USE OF HYDROCHLORIC ACID FOR SYNTHESIS OF CHLOROAROMATIC COMPOUNDS

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It is known that the half part of taken chlorine is isolated as hydrogen chloride in all industrial processes of substituted chlorination. The water solutions of hydrogen chloride are not efficiently using now. The methods of high-temperature catalytic oxychlorination of organic compounds with use of mixture of hydrogen chloride and oxygen as chlorinating agent have been known. However, it will be noted that in this case it is required the use of pure gaseous hydrogen chloride, isolation of which from water solutions has been bonded with additive consumptions and technological difficulties. Consequently, from the point of view of environment from pollution and efficient use of resources of environment, exactly an application of water solutions of hydrogen chloride has an important value for synthesis of chloroorganic compounds.

The systematic investigations carried out by us have showed that in case of use of sodium hypochlorite as oxidizer (which is also by product of chloroorganic synthesis), hydrochloric acid may be used as source of chlorine for synthesis of chloroaromatic compounds. The yield of chloroaromatic compounds depends on substituents and is changed in the range of 30-98%. An availability of electron-acceptor substituents (for ex. Cl, Br) negatively influences on reaction rate of oxychlorination of benzene ring and on yield of purposeful product (for ex. dichlorobenzene). An introduction of electron-donating substituents into benzene ring (alkyl radicals, OH etc) contributes to increase of reaction rate and yield of monochlorine derivatives of corresponding aromatic compounds.

It has been established that as distinguished from high-temperature oxychlorination of alkyl-aromatic compounds (toluene, ethylbenzene, xylenes, etc) in this case the chlorination proceeds by high selectivity in aromatic ring and side chain does not participate in the substitution reaction.