



Higher selectivity.
Higher yields.

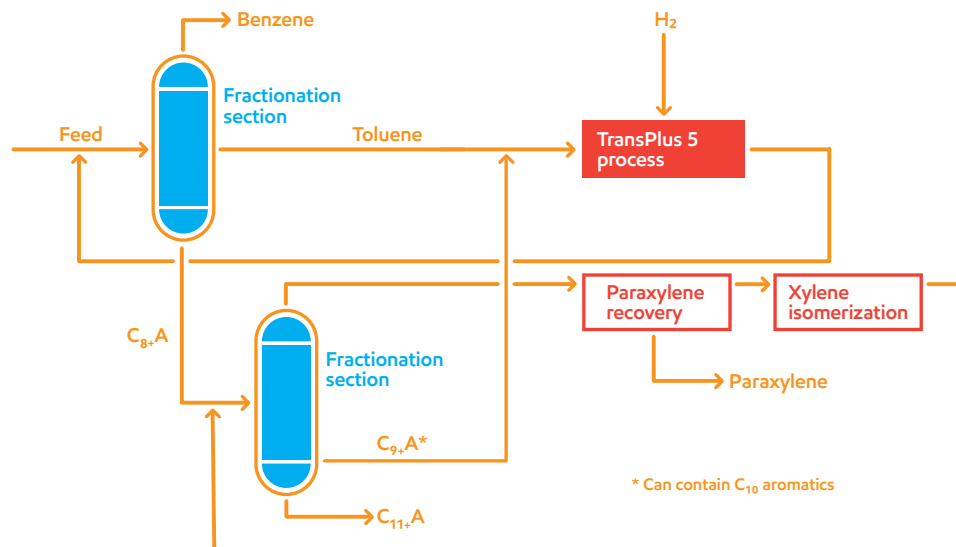
Upgrade to high-value products and increased profitability.

Energy lives here™

The TransPlusSM 5 process is a low-cost, high-conversion technology to upgrade C₉₊ aromatics and high purity benzene products. Benzene can also be co-processed for additional mixed xylenes production. The TransPlus 5 process, which is based on a proprietary high-activity, co-extruded dual zeolite catalyst with low precious metal content, offers superior yields, longer cycles, lower operating costs and increased profitability. The TransPlus 5 process can also be licensed by Axens as part of the ParamaX[®] technology suite for grassroots aromatics complexes.

TransPlus 5 flowscheme

The following simplified flowscheme shows the TransPlus 5 process in a typical fractionation and recovery section of an aromatics complex.



Key benefits

Broad Feedstock Flexibility

- Up to 100% C₉₊ aromatics in fresh feed
- No indane spec in the C₉₊ aromatics fraction
- Unlimited C₁₀ aromatics in the C₉₊ aromatics fraction
- Low H₂:HC ratio

Smaller unit – grassroots

Improved process performance

- Higher xylenes yields
- Improved benzene purity
- Very low ring loss
- Substantially higher de-ethylation

Higher capacity – revamps

Longer catalyst cycles

- ~2.5 fold aging decrease

TransPlusSM 5 process: Broad feedstock flexibility

The TransPlus 5 process is capable of handling fresh feeds with compositions from very light feeds up to and including 100% C₉₊ aromatics. In addition, the TransPlus 5 process can process C₉₊ heavy aromatics with either toluene, benzene or any combination of the two as co-feeds. This broad feedstock flexibility provides licensees with exceptional operating flexibility and profit-maximizing potential. For example, licensees have increased flexibility to optimize the disposition of the C₉₊ aromatics stream by enabling incremental production of mixed xylenes and reducing the heavy aromatics content in gasoline in order to meet reformulated fuel requirements or distillation specifications. Licensees can also upgrade benzene product to mixed xylenes when it is economically attractive.

Enhanced features of our third generation technology

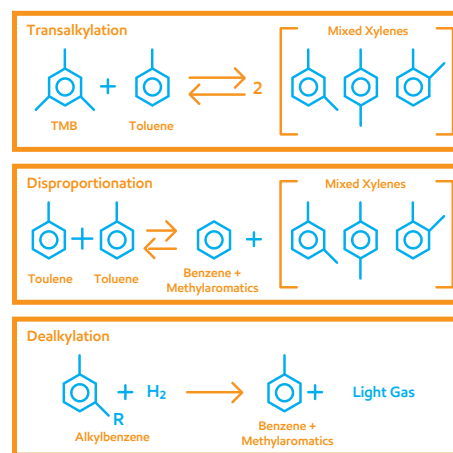
The TransPlus 5 process is the third generation of transalkylation technology licensed by ExxonMobil. The process features a high-activity, co-extruded dual zeolite catalyst formulation with low precious metal content, higher operating weight hourly space velocity (WHSV), and an expanded temperature window compared to the prior generation technology.

Higher xylenes yields, longer cycles, very low ring loss and improved benzene purity

The TransPlus 5 process delivers improved products yields, very low ring loss, improved benzene purity and significantly extended cycles. While cycles of 7+ years have been achieved with the first generation catalysts, significantly longer cycles are anticipated with the TransPlus 5 process, now in commercial operation. Multiple in-situ regenerations of previous generation catalysts have been commercially demonstrated. Likewise, the

catalyst used in the TransPlus 5 process is fully regenerable in-situ, allowing continued operation for many years beyond the first cycle. The TransPlus 5 process delivers substantial improvements over its predecessors such as higher C₉₊ aromatics conversion per pass, higher selectivity to xylenes and benzene products, lower aromatics ring loss, longer cycles and reduced installed costs. The TransPlus 5 process operation at higher C₉₊ aromatics conversion per pass allows reduced recycle rates and reduced operating costs versus prior generations.

TransPlus 5 process chemistry cycles and superior yields



Support from initial consultation throughout the life of the operation:

- Initial discussions to confirm client objectives and tailor the solution
- Detailed yield estimate
- Feasibility study
- Commercial proposal
- Process design package
- Technology transfer, training, catalyst loading and start-up support
- Technology improvements
- Performance monitoring and technical assistance throughout the life of the catalyst

About us

ExxonMobil helps refiners and petrochemical manufacturers increase capacity, lower costs, improve margins, reduce emissions and operate safe, reliable and efficient facilities. Along with a commitment to helping to implement best practices and to achieve better results, we provide cutting-edge proprietary catalysts and license advantaged process technologies for refining, gas and chemical needs.

The TransPlus 5 process delivers superior xylenes yields, higher benzene purity and very low ring loss over a much longer catalyst cycle

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