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(54) Title: DIMERIZATION AND TRIMERIZATION OF C5 OLEFINS VIA CATALYTIC DISTILLATION

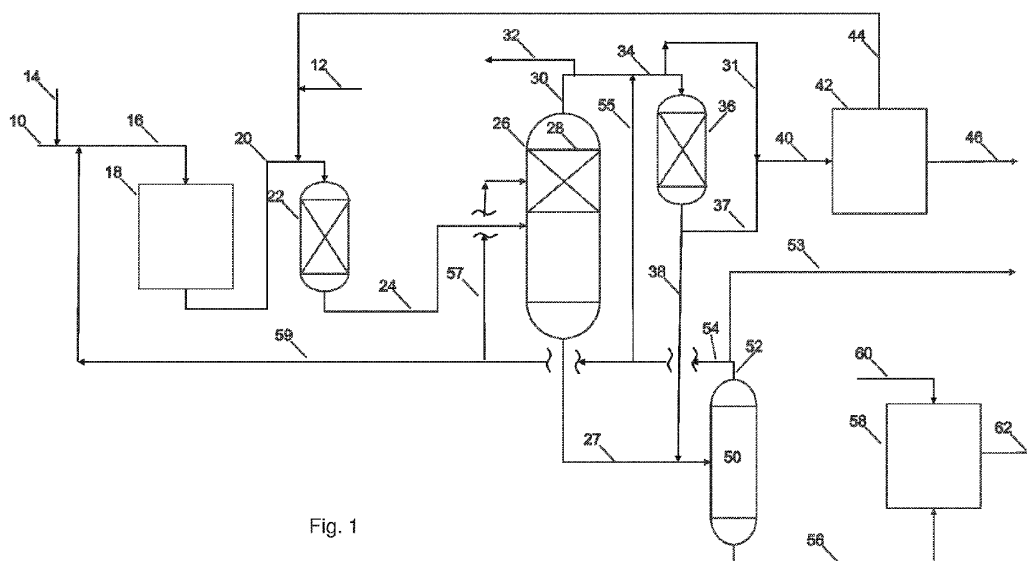


Fig. 1

(57) Abstract: A process for the selective dimerization and etherification of isoolefins. The process including feeding a mixed C5 stream to a selective hydrogenation unit to convert dienes to olefins and isoolefins, producing a hydrogenated effluent stream. The hydrogenated effluent stream is fed to a first fixed bed reactor, producing a first reactor effluent. The first reactor effluent is fed to a catalytic distillation reactor system, producing a first overheads including unreacted olefins, isoolefins, oxygenate, and one or more C5 ethers and a first bottoms including dimers of the isoolefins, any produced trimers of the isoolefins, and heavy oxygenates. The first overheads is fed to a second fixed bed reactor, producing a second reactor effluent including dimers of the isoolefins, unreacted C5s, and unreacted oxygenates. The first bottoms stream and the second reactor effluent are combined and fed to a product splitter, producing a second overheads stream, including unreacted C5 olefins, isoolefins, and oxygenates and a second bottoms stream including C10+

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