



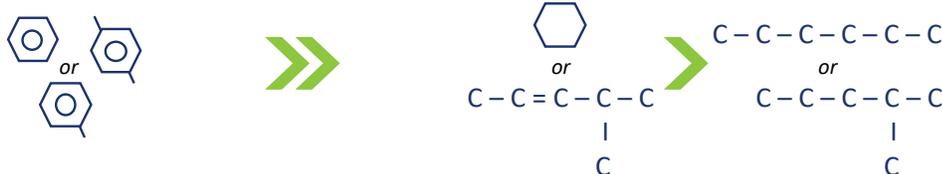
BTX Gold™ Solvents

Chemical Separations Technology

We provide more than simple solvent replacement and process design...we give insight into optimizing your petrochemical operation and long-term business strategy.

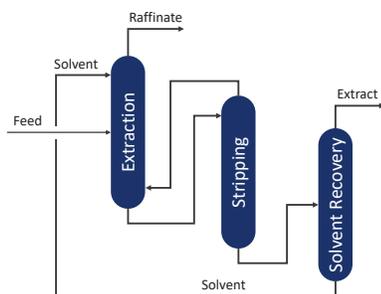
In the petrochemical industry, fractional distillation is the mainstay for separating components on the basis of different boiling points. When the individual component boiling points are close or when there is need for ultra-high purity products, then other techniques are used to facilitate the separation.

Solvent-enhanced systems are useful when the components to be separated have different functional groups. These respond to polar solvents in this general trend of attractiveness:

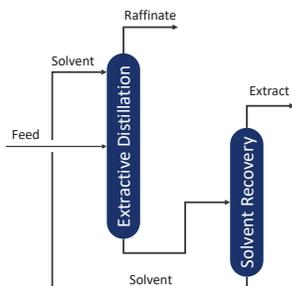


← **Most Attracted** **Least Attracted** →

The effect is either a higher solubility in the solvent for liquid-liquid extraction, or an altering of the boiling points for extractive distillation. Stage-wise contacting the solvent with the hydrocarbons builds a concentration profile until the desired product specs are reached. Once the solvent has made the primary separation into an extract and raffinate, the solvent is recovered from the extract stream to be re-used.



Typical LLE System



Typical ED System

The team at GTC Vorro Technology has been successful in developing and applying advanced separations systems for over 30 years, using the synergies of blended solvents and hybrid designs that give the most robust operation and require the lowest energy consumption. For BTX separation, we use mixed polar solvents, which preferentially separate aromatics from olefins or naphthenes, and paraffins. The aromatic content and boiling range of the feed dictate the type of separation system to use and the optimum solvent formula to give the best performance. GTC Vorro Technology uses custom-formulated blends that balance the solvency and selectivity of the solvent with the feedstock to give improved performance over single-component solvents or standard blends.

BTX Gold™ solvents are available for every application containing aromatics, from 5% - 99% aromatic content, with thermal or catalytically cracked, reformed, or straight-run feedstock. All of the solvents are chemically stable and environmentally acceptable for the refining and petrochemical industries.

VALUE-ADDED PROPOSITION

- Top performance matched to feedstock type for every source of aromatics
- Drop-in replacement option for Tectiv® solvents with BTX Classic series
- Competitive pricing and economics
- Secure and reliable supply chain logistics
- Economical revamp replacement of NFM, NMP, DMF, and glycols for energy savings or capacity increase

GTC Vorro Technology Solvent Applications

SOLVENT	APPLICATION
BTX Gold™-N	Dearomatization of naphtha from steam cracker feed using liquid - liquid extraction
BTX Gold™-P	Pyrolysis Gasoline
BTX Gold™-C	Coke Oven Light Oil
BTX Gold™-FCC	Cracked FCC Naphtha
BTX Classic™ -100	Drop-in replacement for sulfolane or sulfolane - blended solvents

GTC Vorro – BTX Gold™ Solvents

GTC VORRO TECHNOLOGY SOLVENTS

With a history as a successful inventor and provider of mixed solvents for aromatics extraction and recovery, GTC Vorro offers BTX Gold™ solvents for these applications.

BTX Gold™ solvents are custom applied for BTX recovery from all sources of feed (catalytic reformat, pyrolysis gasoline, Coke Oven Light Oil, FCC gasoline, coker naphtha, straight run naphtha), and can replace solvents in liquid-liquid extraction or extractive distillation designs.





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GTC Vorro provides the full-service technology package for revamp conversions or grassroots designs. For more information about solvents or revamp designs, please send your inquiry to jgentry@gtcvorro.com.

www.gtcvorro.com