UOP I-550™ CATALYST SYSTEM

For Xylene Isomerization and EB Dealkylation

I-550 catalyst is UOP's latest EB dealkylation catalyst system in the I-500 catalyst series. I-550 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 high purity benzene, while EB isomerization catalysts convert EB to additional xylenes.



UOP's I-550 catalyst system has improved xylene retention with high px/x selectivity.

APPLICATIONS

I-550 catalyst is used in the UOP Isomar™ process 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 raffinate, which is almost entirely depleted of *para*-xylene, is then sent to the Isomar unit, which reestablishes 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. The Isomar process can also be used with the UOP MX Sorbex™ process to produce *meta*-xylene or, with suitable fractionation, to produce *ortho*-xylene.

I-550 catalyst is often used to debottleneck an existing aromatics complex. I-550 catalyst operates at high EB conversion which reduces the volume of the recycle stream around the Parex-Isomar loop. High EB conversion also reduces the concentration of EB in the feed to the Parex unit, which enhances separation efficiency. Replacing an EB isomerization catalyst with I-550 catalyst can substantially increase the effective *para*-xylene production capacity of an existing Parex unit.

EXPERIENCE

I-550 was successfully commercialized in 2019 and is the fifth generation catalyst in UOP's Xylene Isomerization and EB Dealkylation portfolio. For more than thirty years, UOP has remained the industry leader in isomerization catalyst development, with catalyst operating in over 40 units.

TYPICAL PHYSICAL PROPERTIES (NOMINAL)

Shape	Extrudate
Nominal mm	1.5 x 4
Sock loaded ABD, kg/m^3	495

FEATURES AND BENEFITS

- High EB conversion per pass, no equilibrium limitation
- Very low xylene loss, even at 80% EB conversion
- pX/X of 24.0 achievable
- Very high EB to benzene selectivity
- High purity benzene
- Excellent stability
- Operates at high space velocity, requiring less catalyst
- Regenerable using simple carbon burn procedure

PACKAGING

- 55 U.S. gallon (210 liter) steel drums
- Net weight per drum of (95 kg)

For more information
www.uop.com

UOP LLC, A Honeywell Company
25 East Algonquin Road
Des Plaines, IL 60017-5017, U.S.A.
www.uop.com

UOP4507-81 | 02/2020
© 2019 UOP LLC. All rights reserved.
The information in this Honeywell Company document should not be construed as a representation for which UOP assumes legal responsibility, or an authorization or recommendation to practice a patented invention without a license..

Honeywell UOP