

Removal of trioxane from a trioxane/formaldehyde/water mixture by means of pressure-swing rectification

Abstract

5

A process for removing trioxane from a use stream I of formaldehyde, trioxane and water, by

10

a) providing a use stream I which comprises formaldehyde as the main component and trioxane and water as the secondary components,

15

b) feeding the use stream I, a recycle stream V and a recycle stream VII which comprises formaldehyde as the main component and water and trioxane as the secondary components into a first distillation stage and distilling at a pressure of from 0.1 to 2.5 bar to obtain a stream II which comprises formaldehyde as the main component and water as the secondary component, and a stream III which comprises trioxane as the main component and water and formaldehyde as the secondary components, and a stream X which comprises water, trioxane and formaldehyde,

20

c) distilling the stream III, optionally after removing low boilers from the stream III in a low boiler removal stage, in a second distillation stage at a pressure of from 0.2 to 17.5 bar, the pressure in the second distillation stage being from 0.1 to 15 bar higher than the pressure in the first distillation stage, to obtain a stream IV which consists substantially of trioxane and the recycle stream V which comprises trioxane as the main component and water and formaldehyde as the secondary components,

25

d) feeding the stream X and if appropriate a stream IX which comprises water as the main component into a third distillation stage and distilling at a pressure of from 1 to 10 bar to obtain a stream VI which consists substantially of water and a recycle stream VII which comprises formaldehyde as the main component and water and trioxane as the secondary components.

30

35 (Fig. 1)