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Receiving a toluelenediisocyanate with use bis(trichloromethyl)carbonate

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Abstract

Toluelenediisocyanate – large-capacity reagent with a wide scope. The main quantity (85% of world production) of a toluelenediisocyanate is used for receiving polyurethane foam.

The main way of receiving a toluelenediisocyanate is interaction of a toluelenediamine with carbonylchloride. If in the industry use of carbonylchloride as carbonylating agents have no difficulties, then in laboratory they exist. Carbonylchloride is inaccessible in the market. Usually it is received at the same enterprises at which further use.

Now, as alternative and commercially available carbonylating agents, use bis(trichlormethyl)carbonate. Bis(trichlormethyl)carbonate a possibility of use in synthesis of aryldiisocyanates is directly connected with its physical properties, bis(trichlormethyl)carbonate represents steady crystal connection. Therefore its use in reaction of carbonylation of amines is more convenient, than gaseous carbonylchloride.

There was a need for definition of optimum conditions of carrying out process of receiving this aryldiisocyanate with a satisfactory exit, because of inconsistency of references.

For achievement of goals of a research – receiving a toluelenediisocyanate with use the bis(trichlormethyl)carbonate – we defined conditions of solubility of a toluelenediamine and the bis(trichlormethyl)carbonate in benzenechloride, influence of their molar ratio on an aryldiisocyanate exit is studied, also need of use of surplus is proved the bis(trichlormethyl)carbonate for suppression of course of collateral reactions.

The offered method allows carrying out reaction to one stage, also to refuse low temperature at a stage of introduction of amine and it is essential to reduce synthesis time.

This method can be used both in laboratory practice and in the production of isocyanates in industrial conditions.

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