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Effect of catalyst on benzene chlorination process

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Chlorobenzene is an aromatic organic compound with the chemical formula C_6H_5Cl. This colorless and flammable liquid is a common solvent and a widely used intermediate in the manufacture of other chemicals. Benzene chlorination is of considerable commercial importance and has therefore received wide attention. Chlorobenzene is used as a raw material in the production of a new safe explosive based on 2,4-dinitroanisole (DNAN) and pesticides dichlorodiphenyltrichloroethane (DDT), and also as an intermediate in the preparation of pharmaceutical raw materials, herbicides.

The choice of a catalyst for liquid phase chlorination of benzene depends on the desired product, operating conditions and cost. Considering the risks of the chlorination process, choosing the right catalyst can save the time of the process and the amount of chlorine gas consumed. For this reason, the available and widely used iron chloride catalyst was used. And the effect of this catalyst on the time and efficiency of the chlorobenzene preparation process was investigated. And the result of these experiments is that with increasing time in the amount of catalyst and constant temperature, the production efficiency of chlorobenzene is reduced and the reaction is carried out towards the production of higher chlorinated benzenes. Also, with the increase of the catalyst, the amount of chlorobenzene production decreases.

Keywords: Catalyst, iron chloride, chlorobenzene, liquid phase.

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