GT-BTX Select®

Technology Licensing

Enhancing the Aromatics Recovery Process

GT Technology

Engineered to Innovate®

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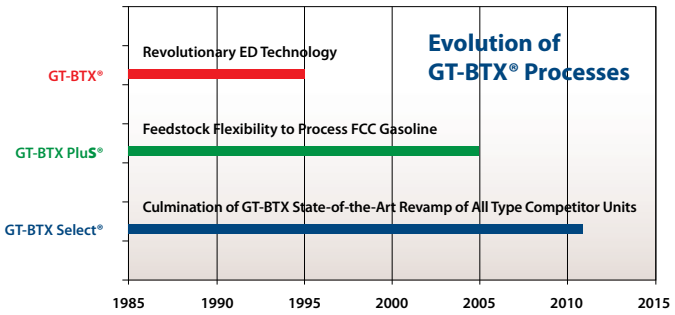
Enhancing the Aromatics Recovery Process

GT-BTX Select® is an innovative aromatics recovery process for extractive distillation (ED), the culmination of the best of GTC Technology's aromatics recovery processes. Beginning in 1995, GTC commercialized the first ED process capable of processing a wide boiling range of feeds with three carbon numbers. The original design was known as GT-BTX®, which provided a simple two-column ED system that required lower capital cost than conventional liquid-liquid extraction (LLE) systems. Revolutionary for its time, the GT-BTX technology was used in many plants throughout the world, including the largest ED unit for benzene, toluene, and xylene recovery.



Since that time, GTC has introduced two new generations of processes: GT-BTX Plu**S®** for sulfur and aromatics removal from cracked gasoline, and GT-BTX Select, which is the culmination of all advanced features in one technology.

Features of GT-BTX® Family of Processes	GT-BTX®	GT-BTX PluS®	GT-BTX Select®
Established standard	x		
Techtiv® 100 solvent	x		
Techtiv® DS solvent		x	
Cracked stock containing olefins		x	x
Sulfur removal		x	x
Heavy hydrocarbon removal system		x	x
Advanced mass transfer internals		x	x
Lowest specific energy consumption			x
Advanced heat integration techniques			x
Techtiv® 500 - new generation of solvent to gain best overall performance			x

GT-BTX Select Proprietary Design Features and Technology Comparisons

- The ED section operates with only two columns – an extractive distillation column (EDC) for high-purity recovery of aromatics and a solvent recovery column (SRC) for stripping out the final aromatic extract and recovering the solvent for recycling; no other columns are required for the raffinate wash or non-aromatics stripping from rich solvent.
- The process yields high aromatics recovery and very high-purity aromatic products. The raffinate product has low aromatics content.
- Low specific energy consumption is attained due to GT-BTX's excellent solvent selectivity and compact process design. GTC uses advanced heat integration schemes to further reduce energy consumption, inside and outside the extraction section.
- GT-BTX Select uses a simple distillation operation performed at ordinary operating parameters. This simplicity offers a very easy-to-operate unit with reduced maintenance cost. Simple design results in a lower investment cost.
- Solvent losses are minor, typically less than 1 ppm in both raffinate and extract products within the ED section.
- Process flexibility allows variations in feedstock aromatics content, boiling range and component species, including olefins and sulfur.
- Patented heavy hydrocarbon removal system is used to reject impurities in the solvent.

Techtiv® 500

GT-BTX Select technology uses the extractive solvent, Techtiv 500, which is proven to be more selective than any other in the industry. Techtiv 500 is a blended system containing solvent, co-solvent and additives to provide improved ED performance over the earlier generations. This solvent is a fundamental part of the new state-of-the-art technology in aromatics extraction.

