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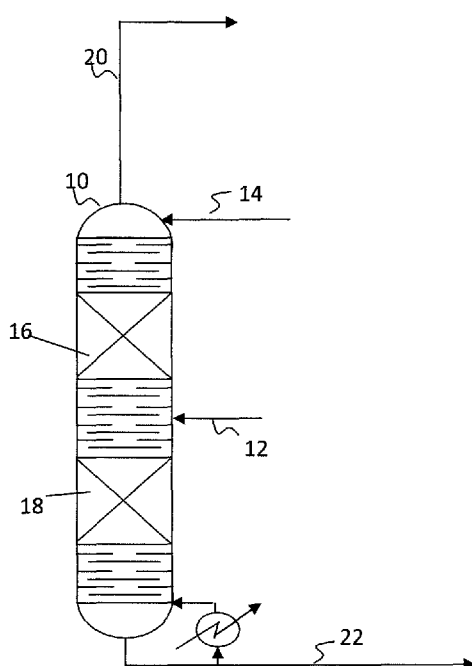
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(54) Title: BENZENE ALKYLATION

Figure 1



(57) Abstract: A process for the production of alkylbenzene, the process including: feeding a C₁ to C₆ alcohol and benzene to a catalytic distillation reactor system comprising an upper reaction zone containing an alkylation catalyst and a lower reaction zone containing a transalkylation catalyst, which may be the same or different than the alkylation catalyst; concurrently in the catalytic distillation reactor system: reacting a portion of the alcohol with the benzene within the upper reaction zone to form a reaction mixture containing water, alkylbenzene, dialkyl ether, unreacted alcohol, unreacted benzene, and polyalkylate including dialkylbenzene; reacting a portion of the polyalkylate with benzene in the lower reaction zone to form additional alkylbenzene; and fractionally distilling the reaction mixture; recovering an overheads fraction from the catalytic distillation reactor system comprising benzene, unreacted alcohol, water, and dialkyl ether; recovering a bottoms fraction from the catalytic distillation reactor system comprising benzene, alkylbenzene, and polyalkylate.



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