Background

For upgrading bottom of the barrel, Resid FCC (RFCC) is being adopted world over. However, there are issues that need to be addressed while processing metal rich feeds especially related to decreased catalytic activity and increased undesired products such as dry gas and coke.

IOC R&D has developed a novel metal passivation additive named IndVi for handling heavier hydrocarbons feedstock (high CCR, Ni & V) in RFCC unit.

Additive Description

Currently Antimony and Bismuth based nickel passivators are in the market and similarly tin and magnesium based passivators are available for vanadium. There is no single metal passivator which can simultaneously passivate both nickel and vanadium. As the product is zero zeolite formulation, for taking care of dilution effect, a new multi component metal passivator additive ‘Active IndVi’ is developed which is capable of taking care of both metals and activity.

IndVi can overcome the limitations of existing metal passivation additives with a single component and also handle higher metals. The additive has been prepared from proprietary in-house developed raw materials with tailored composition.

Salient Features

- Reduces dense bed temperature due to lower coke make
- Increases catalyst circulation rate
- Reduces CLO / DCO yield with the increase in TCO yield
- Enhances unit throughput

Commercial performance

The additive has been successfully scaled up and licensed to SCIL for commercialization. IndVi has been manufactured and commercially exploited at HR RFCCU and the following benefits were realized:

- Increase in TCO yield with corresponding decrease in gasoline yield as per the refinery objective.
- In spite of higher VR addition rate and higher through put, similar CLO yield could be maintained with lower Regenerator-1 dense bed temperature (by 7oC).

Contact Details:
Dr. SSV Ramakumar, DGM (CD)
Phone:0129 -2294240,0129 - 4005409
E-mail:ramakumarssv@iocl.co.in