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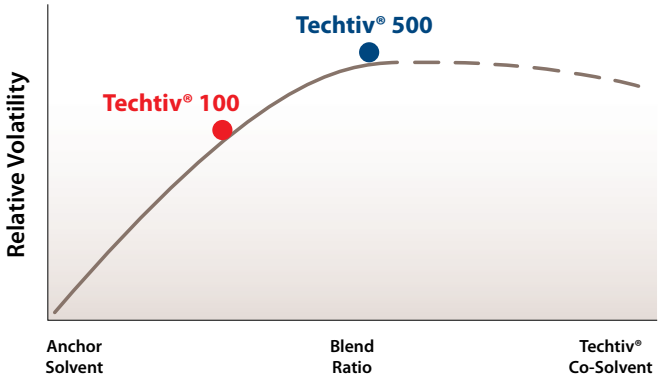
Less efficient solvents in competitor ED systems can operate only with narrow-cut feeds. That leads to individual extraction systems, separate for C_6 and C_7 fractions, and more intense pre-fractionation for complete removal of the objectionable non-aromatics species. GT-BTX Select, however, allows processing of a full-range BTX fraction, even with high boiling trace impurities. GTC has also improved the hydrocarbon solubility with Techtiv 500, which gives better mass transfer efficiency, thus allowing use of a lower solvent-to-feed ratio and less solvent circulation. GTC has successfully licensed units that convert every other type of aromatics extraction technology into the GT-BTX process.

Solvent	Relative Volatility n-C7/Benzene	Solvent Circulation
Techtiv® 100 (GT-BTX®)	Base	Base
Techtiv® 500 (GT-BTX Select®)	116% of Base	10% lower

Techtiv® 500 Comparison



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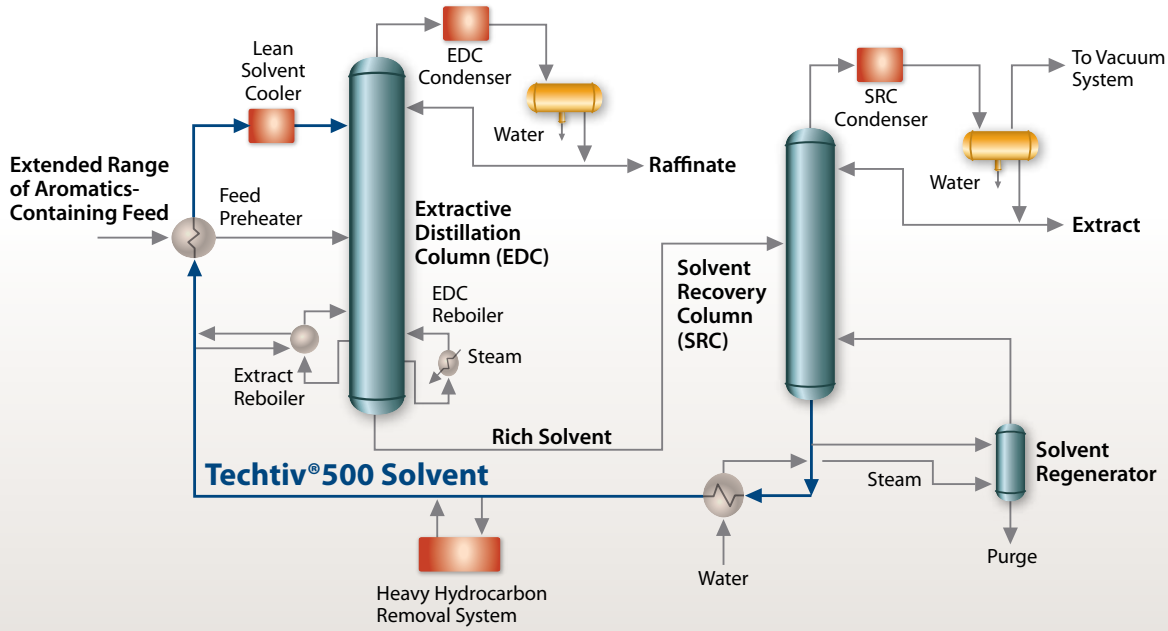
To learn more about GTC Technology's leading-edge technology solutions and the many ways we can help improve your operations and profitability, call us today at **+1-281-597-4800**, e-mail us at **inquiry@gtctech.com** or visit our Web site at **http://www.gtctech.com**.

GT-BTX Select®



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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.