

Process for separating trioxane from a trioxane/formaldehyde/water mixture by means of pressure swing rectification

Abstract

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A process for separating trioxane from a feed stream I comprising formaldehyde, trioxane and water, in which

- 10 a) a feed stream I comprising formaldehyde as main component and trioxane and water as secondary components is provided,
- 15 b) the feed stream I, a recycle stream V and a recycle stream VII comprising formaldehyde as main component and water and trioxane as secondary components are fed into a first distillation stage and distilled at a pressure of from 0.1 to 2.5 bar to give a stream II comprising formaldehyde as main component and water as secondary component and a stream III comprising trioxane as main component and water and formaldehyde as secondary components and a stream X comprising water, trioxane and formaldehyde,
- 20 c) the stream III is, if appropriate after removal of low boilers from the stream III in a low boiler removal stage, distilled in a second distillation stage at a pressure of from 0.2 to 17.5 bar, with the pressure in the second distillation stage being from 0.1 to 15 bar higher than the pressure in the first distillation stage, to give a stream IV consisting essentially of trioxane and the recycle stream V comprising trioxane as main component and water and formaldehyde as secondary components,
- 25 c1) the stream IV is purified in at least one further trioxane distillation stage at a pressure at the top of from 0.5 to 2 bar to give purified trioxane as side offtake stream XII in the enrichment section of the column,
- 30 d) the stream X and, if appropriate, a stream IX comprising water as main component are fed into a third distillation stage and distilled at a pressure of from 1 to 10 bar to give a stream VI consisting essentially of water and a recycle stream VII comprising formaldehyde as main component and water and trioxane as secondary components,
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is described.