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(54) Title: PROCESS FOR PRODUCING BENZENE FROM A C5-C12 HYDROCARBON MIXTURE

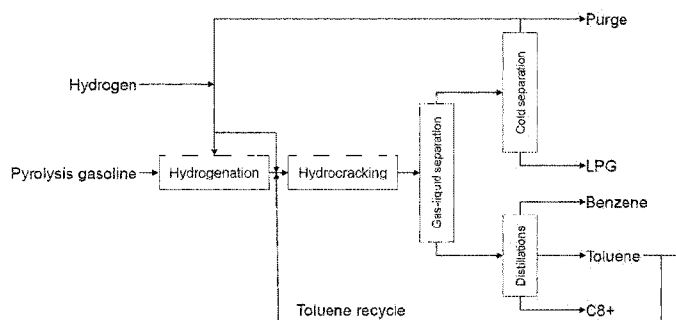


Fig. 1

(57) Abstract: The invention relates to a process for producing benzene, comprising the steps of: (a) providing a hydrocracking feed stream comprising C5-C12 hydrocarbons, (b) contacting the hydrocracking feed stream in the presence of hydrogen with a hydrocracking catalyst comprising 0.01 -1 wt-% hydrogenation metal in relation to the total catalyst weight and a zeolite having a pore size of 5-8 Å and a silica (SiO₂) to alumina (Al₂O₃) molar ratio of 5-200 under process conditions including a temperature of 425-580°C, a pressure of 300-5000 kPa gauge and a Weight Hourly Space Velocity of 0.1 -15 h⁻¹ to produce a hydrocracking product stream comprising benzene, toluene and C8+ hydrocarbons, (c) separating benzene, toluene and the C8+ hydrocarbons from the hydrocracking product stream and (d) selectively recycling back at least part of the toluene from the separated products of step (c) to be included in the hydrocracking feed stream. process for producing benzene from a c5-c12 hydrocarbon mixture