

Refining Industry

Butamer Isomerization Unit

Process Gas Chromatograph Application Note

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For refineries that do not have a sufficient supply of isobutane for the alkylation unit, the necessary isobutane can be made by isomerizing n-butane. The operation of the Butamer Isomerization Unit is similar to the pentane isomerization unit.

In the isomerization process, the butane feed is mixed with the butane recycle and enters the deisobutanizer. Any propane present is sent overhead to be used as a fuel gas. Isobutane that is present in the feed and the recycle is withdrawn as a side draw to bypass the reactors.

The bottoms product of the deisobutanizer contains concentrated n-butane and is mixed with hydrogen and hydrochloric acid to promote catalyst activity. In the reactor,

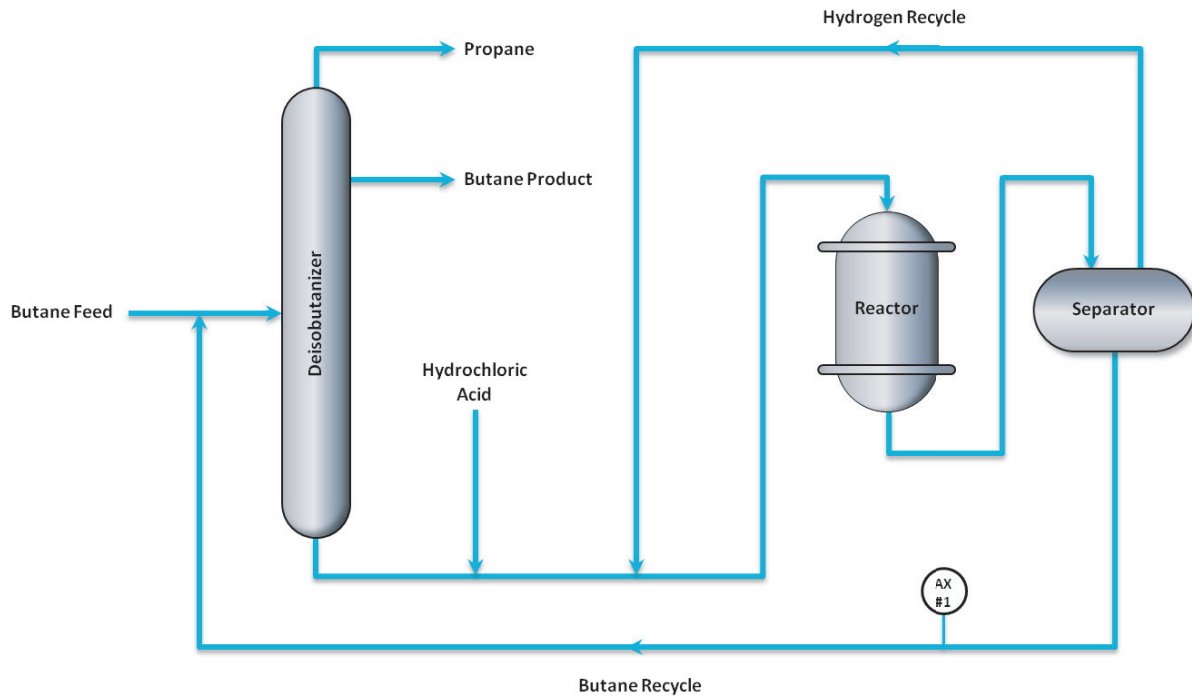
n-butane is converted to isobutene. After the butane passes through the reactor, it enters a separator to remove hydrogen from the butane. The reactor effluent is then recycled back to the feed of the unit, and the hydrogen is recycled to mix with the bottoms product stream of the deisobutanizer.

Typical GC Measurements

There is typically only one process gas chromatograph used in this unit:

- 1. Reactor Effluent** – monitors the butane recycle for isobutane and n-butane in order to calculate the level of conversion.

Butamer Unit



Analyzer No.	Stream	Components Measured	Measurement Objective
1	Reactor Effluent	iC ₄ , nC ₄	Control conversion rate in the reactor

For more information please contact:

5980 West Sam Houston Parkway North
 Suite 500
 Houston, TX 77041
 713-939-7400
 ProcessAnalyticsSales.industry@siemens.com

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 Process Automation
 Process Industries and Drives
 100 Technology Drive,
 Alpharetta, GA 30005
 1-800-964-4114
 info.us@siemens.com

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