

Reductive Isopropylation of Benzene with Acetone over Dual Bed Catalyst

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Significant improvements in the technology for the production of Cumene have been made over the past decade. A new process for reductive isopropylation of benzene with acetone was carried over in a dual bed fixed flow reactor to produce cumene. First bed catalyst alumina modified with 30% of nano-copper chromite catalyst and the second bed loaded with different percentage of nano-copper chromite on H-Beta zeolite. The activity of the former catalyst optimized to generate propylene or isopropanol and the latter followed by selective formation of cumene. Catalyst performances are influenced by various parameters, viz., reduction temperature, hydrogen to acetone and benzene to acetone mole ratio, temperature space velocity. Optimum conditions were established for selective cumene formation. The successful use of acetone as alkylating agent has paved the road toward a viable acetone recycle in phenol production, as foreseeable in case of acetone/phenol unbalanced demand.