

ADVANTAGE OF MELAMINE SYNTHESIS BY ELECTROLYSIS METHOD

B.S. Muminov, M.U. Karimov, A.T. Djalilov

Tashkent Scientific Research Institute of Chemical Technology,

[*baxriddin-muminov@mail.ru*](mailto:baxriddin-muminov@mail.ru)

Melamine is a key organic chemical intermediate with a wide range of uses. The main use of melamine in the wood industry is more than 70% of the total consumption. The development of this industry is determined by the availability of domestic market capacity and the ever-increasing demand for this product. Melamine paint in the industry and plastic work in release the most important raw materials. Products based on melamine-formaldehyde are used for paper production and furniture. Melamine is also widely used in electrical engineering and textiles. Such widespread use has led to rapid growth in melamine production worldwide.

The chemical formula of melamine (2,4,6-triamino,1,3,5-triazine) shows its structure and shows some similarity with the benzene nucleus. Both the benzene and triazine rings are characterized by their stability.

Melamine was first synthesized in 1834 by Li Bishi. Initially, the dicyandiamide method was used. In this case, calcium cyanamide (CaCN_2) is prepared from calcium carbide (CaC_2), calcium cyanamide is hydrolyzed and dimerized to dicyandiamide, then heated and decomposed. Due to the high cost of calcium carbide, this method is not currently used. Currently, industrial synthesis mainly uses urea as a raw material [1].

According to different reaction conditions, the melamine synthesis process is carried out at high pressures (mainly 5.0-10.0 MPa without catalysts) and low pressures (0.1-1.0 MPa with catalysts) [2].

But these methods complicate the technology because they are carried out at high pressures and high temperatures or in the presence of catalysts. In addition, secondary products, toxic gases, and dirty water released after the reaction cause environmental pollution [3].

The method we recommend involves the use of electrolysis in the synthesis of melamine. In this carbamide and ammonium chloride own into received watery the solution well done mix and we melt Solution electrolyzer to the establishment is

poured. Electrodes were connected to the source (electrode as from graphite used). Various concentrations in density melamine get process was studied.

Synthesis of melamine using the electrolysis method has several advantages over the above methods. We don't need high pressure or high temperature. We do not use complex multi-step technology.

Literatures :

1. Moiseeva I.D. Development of catalysts and technology for the synthesis of melamine. Dis . Novomoskovsk. 2002. pp. 5-16.
2. Pravdin A.I. Melamine synthesis. basic methods of hardware design of production. Advances in chemistry and chemical technology. Volume XXII . 2018. No. 2(82). P.28-31.
3. Muminov B.S., Karimov M.U., Djalilov A.T. Technology of obtaining ethylenediamine by electrolysis method . Innovative technologies in science and technology: materials of the republic-wide scientific-practical conference on the topic of physical solutions, metrological measurements and problems of electronics and instrumentation. Karshi. May 19-20, 2023. 58-60 p