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(54) Title: PROCESS FOR OBTAINING ISOBUTENE FROM A C4-HYDROCARBON MIXTURE

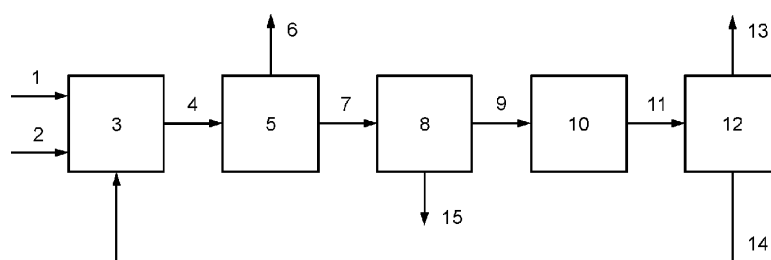


Fig. 1

(57) **Abstract:** The invention relates to a process for obtaining isobutene from an isobutene containing C4-hydrocarbon mixture (1) in a plant comprising an etherification unit (3), a first distillation unit (5), an ether cleavage unit (10) and a second distillation unit (12), the process comprising: (a) contacting the C4-hydrocarbon mixture (1) with a primary alcohol (2) and reacting the mixture with the primary alcohol in the presence of an acidic catalyst to form the corresponding alkyl tert-butyl ether in the etherification unit (3); (b) distilling the reaction mixture (4) from the etherification unit (3) in the first distillation unit (5), a C4-hydrocarbon raffinate being withdrawn as the overhead product (6), and the alkyl tert-butyl ether being withdrawn as the bottom product (7); (c) vaporizing the bottom product from the first distillation unit (5) in an evaporator (8) obtaining a vapor stream (9); (d) reacting the vapor stream (9) of step (c) in the presence of an acidic catalyst obtaining isobutene and the primary alcohol as reaction products in the ether cleavage unit (10); (e) distilling the reaction mixture (11) from the ether cleavage unit (10) in the second distillation unit (12), isobutene being withdrawn as the overhead product (13), the primary alcohol and diisobutene being withdrawn as the bottom product (14) and being recycled to the etherification unit (3); wherein a purge stream (15) containing high boiling components with a normal boiling point higher than that of the alkyl tert-butyl ether is withdrawn from the evaporator (8) in step (c).

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