Question 88: Have you employed chemical additives to keep FCC expanders and other FCC flue gas equipment free of catalyst deposits? Were they successful?

Mike Teders (Valero)

Several years ago, one of our refineries attempted to use a chemical to remove fines from the flue gas expander. The injection system was not optimal, and it actually increased fouling so we would not recommend this method. Several of our flue gas expanders have been modified to improve the flow path and reduce fouling from catalyst fines. If left unchecked, catalyst fines are known to accumulate between the rotor blades and the stator shroud in an FCC flue gas expander. If the rotor rubs the packed fines, the fines become very hard resulting in a possible mechanical failure, which occurred in one of our refineries. The Valero best practice is to inject 100 to 600 lb. walnut hulls per day (depending upon the size of the unit) to the inlet of the expander to prevent fines packing into the spaces between the rotor and the stator shroud. Photos are taken of the rotor (using a strobe) as confirmation of good blade clearance.

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Tags

Catalysts

Fouling

Mechanical

Reliability

Safety

Year

2011