

Athos-3 Paraffin Isomerization Catalyst

Athos-3 is the newest member of the a pentane/ hexane isomerization catalyst family and is an extension of the Athos-1 technology. Athos-3 is specifically designed as a low density high activity isomerization catalyst.

Applications

Athos-3 is recommended for use in refineries and petrochemical complexes where the isomerization of pentane and hexane is required to produce a high-octane gasoline blending component. Athos-3 can be used in all reactor types, classical fixed bed reactors, radial flow reactors, spherical and etc.

Feeds

Typical feeds processed over Athos-3 are hydrotreated or light straight run naphtha streams.

Product Advantages:

The improved activity of Athos-3 allows plants to operate at higher throughput. Alternatively, there is an option to operate at a lower temperature with the same throughput. The ability to operate at lower temperature is advantageous as the thermodynamics favor the formation of more branched paraffins with a higher octane number while also maximizing liquid yields.

Regeneration

During operation, the catalyst activity slowly declines mainly because of coke lay-down. The activity can be restored to a large extent by carbon burn-off. This can be done in-situ; however, ex-situ is preferred because of superior temperature control.

Temperature for Maximum Yield

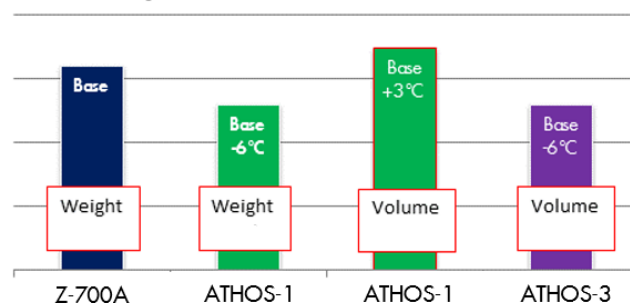


Figure 1: Comparison Athos-3, Athos-1 and Z-700A temperature for maximum octane yield. Results show that Athos-3 is six (6) deg C more active than the Z-700A catalyst.

Octane Tonne Yields as function of temperature

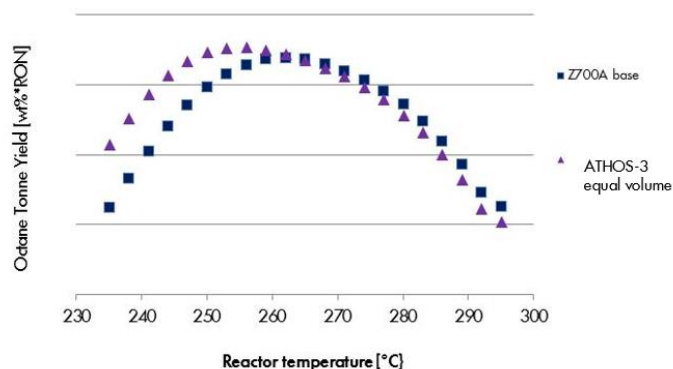


Figure 2: Comparison octane-tonne yield versus reactor temperature. Results show that Athos-3 has the ability to produce a higher maximum octane-tonne yield at lower temperature compared to the Z-700A.