

Title (en)  
METHOD FOR THE SYNTHESIS OF HIGH PURITY PRIMARY DIAMINES AND/OR TRIAMINES

Title (de)  
VERFAHREN ZUR SYNTHESE VON HOCHREINEN PRIMÄREN DIAMINEN UND/ODER TRIAMINEN

Title (fr)  
PROCEDE DE SYNTHESE DE DIAMINES ET/OU DE TRIAMINES PRIMAIRES DE HAUTE PURETE

Publication  
**EP 2086920 A1 20090812 (FR)**

Application  
**EP 07866497 A 20071026**

Priority  
• FR 2007052253 W 20071026  
• FR 0654595 A 20061027  
• FR 0754304 A 20070405

Abstract (en)  
[origin: FR2907781A1] Synthesizing di- and/or triamines from di- and/or trimer fatty acids comprises transformation of acid groups of dimers and/or trimers into nitrile groups to obtain di- and trinitrile in the presence of an ammoniation catalyst comprising metal oxides, preferably zinc oxide, in a reactor under agitation, then introduction of ammonia gas in the reactor; and conversion of the obtained nitrile groups of product into primary amino groups by hydrogenation in the presence of a hydrogenation catalyst and hydrogen, in a reactor under pressure. Synthesizing di- and/or triamines from di- and/or trimer fatty acids comprises transformation of acid groups of dimers and/or trimers into nitrile groups to obtain di- and trinitrile in the presence of an ammoniation catalyst comprising metal oxides, preferably zinc oxide, in a reactor under agitation, where the weight ratio of catalyst/diacids and/or triacids is 0.01:0.15, then introduction of ammonia gas in the reactor; and conversion of the obtained nitrile groups of product into primary amino groups by hydrogenation in the presence of a hydrogenation catalyst and hydrogen, in a reactor under pressure, where the conversion step comprises introducing the ammonia to ambient temperature and bring the reaction medium under agitation before introducing hydrogen, after contacting of nitrile obtained from transformation step and hydrogenation catalyst, where the reaction temperature is 110-170[deg] C, preferably 130-150[deg] C, the quantity of implemented hydrogenation catalyst has 3-10 wt.% of the nitrile charge, and the molar ratio of ammonia to nitrile group is 0.2:3, when the molar ratio of the ammonia to nitrile group is 0.2:1.3, preferably 0.5: 1, then at least a strong base (0.07-1 wt.%), preferably in the aqueous form is added to the reaction medium, and the molar ratio of the ammonia to nitrile group is 1.3:3, preferably 1.5:2.6, then the presence of strong base is optional. An independent claim is included for the di-and triamines obtained by the process.

IPC 8 full level  
**C07C 209/48** (2006.01); **C07C 211/09** (2006.01); **C07C 211/13** (2006.01); **C07C 253/22** (2006.01)

CPC (source: EP US)  
**C07C 209/48** (2013.01 - EP US); **C07C 253/22** (2013.01 - EP US)

Citation (search report)  
See references of WO 2008053113A1

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

DOCDB simple family (publication)  
**FR 2907781 A1 20080502**; **FR 2907781 B1 20100108**; BR PI0717752 A2 20131022; EP 2086920 A1 20090812; IN 2522DEN2009 A 20100702; JP 2010507638 A 20100311; JP 5389657 B2 20140115; MX 2009004502 A 20090818; RU 2009119997 A 20101210; RU 2454400 C2 20120627; US 2011190541 A1 20110804; WO 2008053113 A1 20080508

DOCDB simple family (application)  
**FR 0754304 A 20070405**; BR PI0717752 A 20071026; EP 07866497 A 20071026; FR 2007052253 W 20071026; IN 2522DEN2009 A 20071026; JP 2009533921 A 20071026; MX 2009004502 A 20071026; RU 2009119997 A 20071026; US 44632307 A 20071026