Question 17: What are your strategies for managing feed sulfur to reforming units? What are the pros and cons of the different approaches?

STEVENPHILOON (Honeywell UOP)

It is desirable to have a small amount of sulfur in the feed for CCR reforming units in order to reduce the risk of metal catalyzed coke (MCC) formation and heater-tube carburization and dusting. The sulfur interacts with the chromium and the iron to form a protective layer that reduces the penetration of carbon into the metal. However, sulfur is also a poison to the platinum metal function of reforming catalyst; so, the amount in the feed must be kept below the level where it will impact the performance of the catalyst.

The recommended level of sulfur in the feed to a CCR Platforming™ unit varies depending upon the severity of unit operations. The risk of MCC formation increases with decreasing reactor pressure and increasing product octane.

Honeywell UOP's recommended approach is to operate the naphtha hydrotreating (NHT) unit to remove essentially all of the sulfur in the feed. Thisapproachwill ensure that other contaminants (nitrogen, metals, oxygenates, etc.) are also removed from the feed to the extent achievable by the NHT.Organic sulfur is then added to the Platforming™unit feed with a chemical injection system pumping in a specific and controlled amount of organic sulfur compound to achieve the target recommended by the licensor. This injection of sulfur provides the refiner with independent control of the sulfur in the feed to the unit that can be changed,as needed,if feed rate or operating conditions change

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2016