



→ GT-BTX Plus[®]

Technology Licensing

Meeting the World's Clean Gasoline Needs



GT Technology
→ Engineered to Innovate[®]

Technology Licensing

GT-BTX PluS®: Meeting the World's Clean Gasoline Needs

As the worldwide refining industry becomes more intricately linked, the specifications for fuels are converging around certain common aspects. Chief among these are the environmental limits on benzene and sulfur content in motor gasoline. GTC Technology's GT-BTX PluS provides an effective and economical solution for meeting both of these specifications, and gives refiners the ability to convert lower-value gasoline components into higher-value petrochemicals, thereby maximizing the value of refinery products.

Process Overview

GT-BTX PluS is a variation of GT-BTX®, a proven extractive distillation technology that simultaneously removes benzene, toluene, xylene and thiophenic sulfur species from aromatic-containing cracked naphtha. The technology helps produce low-sulfur gasoline that meets the 10 ppm limit of sulfur without a change in octane value.

Another use of GT-BTX PluS is to generate aromatics for paraxylene production without the requirement of a typical naphtha reformer unit. This is especially attractive for use with feedstocks produced from high-severity fluid catalytic cracking (FCC) operations.

The process is optimally installed on the FCC mid-cut naphtha stream. GT-BTX PluS removes all thiophenes, and some of the mercaptan-type sulfur species, from the FCC gasoline feed through an extractive process that separates the sulfur plus aromatics from the olefins. This olefin-rich raffinate can then be sent directly to the gasoline pool for blending or to a treating unit to remove the mercaptan-type sulfur compounds before being sent to the gasoline pool. The extract stream is desulfurized

by conventional means and can be directly used for petrochemical production instead of recycling to the naphtha reformer.

Advantages

The GT-BTX PluS technology uses extractive distillation to remove sulfur and aromatics from cracked stock gasoline streams to very low levels without hydrotreating the full stream material. This eliminates the octane loss of traditional selective HDS units, because GT-BTX PluS segregates the olefinic species away from the hydrotreater.

The extract from the GT-BTX PluS unit is sent to a smaller conventional hydrotreating unit to remove the sulfur from the aromatics product. This results in substantial savings in capital cost, energy consumption, hydrogen consumption and catalyst loading, compared to a hydrotreater that processes the entire FCC gasoline.

The technology is characterized by:

- Process simplicity
- High process performance
- Low energy consumption
- Low investment, operating and maintenance costs

When compared to other desulfurization processes and schemes, benefits of the GT-BTX PluS method include:

