

Title (en)

PROCESS FOR THE DIRECT AMINATION OF SECONDARY ALCOHOLS WITH AMMONIA TO GIVE PRIMARY AMINES

Title (de)

VERFAHREN ZUR DIREKTEN AMINIERUNG SEKUNDÄRER ALKOHOLE MIT AMMONIAK ZU PRIMÄREN AMINEN

Title (fr)

PROCÉDÉ POUR L'AMINATION DIRECTE D'ALCOOLS SECONDAIRES AVEC DE L'AMMONIAC EN AMINES PRIMAIRES

Publication

EP 2614042 A1 20130717 (DE)

Application

EP 11755290 A 20110823

Priority

- DE 102011004465 A 20110221
- DE 102010040560 A 20100910
- EP 2011064435 W 20110823

Abstract (en)

[origin: CA2807605A1] The invention provides a process for preparing primary amines, comprising the steps of A) providing a solution of a secondary alcohol in a fluid, non-gaseous phase, B) contacting the phase with free ammonia and/or with at least one ammonia donor compound and a homogeneous catalyst, and optionally C) isolating the primary amine formed in step B), characterized in that the ratio of the volume of the liquid phase to the volume of the gas phase in step B) is greater than or equal to 0.25 and/or in that the ammonia in step B) is used in a molar ratio, relative to the hydroxyl groups in the secondary alcohol, of at least 5:1.

IPC 8 full level

C07C 9/16 (2006.01); **C07D 493/04** (2006.01)

CPC (source: EP US)

C07C 209/16 (2013.01 - EP US); **C07C 213/02** (2013.01 - US); **C07D 493/04** (2013.01 - EP US)

Citation (search report)

See references of WO 2012031884A1

Citation (examination)

- DENNIS PINGEN ET AL: "Direkte Aminierung von sekundären Alkoholen mit Ammoniak", ANGEWANDTE CHEMIE (INTERNATIONAL ED. IN ENGLISH), vol. 122, no. 44, 29 July 2010 (2010-07-29), pages 8307 - 8310, XP055080814, ISSN: 0044-8249, DOI: 10.1002/ange.201002583
- SEBASTIAN IMM ET AL: "Eine effiziente und allgemeine Synthese primärer Amine durch Ruthenium-katalysierte Aminierung sekundärer Alkohole mit Ammoniak", ANGEWANDTE CHEMIE (INTERNATIONAL ED. IN ENGLISH), vol. 122, no. 44, 2 August 2010 (2010-08-02), pages 8303 - 8306, XP055080813, ISSN: 0044-8249, DOI: 10.1002/ange.201002576

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

DE 102011004465 A1 20120315; BR 112013005428 A2 20160607; CA 2807605 A1 20120315; CN 103097324 A 20130508; EP 2614042 A1 20130717; JP 2013538816 A 20131017; JP 5946455 B2 20160706; RU 2013115801 A 20141020; RU 2593994 C2 20160810; US 2013165672 A1 20130627; US 8927773 B2 20150106; WO 2012031884 A1 20120315

DOCDB simple family (application)

DE 102011004465 A 20110221; BR 112013005428 A 20110823; CA 2807605 A 20110823; CN 201180043413 A 20110823; EP 11755290 A 20110823; EP 2011064435 W 20110823; JP 2013527534 A 20110823; RU 2013115801 A 20110823; US 201113820803 A 20110823