

Title (en)
METHOD AND PURIFYING DEVICE FOR REMOVING ALKALI, ALKALINE EARTH, AND HEAVY METALS FROM CRUDE AND HEAVY OILS

Title (de)
VERFAHREN UND REINIGUNGSVORRICHTUNG ZUR ENTFERNUNG VON ALKALI-, ERDALKALI- UND SCHWERMETALLEN AUS ROH- UND SCHWERÖLEN

Title (fr)
PROCÉDÉ ET DISPOSITIF DE PURIFICATION POUR ÉLIMINER DES MÉTAUX ALCALINS, ALCALINO-TERREUX ET LOURDS À PARTIR DE PÉTROLE BRUT ET DE PÉTROLE LOURD

Publication
EP 3601487 A1 20200205 (DE)

Application
EP 18730248 A 20180523

Priority
• DE 102017209500 A 20170606
• EP 2018063496 W 20180523

Abstract (en)
[origin: WO2018224310A1] The invention relates to a method and a purifying device for largely removing alkali, alkaline earth and heavy metals from crude or heavy oil (1). In the method, a largely or completely metal-free water (2) and an anti-solvent (3) are first added to the crude or heavy oil (1) and the resultant mixture is mixed in a mixing unit (A) in such a way that a multi-phase mixture (4, 4') is produced. In the multi-phase mixture (4, 4'), the water-soluble alkali and alkaline earth metals dissolve from the crude or heavy oil (1) in the form of their salts in the phase of the metal-free water (2), and water-insoluble heavy metals precipitate from the crude or heavy oil (1) by deasphalting with the anti-solvent (3) in the form of suspended asphalt particles. The multi-phase mixture (4, 4') is separated, by phase separation in a processing stage (F), into purified crude or heavy oil (100), which is desalinated and largely free from alkali, alkaline earth and heavy metals, into water (300), which is rich in alkali, alkaline earth and heavy metals, and into suspended asphalt particles (400) rich in heavy metals. According to the invention, the suspended asphalt particles obtained in the method are fed back by a return line (5) into the crude or heavy oil (1) in the region where the anti-solvent (3) is added.

IPC 8 full level
C10G 31/08 (2006.01); **C10G 21/00** (2006.01)

CPC (source: EP)
C10G 21/003 (2013.01); **C10G 31/08** (2013.01); **C10G 2300/201** (2013.01); **C10G 2300/206** (2013.01); **C10G 2300/4081** (2013.01)

Citation (search report)
See references of WO 2018224310A1

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 2018224310 A1 20181213; EP 3601487 A1 20200205

DOCDB simple family (application)
EP 2018063496 W 20180523; EP 18730248 A 20180523