

Title (en)
METHOD FOR PRODUCING ETHANOLAMINES AND/OR ETHYLENEAMINES

Title (de)
VERFAHREN ZUR HERSTELLUNG VON ETHANOLAMINEN UND/ODER ETHYLENAMINEN

Title (fr)
PROCÉDÉ POUR LA PRÉPARATION D'ÉTHANOLAMINES ET/OU D'ÉTHYLÉNAMINES

Publication
EP 3555040 A1 20191023 (DE)

Application
EP 17809318 A 20171207

Priority
• EP 16204482 A 20161215
• EP 2017081851 W 20171207

Abstract (en)
[origin: WO2018108698A1] The invention relates to a method for producing ethanolamines and/or ethyleneamines in the gas phase by reacting ethylene glycol with ammonia in the presence of an amination catalyst. The method is characterized in that the amination catalyst is produced by reducing a calcined catalyst precursor, which comprises an active mass, wherein the active mass contains one or more active metals selected from the group consisting of the elements of groups 8, 9, 10, and 11 of the periodic table of the elements and optionally contains one or more catalyst additional elements selected from the group consisting of the metals and semimetals of groups 3 to 7 and 12 to 17, the element P and the rare-earth elements. Furthermore, the method is characterized in that a catalyst precursor having a low basicity is used, wherein the low basicity is achieved in that a) the catalyst precursor is produced by co-precipitation and the active mass additionally contains one or more alkaline elements selected from the group consisting of the alkali metals and alkaline-earth metals; or b) the catalyst precursor also contains a carrier material in addition to the active mass and is produced by impregnation of the carrier material or precipitation onto the carrier material and the carrier material contains one or more alkaline elements selected from the group consisting of the alkali metals, Be, Ca, Ba and Sr or contains one or more minerals selected from the group consisting of hydrotalcite, chrysotile and sepiolite; or c) the catalyst precursor also contains a carrier material in addition to the active mass and is produced by impregnation of the carrier material or precipitation onto the carrier material and the active mass of the catalyst carrier contains one or more alkaline elements selected from the group consisting of the alkali metals and alkaline-earth metals; or d) the catalyst precursor is calcined at temperatures of 600°C and greater; or e) the catalyst precursor is produced by a combination of variants a) and d) or by a combination of variants b) and d) or by a combination of variants c) and d).

IPC 8 full level
C07C 209/16 (2006.01); **B01J 23/78** (2006.01); **B01J 23/80** (2006.01); **B01J 35/02** (2006.01); **B01J 37/02** (2006.01); **B01J 37/03** (2006.01); **B01J 37/08** (2006.01); **B01J 37/18** (2006.01); **C07C 211/10** (2006.01); **C07C 211/14** (2006.01); **C07C 213/02** (2006.01); **C07C 215/08** (2006.01); **C07C 215/14** (2006.01); **C07D 295/088** (2006.01); **C07D 295/13** (2006.01)

CPC (source: EP US)
B01J 23/78 (2013.01 - EP); **B01J 23/80** (2013.01 - EP US); **B01J 37/0203** (2013.01 - EP); **B01J 37/03** (2013.01 - EP); **B01J 37/035** (2013.01 - EP US); **B01J 37/08** (2013.01 - EP); **C07C 209/16** (2013.01 - EP US); **C07C 213/02** (2013.01 - EP US); **C07D 295/088** (2013.01 - EP); **C07D 295/13** (2013.01 - EP); **B01J 35/40** (2024.01 - EP); **B01J 37/18** (2013.01 - EP); **B01J 2523/00** (2013.01 - EP); **B01J 2523/13** (2013.01 - US); **B01J 2523/15** (2013.01 - US); **B01J 2523/17** (2013.01 - US); **B01J 2523/22** (2013.01 - US); **B01J 2523/23** (2013.01 - US); **B01J 2523/25** (2013.01 - US); **B01J 2523/27** (2013.01 - US); **B01J 2523/48** (2013.01 - US); **C07C 211/10** (2013.01 - US); **C07C 215/08** (2013.01 - US)

Citation (search report)
See references of WO 2018108698A1

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 2018108698 A1 20180621; CN 110072839 A 20190730; EP 3555040 A1 20191023; JP 2020514255 A 20200521; US 10836704 B2 20201117; US 2020079725 A1 20200312

DOCDB simple family (application)
EP 2017081851 W 20171207; CN 201780077562 A 20171207; EP 17809318 A 20171207; JP 2019532128 A 20171207; US 201716469782 A 20171207