

Title (en)

METHOD FOR TREATING HEAVY HYDROCARBON RESIDUES CONTAINING CALCIUM AND OTHER HEAVY METALS AND PRODUCT OBTAINED

Title (de)

VERFAHREN ZUR BEHANDLUNG SCHWERER KOHLENWASSERSTOFFRESTE MIT CALCIUM UND ANDEREN SCHWERMETALLEN UND ERHALTENES PRODUKT

Title (fr)

PROCÉDÉ DE TRAITEMENT DE RÉSIDUS D'HYDROCARBURES LOURDS CONTENANT DU CALCIUM ET D'AUTRES MÉTAUX LOURDS ET PRODUIT AINSI OBTENU

Publication

EP 3431571 A1 20190123 (EN)

Application

EP 18000610 A 20180718

Priority

ES 201730953 A 20170721

Abstract (en)

The method envisages the involvement of any industrial mixer (8) to which an aqueous solution (1) of an oxoacid of the chalcogens with an oxoacid of the pnictogens and an aromatic sulfonic acid or mixtures (2) thereof are added and they are mixed with the heavy fraction (3) or hydrocarbon residue to be treated, such that this mixture is heated by way of any conventional heating system (9) to a temperature comprised between 20 and 100°C and once the reaction is carried out, the resulting product is forced to pass to a decanter or centrifuge machine where the separation step (4) of the organic phase (5) from the aqueous phase (6) takes place. An organic phase used directly as a fuel (7) which contains at least 0.5% by weight of polymeric solids and the viscosity thereof is below 100 mm²/s at 50°C is thereby obtained.

IPC 8 full level

C10G 17/02 (2006.01); **C10G 21/02** (2006.01); **C10G 21/06** (2006.01)

CPC (source: EP ES)

C10G 17/02 (2013.01 - EP ES); **C10G 17/06** (2013.01 - EP); **C10G 21/02** (2013.01 - EP); **C10G 21/06** (2013.01 - EP); **C10G 31/08** (2013.01 - EP);
C10G 33/06 (2013.01 - EP); **C10G 2300/1033** (2013.01 - EP); **C10G 2300/1077** (2013.01 - EP); **C10G 2300/202** (2013.01 - EP);
C10G 2300/205 (2013.01 - EP)

Citation (applicant)

- WO 2014021368 A1 20140206 - ITOH DENKI CO LTD [JP]
- WO 2007149292 A2 20071227 - KESLER MICHAEL L [US]
- WO 2011014686 A1 20110203 - VERTEX ENERGY LP [US], et al
- WO 2011143770 A1 20111124 - WHEELER LUCIE B [CA]
- US 2005234284 A1 20051020 - ESCRIG PILAR DE FRUTOS [ES], et al
- WO 2014121368 A1 20140814 - ENVIROLLEA INC [CA]
- GB 299925 A 19281108 - STANDARD DEV CO
- US 2434528 A 19480113 - WADLEY EDWARD F

Citation (search report)

- [XDA] US 2005234284 A1 20051020 - ESCRIG PILAR DE FRUTOS [ES], et al
- [Y] CN 1054261 A 19910904 - CHINA PETRO CHEMICAL CO [CN]
- [Y] US 1897574 A 19330214 - DE GROOTE MELVIN, et al
- [A] CN 1657596 A 20050824 - CHINA PETROCHEMICAL CORP [CN]
- [A] WU BENCHENG ET AL: "Distribution of calcium, nickel, iron, and manganese in super-heavy oil from Liaohe Oilfield, China", PETROLEUM SCIENCE, CHINA UNIVERSITY OF PETROLEUM (BEIJING), HEIDELBERG, vol. 11, no. 4, 4 October 2014 (2014-10-04), pages 590 - 595, XP036359091, ISSN: 1672-5107, [retrieved on 20141004], DOI: 10.1007/S12182-014-0376-8

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 3431571 A1 20190123; ES 2696986 A1 20190121; ES 2696986 B2 20190529

DOCDB simple family (application)

EP 18000610 A 20180718; ES 201730953 A 20170721