Advasol 150 Compressor Wash Oil Performance
Ethylene Producer – Gulf Coast

PURPOSE

The purpose of this memo is to evaluate and compare Advasol 150 wash oil against alternate wash oil candidates.

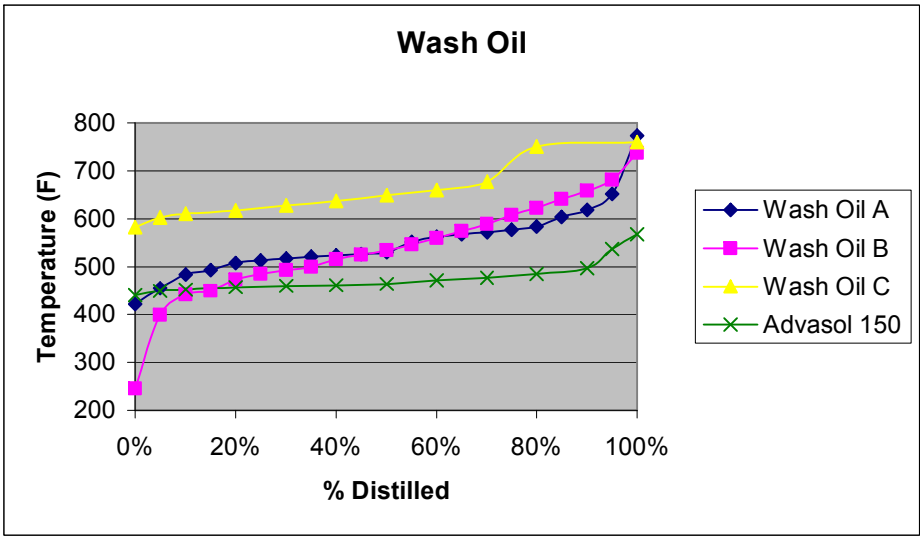
A sample of Advasol 150 from a Gulf Coast Ethylene Producer wash oil tank was compared to a number of different wash oils by a third party.

(i) Wash Oil A
(ii) Wash Oil B
(iii) Wash Oil C
(iv) Advasol 150 Wash Oil

For each of these wash oils (a) distillation profiles were obtained; (b) A chemical process industry leader's proprietary Kauri-Butanol solvency test was carried out; and (c) densities were obtained.

RESULTS AND DISCUSSION

The distillation profiles of the various wash oils ***showed that Advasol 150 exhibited favorable parameters*** (the optimal wash oil would have an Initial Boiling Point (IBP) greater than 390°F and an End Boiling Point (EBP) less than 570°F such that the wash oil will remain a liquid in all stages). Wash Oil A, B, and C all showed higher end points, indicative of the presence of heavy components.



The proprietary modified Kauri-Butanol solvency test showed that Advasol 150 exhibited excellent solvency. The other wash oils (A, B and C) had lower solvency, and ***the differences were statistically significant***.

Advasol 150 was much quicker in dissolving the resin in the modified Kauri-Butanol test. Wash Oil B was comparable in its dissolution time of the resin, but wash oils A and C were slower to dissolve the resin.

Wash Oil	Normalized Kauri-Butanol Value
Wash Oil B	99
Wash Oil A	94
Advasol 150	**100**
Wash Oil C	97

The densities of all wash oils were less than one. Wash Oil C was the lightest of the group, with a density of 0.9073 g/mL (this is not surprising given that its aromatic content is only 31%, with 68% being saturates). Wash Oil C should not be considered due to its low aromatic content. ***Typically, one desires a wash oil to have an aromatic content greater than 80%. The Advasol 150 was generally denser than the other wash oils (again, not surprising given its high content of fused-ring aromatic content and concentration of fused-ring aromatics.***

Wash Oil	Density
Wash Oil B	0.9508 g/mL
Wash Oil A	0.9781 g/mL
Advasol 150	0.9936 g/mL
Wash Oil C	0.9073 g/mL

THIRD PARTY INDEPENDENT INDUSTRY RECOMMENDATION:

To summarize, the current Advasol 150 formulation possesses an ideal boiling point range, excellent solvency and appropriate density. The other wash oils should be excluded from consideration due to their higher EBP's and lower solvency relative to Advasol 150.