Question 86: What are the most profitable dispositions for slurry oil and what issues do you consider for each option?

Greg Savage (NALCO Champion)

There are several possible uses for slurry oil. It can be recycled to the FCCU feed for destruction. However, it is quite resistant to cracking and does not give good gasoline yields. Today, some major uses for FCC slurry oil are:

•Blending stock for heavy fuel oil

•Carbon Black Oil (CBO)

•Feedstock for production of needle coke

•Feedstock for the delayed coker to reduce furnace fouling

•Feedstock for fixed bed hydrocracker or ebullating bed (H-Oil) conversion processes

Heavy fuel oil is normally the lowest value disposition for slurry oil. Depending on the ash content and the viscosity, significant quantities of low viscosity blending stock must often be used to meet fuel oil specifications.

If the quantity of catalyst fines in the slurry oil can be reduced to 0.05 wt. % and other specifications met, the slurry oil can be upgraded to Carbon Black Oil (CBO). FCC slurry oil is an important source for carbon black oil. The upgrade value of slurry oil from heavy fuel oil to CBO can be significant.

For the production of needle grade coke, slurry oils can be used to increase the aromatics content of the feed. Again, however, the ash must be reduced to avoid adversely affecting the coke quality. Decant oil can reduce fouling at the coker furnace, however, it can reduce overall coker liquid yield.

When used as hydrocracker feedstock, the ash contained in the slurry oil often causes plugging of the catalyst pores in fixed bed processes and reduces the degree of conversion achieved. In ebullating bed processes, the ash contained in the slurry can cause erosion problems in the ebullating pumps used in the process.

Brian Devlin (NALCO Champion)

Slurry oil is typically sold into the fuel oil and carbon black feedstock markets. Both fuel oil and carbon black purchasers will impose a % ash maximum. Exceeding the maximum will reduce the value of the slurry, and in some contracts will trigger a price penalty. Reducing ash is accomplished by allowing the

ash to settle in tankage before sale. If the process is too time consuming, or does not achieve the desired ash reduction an ash settling chemical may be recommended.

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