

Development of metal trap and DeSO_x, DeNO_x additives in RFCC refinery system

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The fluid catalytic cracking (FCC) process has been one of the major processes producing gasoline. Recently, FCC unit has been forced to process some of the heavier feedstock containing more vacuum residual fraction. The residual oil called as resid contains increased amounts of sulfur, coke precursors and contaminant metals. Some refinery process was developed to convert the vacuum resid to gasoline and other valuable product. It is often called as resid fluid catalytic cracking (RFCC).

In this study, the metal trap and SO_x & NO_x reducing additive are developed. To reduce of the effect of catalytic deactivation by heavy metal (especially V), the metal trap was developed in catalyst like as MgO complex. And hydrotalcite was introduced to catalyst for reducing the SO_x and NO_x emission in regenerator. The catalytic activity was tested by MAT (Micro Activity Test, Xytel Automat MAT modification in LG-Caltex Oil Corporation, ASTM 3907-92) and reducing ability of SO_x emission in RFCC process was tested by TGA and GC analysis.