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(54) Title: PROCESS FOR PRODUCING ALKYLENE OXIDE

(57) Abstract: A process for preparing an alkylene oxide, which process comprises: (i) oxidizing an alkylbenzene to obtain a stream comprising alkylbenzene hydroperoxide; (ii) contacting at least part of the alkylbenzene hydroperoxide obtained in step (i) with an olefin to obtain a product stream comprising an alkylene oxide; (iii) separating alkylene oxide compound from the product stream of step (ii) to obtain (a) a residual product stream comprising alkylphenyl alcohol, and (b) alkylene oxide; (iv) feeding at least a part of the residual product stream comprising alkylphenyl alcohol to a reactor having a catalytic distillation zone, and concurrently in the reactor: (a) contacting the residual product stream comprising alkylphenyl alcohol with hydrogen in the catalytic distillation zone to convert the alkylphenyl alcohol in the residual product stream to alkylbenzene and from a reaction mixture; and, (b) separating alkylbenzene from the reaction mixture by fraction distillation; (v) withdrawing a stream comprising alkylbenzene and having a reduced concentration of alkylphenyl alcohol than the feed stream from the reactor at a position upper from the catalytic reaction zone; withdrawing from the reactor at a position lower than the catalytic distillation zone a bottom stream comprising dimer(s) of alkylbenzene; alkylbenzene; and, (viii) recycling at least a part of the alkylbenzene produced from (iv)(b) and/or (vi) to step (i).



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