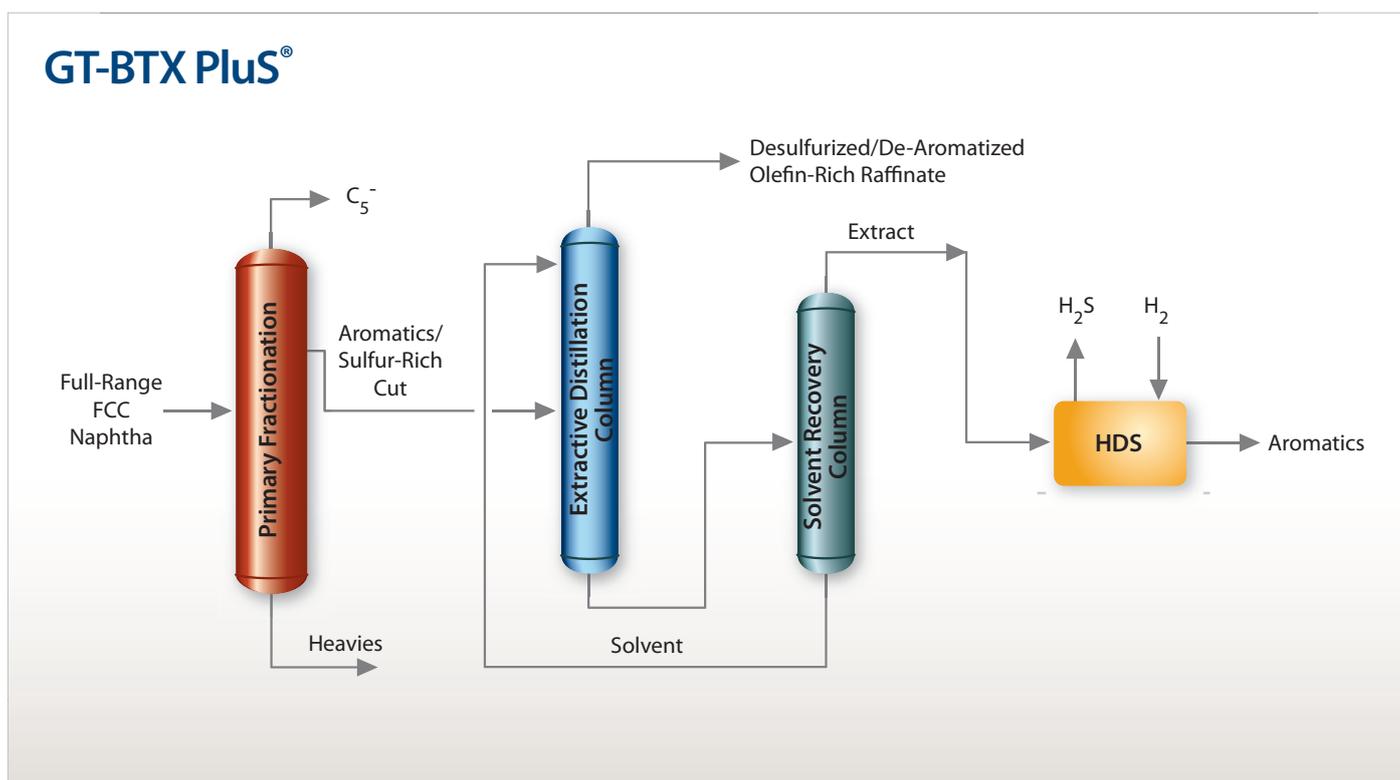
- Reduced OPEX and CAPEX in desulfurization from treating full-range naphtha.
- Less hydrogen consumed than if the full-range material were hydrotreated.
- HDS function required only for sulfur removal.
- Octane value fully retained due to the diversion of feed olefins from the hydrotreater.
- Gasoline yield completely maintained.



- High-quality aromatics produced from FCC gasoline.
- Sulfur content of the FCC gasoline fraction being sent to the gasoline pool reduced to less than 20 ppm.
- Segregated olefin-rich stream may be converted into propylene or additional aromatics.
- Greater utilization of the naphtha reformer, compared to units that recycle the cracked gasoline.
- Opportunity to feed more fresh naphtha and generate more hydrogen.

Engineered to Innovate

To learn more about GTC Technology's leading-edge technology solutions, and the many ways we can help improve your operations and profitability, call us today at **+1-281-597-4800**, e-mail us at **inquiry@gtctech.com**, or visit our Web site at **<http://www.gtctech.com>**.



↑ A mid-range cut from FCC gasoline containing the C₆ - C₉ components is fed to the GT-BTX Plus unit. This operation separates the aromatics plus sulfur from all other species. Virtually all of the olefins are rejected and can be used directly for low-sulfur gasoline or as petrochemical feedstock.



→ Engineered to Innovate®

+1-281-597-4800

inquiry@gtctech.com

www.gtctech.com

GTC Technology is a global licensor of process technologies and mass transfer solutions with the mission of creating value for our clients. Refining, petrochemical and chemical companies around the world rely on GTC's advanced processes to optimize production capacity and efficiency. With insightful industry expertise, research capabilities and innovative thinking, GTC solves complex processing problems and has earned a reputation of excellence in designing and delivering high-quality, strategic solutions for clients worldwide. We're engineered to innovate.