FILTRATION APPLICATIONS FOR AROMATIC FRACTIONATION

(BTX Extraction)

Aromatic Fractionation is when a refinery utilizes reformate from the catalytic reformer and extracts the aromatics rather than blend them into gasoline. The aromatics are then separated in pure benzene, toluene, and mixed xylenes products at the BTX (benzene-toluene-xylene) Unit. The BTX is then either processed by a chemical unit within the refinery or sold to a chemical facility for production into a wide range of chemicals from solvents, to fibers, films, and plastics.

For most BTX extraction units, the recovery of aromatics occurs in a liquid-liquid extractor column while the purification takes place in an extractive distillation column. Steam stripping is used to remove the aromatics from the solvent.

While reformate is the major source of aromatics in most of the world, pyrolysis gasoline is also a significant source. Pyrolysis gasoline is an aromatic rich naphtha stream produced by an ethylene plant when it cracks butane, naphtha, or gasoil. Pyrolysis gasoline resembles reformate and can serve as a high-octane blend stock for motor gasoline or for an aromatics extraction unit.

The most common filtration problems in aromatic fractionation are foaming and fouling. Solid particulates cause foaming resulting in reduced process flow and the injection of costly foaming inhibitors to regain control. Fouling also occurs from excessive particulate concentrations and reduces operating efficiencies in distillation and recovery towers, heat exchangers, and other downstream equipment. To meet sales quality specifications of BTX products; an optimal filtration system is required to remove both solid and liquid contaminants.

Benefits of an optimized filtration system include:

- Ability to meet sales product specifications.
- Use of costly anti-foaming inhibitors.
- Reduction in equipment fouling.
- Lower operating and maintenance costs.
- Increased BTX extraction efficiency.
- Increased safety and uptime leading to reduced employee process exposure.

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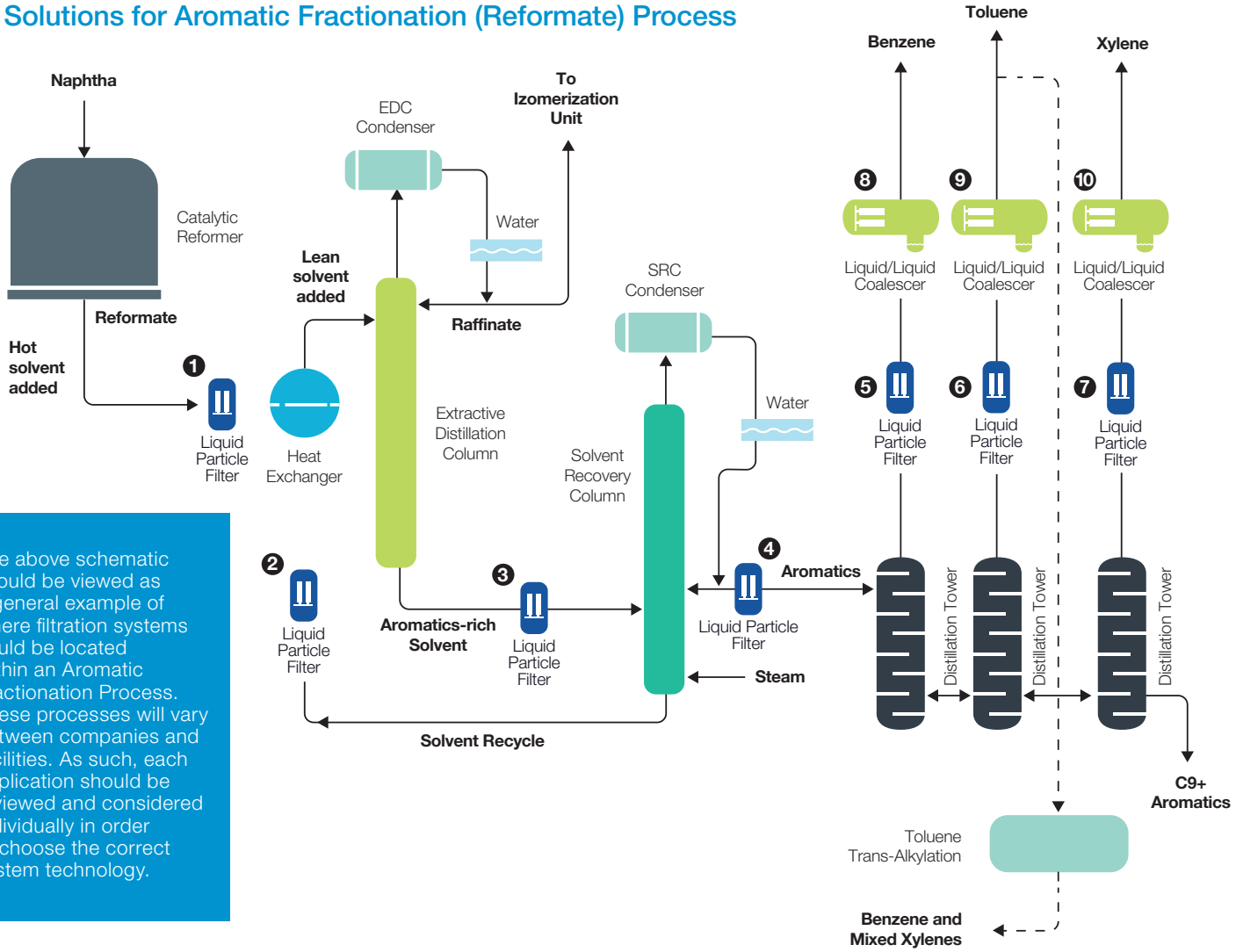
Solutions for Aromatic Fractionation (Reformate) Process



The above schematic should be viewed as a general example of where filtration systems could be located within an Aromatic Fractionation Process. These processes will vary between companies and facilities. As such, each application should be reviewed and considered individually in order to choose the correct system technology.

	Filter Solution	Filter Purpose	Filter Benefit
1-4	LiquiPleat™ Series Pleated Style Liquid Elements and Vessels	Removes scale and solid contaminants including iron sulfites.	Protects downstream equipment. Prevents heat exchanger and tower fouling. Reduces foaming problems.
5-7	LiquiPleat™ HF Series “High Flow” Pleated Style Liquid Elements and Vessels	Removes solid particulates from the final product.	Protects coalescers and other downstream equipment. Allows efficient operation of coalescers to remove water from the final product.
8-10	PhasePUR™ or Phase-LOK™ Series Liquid/Liquid Coalescing Elements and Vessels	Removes suspended water from the final product.	Maintains sales specification of final product. Reduces disposal, maintenance, and reprocessing costs.

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