ATA-21: A new standard for transalkylation catalysis

Increased efficiency and activity deliver a range of benefits

ATA-21 is the latest product from the partnership between Zeolyst International and SK Innovation in the ATA series of high-performance transalkylation catalysts. The ATA series is an established leader in transalkylation offering highly stable activity and performance in the treatment of heavy feedstocks.

Key features of ATA-21

- **Feedstock flexibility** enables plant operators to optimise the economics of their transalkylation units.
- **Efficient operation** as a result of very low aromatics loss
- **Excellent product quality** with a benzene purity of up to 99.95% without extraction
- **High activity** enables operation at a high weight hourly space velocity up to 4.5 h⁻¹ with no significant change in yields at low deactivation rates
- **Utility cost reduction** based on low hydrogen requirements
- **Outstanding stability** with typical cycle lengths in the range four to eight years, depending on operating conditions

Building on the success of ATA-11 and ATA-12, the new ATA-21 catalyst enhances performance through increased efficiency, lower aromatics loss, reduced gas production and lower hydrogen consumption.

ATA-21 offers a significant activity advantage of about 30%. This activity gain enables plants to operate at lower temperatures, extend cycle lengths or reduce catalyst volumes. The benzene product quality improves, as there are fewer co-boilers in the benzene boiling range.

ATA-21 offers higher benzene and C8 aromatics selectivity than ATA-12

ATA-21 delivers a higher quality benzene product than ATA-12

Applications

ATA-21 catalysts are utilised in aromatics complexes in toluene disproportionation units or in transalkylation units to convert toluene and C9+ aromatics to mixed xylenes and, when desired, selectively produce benzene. Processing C9+ aromatics in a transalkylation unit increases xylene production. The transalkylation process makes it possible to produce a higher volume of mixed xylenes from low-value toluene and heavy aromatics. Incorporating a transalkylation unit into an aromatics complex utilising a naphtha feedstock can more than double the yield of paraxylene.
Advantages of ATA-21

ATA-21 offers excellent feed flexibility and can process feedstocks that are benzene-rich, 100% toluene or 100% C9+ aromatics. This enables plant operators to optimise feed sources, increase margins and respond to changing market conditions.

ATA-21 catalyst provides transalkylation plant operators with significant economic advantages through:
- lower total fill costs with reduced ATA-21 catalyst loading for specific feedstocks
- the reduced platinum content (20%) of ATA-21
- increased benzene purity
- increased cycle length.

For more information on how Zeolyst International, Criterion Catalysts & Technologies and Shell Global Solutions can contribute to your operations, please contact your nearest Criterion sales representative or visit our website at www.zeolyst.com.

Benzene and C8 aromatics yield on reactor feed at 45 wt% total conversion.