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(54) Title: PROCESS

(57) Abstract: Process of manufacturing propylene oxide and styrene which process comprises: (i) contacting propene with a mixture of ethylbenzene hydroperoxide and ethylbenzene in the presence of catalyst to obtain propylene oxide and 1-phenylethanol, (ii) separating propylene oxide from the reaction mixture obtained in step (i) , (iii) subjecting the mixture obtained in step (ii) to distillation to obtain a top stream containing ethylbenzene and a bottom stream containing 1-phenylethanol, (iv) subjecting the bottom stream containing 1-phenylethanol obtained in step (iii) to a further distillation to obtain a top stream containing purified 1-phenylethanol and a bottom stream containing heavy by¬ products, (v) contacting the top stream containing 1- phenylethanol obtained in step (iv) with a dehydration catalyst to obtain styrene and water, (vi) subjecting the reaction mixture obtained in step (v) to distillation to obtain a top stream containing styrene and water and a bottom stream containing unconverted 1-phenylethanol, 2-phenylethanol, methylphenylketone and by-products, (vii) subjecting the bottom stream containing unconverted 1-phenylethanol, 2-phenylethanol, methylphenylketone and further by-products obtained in step (vi) to distillation to obtain a top stream containing methylphenylketone and a bottom stream containing 2-phenylethanol and heavy by-products, and (viii) recycling to step (iv) the bottom stream containing 2-phenylethanol and heavy by-products obtained in step (vii) , wherein the bottom stream obtained in step (vii) is introduced into the distillation of step (iv) below the point at which the bottom stream containing 1-phenylethanol obtained in step (iii) is introduced.

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