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(54) Title: PART-STREAM DISTILLATION

(57) Abstract: A continuous process for the preparation of propylene oxide, comprising (a) reacting propene, optionally admixed with propane, with hydrogen peroxide in a reaction apparatus in the presence of acetonitrile as solvent, obtaining a stream S0 containing propylene oxide, acetonitrile, water, at least one further component B, optionally propene and optionally propane, wherein the normal boiling point of the at least one component B is higher than the normal boiling point of acetonitrile and wherein the decadic logarithm of the octanol-water partition coefficient ($\log K_{ow}$) of the at least one component B is greater than zero; (b) separating propylene oxide from S0, obtaining a stream S1 containing acetonitrile, water and the at least one further component B; (c) dividing S1 into two streams S2 and S3; (d) subjecting S3 to a vapor-liquid fractionation in a fractionation unit, obtaining a vapor fraction stream S4 being depleted of the at least one component B; (e) recycling at least a portion of S4, optionally after work-up, to (a).

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