

Title (en)

METHOD OF PREPARATION OF MFI ZEOLITES WITH ENCAPSULATED METAL NANOPARTICLES

Title (de)

VERFAHREN ZUR HERSTELLUNG VON MFI-ZEOLITHEN MIT EINGEKAPSELTEN METALLNANOPARTIKELN

Title (fr)

PROCÉDÉ DE PRÉPARATION DE ZÉOLITES MFI AVEC DES NANOPARTICULES MÉTALLIQUES ENCAPSULÉES

Publication

EP 3887039 A1 20211006 (EN)

Application

EP 20758104 A 20200604

Priority

- EP 19214691 A 20191210
- CZ 2020050039 W 20200604

Abstract (en)

[origin: EP3834930A1] The present invention provides a method for preparation of MFI zeolites with encapsulated metal nanoparticles, wherein the metal is selected from Pt, Pd, Au and mixtures thereof, said method comprising the following steps:a) contacting at least one metal salt or complex, wherein the metal is selected from Pt, Pd, Au and mixtures thereof, with an alkoxysilane functionalized ionic liquid, in aqueous solvent, to form a first mixture;b) contacting a source of silica, alkali metal hydroxide, a structure-directing agent and optionally a source of alumina,, in aqueous solvent, to form a second mixture;c) combining the first mixture and the second mixture to form a third mixture;d) subjecting the third mixture to drying;e) subjecting the dried third mixture to hydrothermal crystallization to form the MFI zeolites with encapsulated metal nanoparticles.The method allows to prepare the metal-loaded MFI zeolites with reproducible metal loading, structural characteristics, in a simple, effective and reliable way.

IPC 8 full level

B01J 29/068 (2006.01); **B01J 29/40** (2006.01); **B01J 29/44** (2006.01); **B01J 35/00** (2006.01); **C01B 39/40** (2006.01)

CPC (source: EP)

B01J 29/44 (2013.01); **B01J 35/23** (2024.01); **B01J 35/393** (2024.01); **B01J 35/399** (2024.01); **C01B 37/005** (2013.01); **C01B 39/40** (2013.01); **Y02P 20/54** (2015.11)

Citation (search report)

See references of WO 2021115499A1

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)

EP 3834930 A1 20210616; EP 3887039 A1 20211006; WO 2021115499 A1 20210617

DOCDB simple family (application)

EP 19214691 A 20191210; CZ 2020050039 W 20200604; EP 20758104 A 20200604