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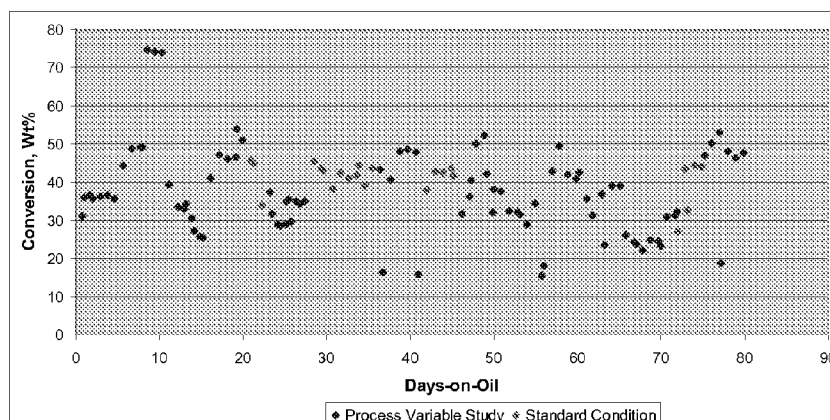
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Figure 1



(57) Abstract: In a process for producing cyclohexylbenzene, benzene and hydrogen are fed to at least one reaction zone comprising a catalyst system which comprises a molecular sieve and at least one hydrogenation metal. The MCM-22 family molecular sieve having an X-ray diffraction pattern including d-spacing maxima at 12.4 ± 0.25 , 6.9 ± 0.15 , 3.57 ± 0.07 and 3.42 ± 0.07 Angstrom, and the hydrogenation metal is selected from the group consisting of palladium, ruthenium, nickel, zinc, tin, cobalt, and combinations of any two or more thereof. Hydroalkylation conditions of temperature and pressure are selected to produce a hydroalkylation conversion in a range of from about 15% to about 75% The benzene and hydrogen are then contacted in the at least one reaction zone under said selected hydroalkylation condition to produce an effluent containing cyclohexylbenzene.

