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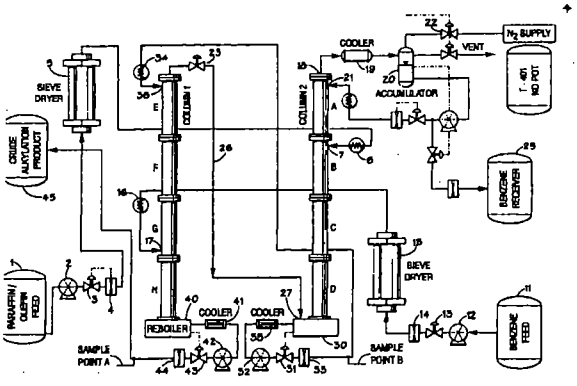
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(54) Title: A REACTIVE DISTILLATION ALKYLATION PROCESS INCLUDING IN SITU CATALYST REGENERATION



(57) Abstract: A unified process which couples a unique in-situ catalyst regeneration process with a continuous reactive distillation under pressure for the alkylation of light aromatic hydrocarbons such as benzene with C_2-C_{30} olefins using a solid acid alkylation catalyst supported in the reflux zone (21) of a distillation column (section A). Periodic regeneration of the catalyst (sections E, F and G) is carried out with a countercurrent injection of a C_4-C_{16} paraffin (35) below the benzene rectification zone at the top of the column, but above the catalyst zone while the aromatic hydrocarbon reaction feedstock (17) is injected continuously at a point above a rectification zone at the base of the column where the aromatic compound is separated from the paraffin and by-products washed from the catalyst. The use of the C_4-C_{16} paraffin with the aromatic at a mole fraction in the range of 40 to 90% enables a regeneration temperature of about 175 - 250°C. to be achieved and maintained by adjusting the column pressure and aromatic reflux rate. Significantly lower pressures, on the order of 125 to 370 psig, are required to achieve regeneration temperature than would be otherwise required with the use only of the aromatic hydrocarbon to dilute and wash the by-products from the catalyst surfaces.

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ACTION

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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