



## UOP I-400™ Catalyst

### Petrochemicals Catalyst

#### Description

I-400 catalyst is used to re-establish an equilibrium distribution of xylene isomers in a stream of mixed xylenes that has been depleted of one or more isomers. Xylene isomerization catalysts are classified according to how they treat the ethylbenzene (EB) present in the mixed xylene feed: EB dealkylation catalysts convert EB to benzene and ethylene, while EB isomerization catalysts convert EB to additional xylenes. I-400 catalyst is an EB isomerization catalyst which is comprised of platinum on a zeolite base.

#### Application

I-400 catalyst is used in the UOP Isomar™ process unit for xylene isomerization. In most aromatics complexes, the Isomar unit works in tandem with a UOP Parex™ unit to produce high-purity *para*-xylene. Mixed xylenes are fed to the Parex unit, which preferentially extracts the *para*-xylene isomer. The Parex unit raffinate, which is almost entirely depleted of *para*-xylene, is then sent to the Isomar unit, which re-establishes an equilibrium distribution of *para*-, *meta*-, and *ortho*-xylene isomers. The product from the Isomar unit is then recycled back to the Parex unit for further extraction of *para*-xylene. In this way, the undesired xylene isomers are recycled to extinction. I-400 catalyst is used when the primary objective is to maximize the yield of *para*-xylene from an aromatics complex and minimize production of benzene.

#### Features and benefits

- Low ring loss – has a 50% lower C<sub>8</sub> ring loss per pass than UOP I-9™ catalyst, UOP's previous EB isomerization catalyst. Low ring loss results in lower feed costs.
- High activity – has the highest activity of any UOP EB isomerization catalyst. The high activity enables operation at higher space velocities and mild operating conditions. This reduces the amount of catalyst required and also reduces capital and operating costs.

- Operates in a broad operating window – can operate successfully in units without the need for major revamp.
- High stability – has the highest stability of any UOP EB isomerization catalyst resulting in a high on-stream utilization.

#### Experience

I-400 catalyst was introduced to the market in 2005, and is currently operating in three Isomerization units.

#### Physical properties

|  |           |
|--|-----------|
| Shape  | Extrudate |
| Nominal diameter, inch (mm)                              | 1.6       |
| Sock loaded ABD, lb/ft <sup>3</sup> (kg/m <sup>3</sup> ) | 32 (515)  |
| Metals   | Platinum  |

#### Packaging

- 55 U.S. gallon (210 liter) drum
- Net weight per drum of 300 pounds (136.1 kg)

#### For more information

For more information, contact your local UOP representative or our Des Plaines sales office:

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