

# FOOD/ POLYMER GRADE HEXANE (FGH/PGH) TECHNOLOGY

## Introduction

Food Grade Hexane (FGH) specifications are becoming stringent especially w.r.t. benzene content and the conventional clay treatment process has been replaced by hydrogenation process. The technology is jointly licensed by IndianOil and Engineers India Limited (EIL).

## Process Description

- Narrow boiling cut (63-70°C) is prepared from fractionator and sent to a fixed bed hydro-processing reactor where it is mixed with hydrogen over a catalyst bed at temperature of 90-160°C and pressure of 15-25 kg/cm<sup>2</sup>.
- The main chemical reactions are desulphurization, aromatic and olefin saturation. These reactions are carried out on mono-functional catalyst.
- Reactor effluent is separated into gas and liquid in a separator and product liquid is sent to the product tank.

## Salient Features

- Catalytic process for hydrogenation of benzene to cyclohexane and olefins to respective alkanes.
- FGH having benzene content of <500 ppm and PGH of <100 ppm benzene are produced from feed benzene of 2–3 wt%.
- The typical feed to the FGH unit is heart cut hexane stream having boiling range 63-70°C. However, the process offers flexibility of producing FGH/ PGH from either straight run or side stream of Naphtha Hydrotreater unit.

## Advantages

- Simple process configuration.
- Proprietary reactor internals.
- Backed by design and engineering experience of EIL.
- Pilot plant data bank & evaluation facilities.
- Feed/product/catalyst characterization facilities.
- Commissioning and operating experience of hydroprocessing units.
- Excellent technical support and troubleshooting expertise.

## Commercialization

- A 28000 TPA unit is running successfully at IndianOil's Gujarat Refinery since its commissioning in 2001 for production of hexane meeting FGH/PGH specifications (benzene < 100 ppm).
- Another unit of 20000 TPA capacity is running successfully at HMEL's Bhatinda Refinery since its commissioning in 2012 for production of hexane meeting FGH/PGH specifications.



FGH Unit at IndianOil's Gujarat Refinery

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