

FCC gasoline post-treatment

Squeeze more value out of your FCC gasoline

With Topsoe's new HyOctane™ catalysts for ultra-low sulfur, high-octane gasoline



As sulfur legislations tighten, it becomes more difficult for refiners to meet the specifications from their FCC gasoline post-treatment units. Particularly the octane number poses challenges, since some olefins are simultaneously being hydrogenated. The consequent loss of octane often prevents the refineries from achieving maximum value.

Topsoe's series of HyOctane™ catalysts are specifically developed for all steps in FCC gasoline post-treatment applications. Their optimized activity and selectivity enable removal of sulfur to ultra-low levels while retaining high octane numbers, allowing a stable, flexible, and profitable production of high-quality gasoline.

Better performance through optimized HDS activity

It has been industrially proven that units using HyOctane™ catalysts experience a significantly improved hydrodesulfurization (HDS) activity. This leads to improved performance in the FCC gasoline post-treatment unit and more attractive product properties.

High stability achieved through years of research

The HyOctane™ catalysts build on Topsoe's advanced preparation technologies and exhibit stable performance throughout the entire catalyst cycle. The high-activity catalysts enable operation with extended cycle lengths and/or increased throughput.

High selectivity ensures minimum octane loss

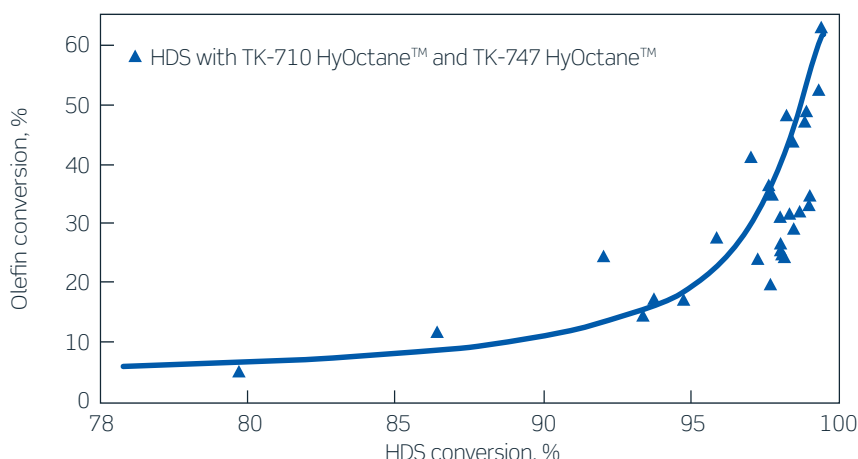
The intelligent design of the HyOctane™ catalysts has increased the selectivity towards sulfur compound conversion, while minimizing mono-olefin hydrogenation. This ensures that a high octane number is maintained in the final gasoline product.

Reduced gas formation resulting in high naphtha yield

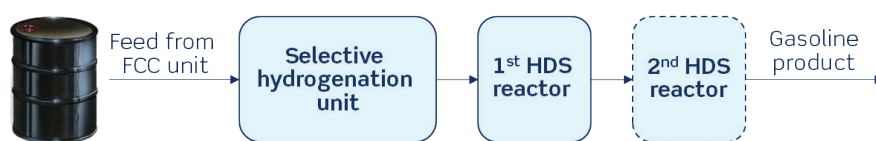
More than 99.9 wt% naphtha yield can be obtained with the HyOctane™ catalysts. The gas formation is extremely low across the HyOctane™ catalysts, resulting in an insignificant change in Reid Vapor Pressure (RVP).

Advantages

- Superior activity for sulfur removal
- Stable operation allowing for longer operating cycles
- Low octane loss
- More than 99.9 wt% naphtha yield
- Industrially proven



The graph shows the relationship between olefin saturation and, consequently, octane losses as a function of the desulfurization conversion required to meet the sulfur specifications in the gasoline pool. Topsoe's HyOctane™ catalysts ensure low olefin conversion even at high HDS conversion.



The HyOctane™ catalyst series includes solutions for all steps in FCC gasoline post-treatment.

TK-703 HyOctane™

TK-703 HyOctane™ is a specially developed NiMo catalyst with low HDS and hydrogenation activity, making it an excellent choice for the selective hydrogenation unit, where only saturation of di-olefins is needed, and the octane loss is minimized. The TK-703 HyOctane™ catalyst enables transfer of sulfur from the light fraction to the heavy fraction of the liquid product.



TK-710 HyOctane™

TK-710 HyOctane™ is a CoMo type catalyst with optimized HDS activity, limited loss of octane, and high tolerance for metal poisoning. TK-710 HyOctane™ displays superior functionality for application in the 1st HDS reactor in the FCC gasoline post-treatment unit.



TK-747 HyOctane™

TK-747 HyOctane™ has a high nickel content, ensuring minimum octane loss and reduction of mercaptans in the product. TK-747 HyOctane™ is suitable for application in the 2nd HDS reactor in the FCC gasoline post-treatment unit.



Catalyst	Type	Shape	Size, incl (mm)
TK-703 HyOctane™	NiMo	Quadralobe	1/10 (2.5)
TK-710 HyOctane™	CoMo	Quadralobe	1/10 (2.5)
TK-747 HyOctane™	Ni	Quadralobe	1/15 (1.7)



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