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(54) Title: REVERSE ACID AND HYDROCARBON CASCADING IN ALKYLATION

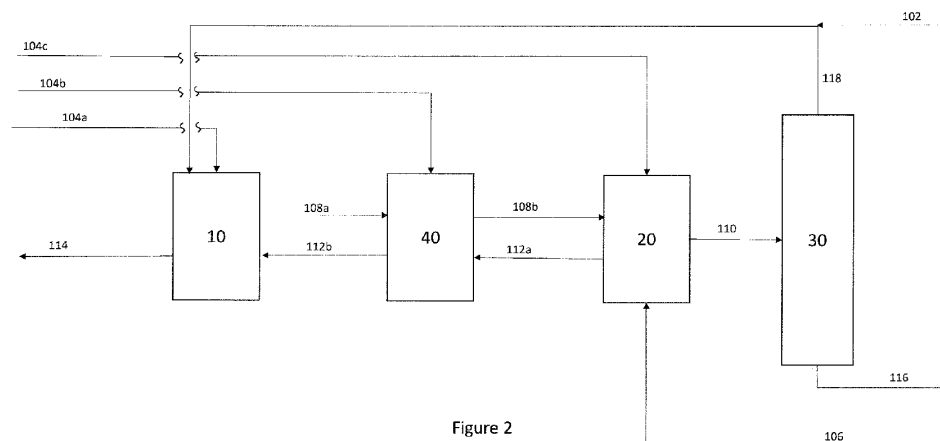


Figure 2

(57) Abstract: A cascade reactor scheme with acid and hydrocarbon flowing in reverse directions. The systems and processes for alkylation of olefins herein may include providing a first olefin to a first alkylation zone, and a second olefin to a second alkylation zone. Isoparaffin may be provided to the first alkylation zone. The isoparaffin and first olefin may be contacted with a partially spent sulfuric acid in the first alkylation zone to form a spent acid phase and a first hydrocarbon phase including alkylate and unreacted isoparaffin. The first hydrocarbon phase and second olefin may be contacted with a sulfuric acid feed in the second alkylation zone to form a second hydrocarbon phase, also including alkylate and unreacted isoparaffin, and the partially spent sulfuric acid that is fed to the first alkylation zone. Further, the second hydrocarbon phase may be separated, recovering an isoparaffin fraction and an alkylate product fraction.

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