

## Overview

The DETOL<sup>®</sup>, LITOL<sup>®</sup>, and PYROTOL<sup>®</sup> processes for hydrodealkylation are used to convert aromatic streams into high purity benzene. Lummus Technology has exclusive worldwide licensing rights to these processes, which are in service in over thirty plants throughout the world.

These hydrodealkylation technologies can be designed for a client's specific feedstock. Three possible sources of aromatic streams can be converted to high purity benzene, each requiring a different balance of hydrodealkylation, desulfurization, and hydrocracking reactions.

DETOL process: converts alkyl aromatics in the C<sub>7</sub> to C<sub>10</sub> range. Also converts C<sub>9</sub>-C<sub>10</sub> aromatic concentrates to C<sub>8</sub> aromatics. Mainly requires hydrodealkylation.

LITOL process: converts C<sub>6</sub> to C<sub>9</sub> by-products from the coking of coal. Mainly requires desulfurization and smaller amounts of hydrodealkylation and hydrocracking of non-aromatics.

PYROTOL process: converts C<sub>6</sub> to C<sub>9</sub> fraction of pyrolysis liquids obtained as a by-product of ethylene production. More hydrocracking of non-aromatics than the LITOL process, but a smaller amount of desulfurization, as well as a comparable amount of hydrodealkylation.

## Advantages

Process Features	Process Benefits
High aromatic selectivity	Higher product rate for a given feedstock
Single step process	Eliminates need for separate hydrotreating steps to reduce olefin or sulfur content in feedstock • Reduces cost
Lower operating temperature	Eliminates need for sulfur injections for metal passivation • Allows use of lower alloy metals
No coking in heat exchange system	Low maintenance costs • Eliminates aromatics saturated solid waste material
Highest product purity exceeding 99.93 wt%	High value product

## Performance Characteristics

Feeds		Products	
<b>DETOL</b>	<i>MT</i>	<b>DETOL</b>	<i>MT</i>
Toluene (98% Purity)	1,000	Benzene (99.95% purity)	835
Makeup Hydrogen (70% purity)	36	Fuel Gas	201
<b>LITOL</b>		<b>LITOL</b>	
Light Oil		Benzene (99.95% purity)	925
(96% BTX, 1.7% Styrene, 0.4% Sulfur)	1,000	Fuel Gas and Oil	128
Makeup Hydrogen (90% purity)	53		
<b>PYROTOL</b>		<b>PYROTOL</b>	
Pyrolysis Gasoline		Benzene (99.95% purity)	695
(73% BTX, 3.1% Styrene, 0.1% Sulfur)	1,000	Fuel Gas and Oil	374
Makeup Hydrogen (90% purity)	69		

