

Title (en)
PROCESS FOR THE PREPARATION OF PIPERAZINE

Title (de)
VERFAHREN ZUR HERSTELLUNG VON PIPERAZIN

Title (fr)
PROCÉDÉ POUR LA PRÉPARATION DE PIPERAZINE

Publication
EP 2858978 A1 20150415 (DE)

Application
EP 13725699 A 20130529

Priority

- EP 12171084 A 20120606
- EP 2013061104 W 20130529
- EP 13725699 A 20130529

Abstract (en)
[origin: WO2013182468A1] Method for preparing piperazine of formula I by reacting diethanolamine (DEOA) of formula II with ammonia in the presence of hydrogen and a metal-containing supported catalyst. Before the catalyst is reduced with hydrogen, the catalytically active mass of the catalyst contains oxygen-containing aluminum, copper, nickel and cobalt compounds and 0.2 to 5.0 wt.% oxygen-containing tin compounds calculated as SnO, and the reaction is carried out in the liquid phase at an absolute pressure ranging from 160 to 220 bar, at a temperature ranging from 180 to 220°C, ammonia is used at a molar ratio ranging from 5 to 25 in relation to the DEOA used in the process, the method being carried out in the presence of 0.2 to 9.0 wt.% hydrogen relative to the total amount of DEOA and ammonia used in the process.

IPC 8 full level
C07D 295/023 (2006.01); **C07C 211/10** (2006.01); **C07C 211/14** (2006.01)

CPC (source: CN EP)
C07C 209/16 (2013.01 - CN EP); **C07D 295/023** (2013.01 - CN EP)

Citation (search report)
See references of WO 2013182468A1

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

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
WO 2013182468 A1 20131212; CN 104364242 A 20150218; EP 2858978 A1 20150415; IN 9263DEN2014 A 20150710; JP 2015525214 A 20150903

DOCDB simple family (application)
EP 2013061104 W 20130529; CN 201380029522 A 20130529; EP 13725699 A 20130529; IN 9263DEN2014 A 20141105; JP 2015515480 A 20130529