

ATF HYDROTREATMENT TECHNOLOGY FOR SELECTIVE MERCAPTAN REMOVAL

Introduction

IndianOil R&D has developed low pressure and low temperature hydrotreatment process for selective removal of mercaptans from ATF while minimal removal of other sulphur compounds. This process can use commercially available hydrotreating catalyst.

The process is environmental friendly and clean as it does not involve commonly used hazardous caustic for similar application.

Process Description

- Feed mixed with Hydrogen is passed over a catalyst bed at a temperature of 240-300°C and pressure of 3-12 kg/cm²g.
- Reactor effluent is then routed to Stripper where H₂S along with other dissolved gases are removed. A part of Stripper bottom is recycled back to Reactor.
- Product ATF passes through sand filter and salt dryer before sending to storage.

Salient Features

- Low severity operation.
- Selectively removes mercaptan to <10 ppm.
- Removal of other sulfur compounds as per requirement.
- The product meets all critical properties such as freezing point, Doctor Test, Cu & Ag strip corrosion, thermal stability, lubricity, acidity, color, etc.
- Negligible Hydrogen consumption (300-700 ppm), Make up Compressor (MUC) and Recycle Gas Compressor (RGC) not required.

- Commercial/ IndianOil R&D developed hydrotreating catalyst.
- Possible to revamp existing units keeping same post treatment vessels for salt dryer and clay treatment, bypassing caustic wash vessel.

Advantages

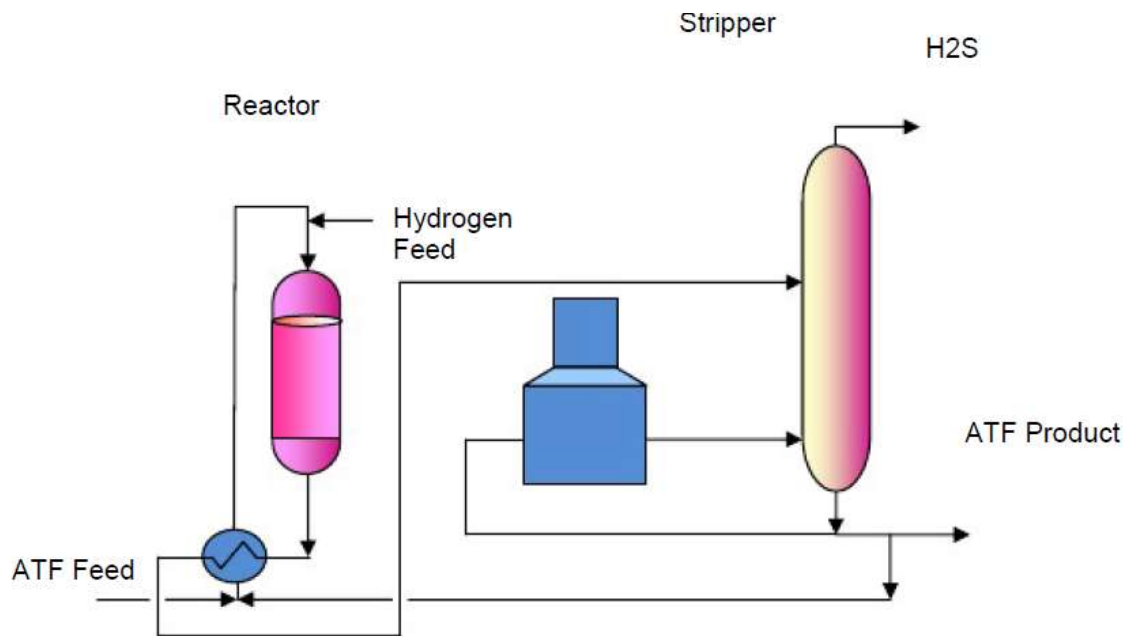
- Simple process configuration.
- No handling of chemicals viz. caustic.
- Hydrogen consumption being low, can be easily met from existing sources.
- Flexibility with respect to feedstock having higher mercaptan where conventional caustic treatment may be limiting.

Commercialization

Basic Design Engineering Package (BDEP) has been prepared for 0.5 MMTPA unit.

Back up Strengths

- Pilot plant data bank & evaluation facilities.
- Feed/ product/catalyst characterization facilities.
- Operating experience of Hydroprocessing units.
- Excellent technical support & troubleshooting expertise.
- Commissioning experience.



Process Flow Scheme of ATF Hydrotreatment Process