Introduction

One of the requirements for improving quality of gasoline is to reduce the olefin content in the gasoline pool. Hence, the highly olefinic streams like coker and visbreaker naphtha cannot be blended in the gasoline pool. The problem of disposal of these streams is expected to aggravate in the future. On the other hand, LPG, light olefins, viz. ethylene, propylene, etc. are in increasing demand for value addition and downstream integration with petrochemicals.

Keeping these issues in mind, IndianOil R&D has developed a new patented process technology, named as INDALIN to convert low value olefinic naphtha streams to LPG / light olefins and BTX.

Process

INDALIN process employs circulating fluidized bed reactor and regenerator system similar to conventional Fluid Catalytic Cracking (FCC) process. INDALIN plant consists of mainly two sections, (i) Reactor & regenerator system for carrying out the cracking reactions in presence of catalysts and regeneration of the deactivated catalyst and (ii) Main fractionator column and gas concentration section for separation of reactor effluent stream into various products of desired cut points.

Catalyst of INDALIN is micro-spherical, fluidizable solid particles having definite particle size distribution. It comprises several active ingredients having varying crystalline and amorphous acid sites in different proportions depending on feed and operating objectives. The physical properties of the catalyst components are almost similar to conventional FCC catalysts.

Salient Features

- High severity cracking (ROT > 550°C, Cat/Oil > 15).
- High propylene yield (up to 30 wt% of fresh feed).
- High LPG yield (up to 55 wt% of fresh feed including propylene).
- High ethylene yield (up to 15 wt% of fresh feed).
- Gasoline rich in BTX (up to 45 wt%) – higher margin through recovery of BTX and recycle of non-aromatic part of gasoline.
- Operability at wide range of process conditions to maximize either light olefins or BTX depending on refiner’s objective.
Advantages

- Requires hardware configuration similar to conventional FCC unit - no major scale-up issue.
- Operability at wide range of severities to vary the yield ratio of light olefins to BTX depending on refiner’s objective.
- Capable of handling feed stocks up to 95% TBP point of 400°C from different sources.

Backup Strengths

- Proven experience in design, revamp, troubleshooting, optimization, etc. of process units employing circulating fluidized bed systems.
- Pilot plant data bank and evaluation facilities.
- Facilities for characterization of Feed, product and catalyst.
- Long history of technical support and troubleshooting expertise.
- Operating experience of FCC/ RFCC/ INDMAX units.

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