KOCH™
TECHNOLOGY SOLUTIONS

REFINERY TECHNOLOGIES

IsoA™

Isomerizing/Aromatizing Technology

A KOCH ENGINEERED SOLUTIONS COMPANY

Convert C5-C7+ Paraffinic Feed Into High-Octane, Low-Sulfur Gasoline Blend Stock.

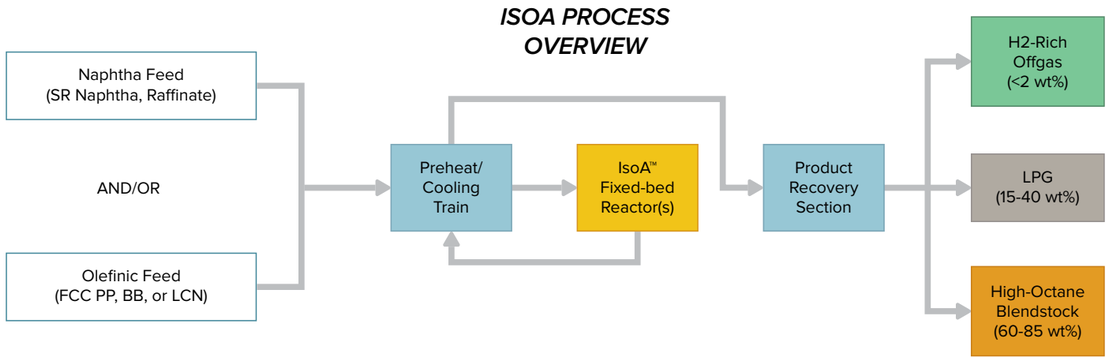
IsoA technology isomerizes and aromatizes low-octane, C5-C7+ paraffinic feed (such as light, straight-run naphtha, raffinate, and NG condensate liquids) and converts it in a fixed-bed reactor to an upgraded, high-octane, gasoline blend stock. With a primarily C6/C7 feed, the upgraded stream typically has a 20+ unit increase in octane, a reduction in RVP and a 90% reduction in the sulfur content compared to the feed.

How It Works

IsoA technology works via a low-CAPEX, low-pressure process that has a small footprint and utilizes standard refinery equipment, such as fixed-bed reactors, absorption and separation columns. The heterogeneous catalyst is sulfur tolerant and eliminates the hydrotreating process required for conventional isomerization processes. No recycle gas is required, so maintenance and energy intensive hydrogen compression required by the conventional isomerization process is also eliminated. The process can be further optimized with a boost in octane, an increase in yield, and a reduction in operating cost by co-feeding olefin containing LPG.

The product exiting the reactor is cooled and stabilized for blending into the gasoline pool.

ISOA PROCESS OVERVIEW



Benefits

- Enables a 20+ point increase in octane number and a 90% reduction in sulfur content of the low-octane, C5-C7+ paraffinic feeds
- Typically yields ~70-85 wt% blend stock
- Typical product RON is between 80-89 points
- Decrease in RVP dependent on the feed composition; increase in the dry point temperature by 20 to 30° C
- Removes sulfur without adversely impacting octane (with 150 ppm in feed can achieve <10 ppm, sulfur removal >90% efficiency)

IsoA, At-A-Glance

- Target application is to upgrade low-octane light naphtha, topped oil, raffinate oil, reformate, NG condensate—ideally C5 to C7+ paraffinic naphtha—sold as steam-cracker feed into high-octane, low-sulfur gasoline blend stock
- Fixed-bed reactor with product fractionation separates the upgraded naphtha from LPG
- Proprietary metal-modified, nano-sized Zeolite catalyst
- Catalyst life is expected to be > 3 years
- Co-feed of olefin containing LPG is an option to increase the Octane boost, improve yields and eliminate/minimize heat input
- Co-locating a DTL™ plant (highly exothermic reaction) with IsoA plant (endothermic reaction) allows both energy integration and CAPEX reduction due to common fractionation equipment
- 6 commercial plants in operation with 3 additional plants under construction

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About Koch Technology Solutions (KTS)

KTS collaborates with industry leaders to license innovative technologies for refinery optimization and natural gas liquids processing. Leveraging the expertise of Koch Engineered Solutions companies such as Koch-Glitsch, Koch Projects Solutions, Optimized Process Designs and others, we offer our licensees project execution options ranging from Process Design Packages and Services to LSTK.

For more information, visit kochtechsolutions.com.