

100,000 TPY Isobutylene Plant for Sale

Capacity: 100,000 TPY

Raw Materials:

- (1) Raffinate 1, containing high percentage of isobutylene. Typical feedstock is butene streams from olefin steam crackers, C4 stream from refineries, or side cut from 1,3-butadiene plant.
- (2) Sulfuric Acid

Product: Purified Isobutylene

It is the main raw material to produce butyl rubber (polyisobutylene). When reacting with methanol and ethanol, it is used to manufacture gasoline oxygenates methyl tert-butyl ether (MTBE) and ethyl tert-butyl ether (ETBE).

Major Equipment

- Isobutene / Sulfuric Acid Reactor
- Extract Purifier
- TBA Regenerator
- Isobutene Purifier
- Isobutene Washer
- Isobutene Compressor
- Polymer Separation Tower
- Spent C4 Wash Tower
- TBA Recovery Tower
- Exhaust Stack
- Platinum Filter and Shell
- Boiler Feedwater and Absorber
- Feedwater Pumps



BRIEF PLANT DESCRIPTION

This plant is designed to convert raw isobutylene, butene, butanes from Raffinate I of oil refineries or other butane/butanes rich streams from petrochemical plants such as 1,3-butadiene plant and olefin plants. The mixed butene and butanes are brought in contact with dilute (49.5%) sulfuric acid. The acid selectively converts the isobutene into Tertiary Butyl Alcohol (TBA) which is soluble in the acid. The mixture of TBA and acid, called extract, is purified and then heated and reconverted to recover isobutylene in a pure form. There are 3 reactor chains A, B, C, each consisting of a reactor, emulsion pump, cooler and settler. The feed is introduced into the "A" reactor emulsion pump and travels through A,B,C chains becoming leaner in Isobutene. The lean sulfuric acid is introduced at "C" reactor emulsion pump and travels through C, B, A chains becoming richer in TBA before going to Purifying step from the bottom of "A" stage settler. The Spent (Raffinate II) leaves the top of "C" settler and is sent to the Spent C4 wash tower. In the Purifying substep, recovered TBA is injected into the extract and is heated by low pressure steam on temperature control and passes through a vessel which is maintained in a vacuum. In the Regenerating substep, purified extract is heated.

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