene, causing reboiler fouling and polluting the "solvent mixture," SUEZ decided to inject Styrex 310 to inhibit this fouling. The inhibitor injection reduced the polystyrene content in the solvent mixture - in compliance with the specifications for downstream processing - and reduced the polystyrene fouling on the recovery section's reboiler. During the blank period (2011 - 2013), and shown in the following graph, the head transfer changed significantly.



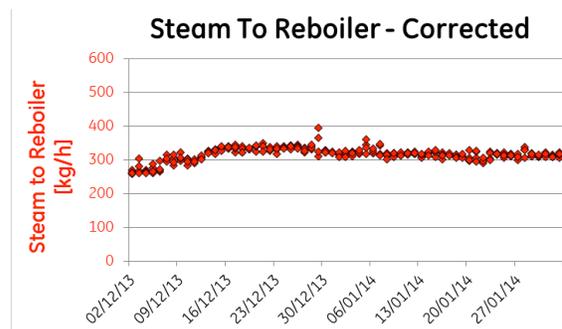
treatment program

SUEZ proposed Styrex 310 technology which is a free radical polymerization inhibitor used in various styrene manufacturing sections. Typical applications include distillation trains, dehydro condensers, vent gas compressors, and water strippers. This technology is also applicable in SBR / SIS units and reduces the fouling tendency significantly.

results & benefits

In order to define the effectiveness of the treatment program, SUEZ used Multiple Regression Analysis (MRA modelling) to evaluate the impact on fouling versus the untreated case.

During the one year test period, the treatment program provided an excellent protection against fouling with no steam reduction during the entire run, saving 2.5 Ktons / month of steam. Beside the steam savings being realized during the one year trial, the plant also operated without any serious "off-spec" solvent issues, resulting in a Return on Investment (ROI) estimated beyond 300 %.



The SUEZ antifoulant program effectively reduced the fouling tendency in the recovery column through polymer inhibition / reduction, maintaining optimal steam consumption to the reboiler and reducing the polymer formation.

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