BUTANE ABSORPTION SYSTEM FOR VENT CONTROL AND ETHYLENE PURIFICATION

ABSTRACT

The present invention describes a n-butane absorption process for purifying the ethylene product from an ethane oxidation process. The ethane oxidation product is fed to a series of absorption towers using a n-butane solvent that remove the inert components as well as purifying the ethylene from the product. A first absorption tower uses n-butane as a solvent to absorb both the ethane and ethylene, allowing for inert gasses to be removed from the stream. An ethylene- rich side stream from this tower is sent to an ethylene purification tower where ethylene is purified using n-butane solvent. The bottom stream from the first absorption tower is then sent to an intermediate ethylene recovery tower where crude ethylene is purified, and the overhead ethylene stream being sent to the ethylene purification tower. The bottoms stream, along with the bottoms stream of the ethylene purification tower, both of which comprise mostly ethane and n-butane, are then sent to a stripper tower for ethane recovery and n-butane solvent recover.

Figure 2