

Process for the preparation of 3-aminomethyl-3,5,5-trimethylcyclohexylamine

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Abstract

The invention relates to an improved process for the continuous preparation of 3-aminomethyl-3,5,5-trimethyl-
10 cyclohexylamine in high yield and high purity (isophorone-diamine) from 3-cyano-3,5,5-trimethylcyclohexanone (isophoronenitrile) by aminating hydrogenation with hydrogen and ammonia in the presence of a fixed bed catalyst. Isophoronediamine is a raw material for the
15 preparation of isophorone diisocyanate, an amine component for polyamides and a hardening component for epoxy resins.

According to the invention, the aminating hydrogenation is carried out by allowing a mixture of isophoronenitrile,
20 ammonia and a C₁-C₃-alcohol, in the presence of hydrogen, to trickle over a trickle bed reactor provided with a Co and/or Ru fixed bed catalyst, at 3 to 8 MPa and at a temperature of 40 to 150°C, preferably 90 to 130°C, and working up the reaction mixture by distillation.
25 Preferably, a high-boiling by-product fraction, containing a bicyclic amidine, is added to the mixture to be hydrogenated, thereby appreciably increasing the yield.

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