

ABSTRACT

PRODUCING C5 OLEFINS FROM STEAM CRACKER C5 FEEDS

Producing C5 olefins from steam cracker C5 feeds may include reacting a mixed hydrocarbon stream comprising cyclopentadiene, C5 olefins, and C6+ hydrocarbons in a dimerization reactor where cyclopentadiene is dimerized to dicyclopentadiene. The dimerization reactor effluent may be separated into a fraction comprising the C6+ hydrocarbons and dicyclopentadiene and a second fraction comprising C5 olefins and C5 dienes. The second fraction, a saturated hydrocarbon diluent stream, and hydrogen may be fed to a catalytic distillation reactor system for concurrently separating linear C5 olefins from saturated hydrocarbon diluent, cyclic C5 olefins, and C5 dienes contained in the second fraction and selectively hydrogenating C5 dienes. An overhead distillate including the linear C5 olefins and a bottoms product including cyclic C5 olefins are recovered from the catalytic distillation reactor system. Other aspects of the C5 olefin systems and processes, including catalyst configurations and control schemes, are also described.

[FIG.1]