

Title (en)

Process for the conversion of heavy petroleum fractions comprising an ebullated bed for the production of low sulfur middle distillates

Title (de)

Umwandlungsverfahren für schwere Petroleumfraktionen in einem wallenden Bett zur Herstellung von Mitteldistillaten mit niedrigem Schwefelgehalt

Title (fr)

Procédé de conversion de fractions lourdes pétrolières incluant un lit bouillonnant pour produire des distillats moyens de faible teneur en soufre

Publication

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Application

EP 02290433 A 20020222

Priority

FR 0114594 A 20011112

Abstract (en)

Petroleum feedstocks are treated by ebullated-bed hydroconversion using a hydroconversion catalyst that is least partly amorphous, and operates with an upward flow of liquid and gas at 30-550 degrees C at 2-35 MPa, an hourly space velocity of 0.1-10 per hour and in the presence of 20-5000 Nm³ of hydrogen per m³ feedstock. <??>Treatment of petroleum feedstocks involves ebullated-bed hydroconversion using a hydroconversion catalyst that is least partly amorphous, and operates with an upward flow of liquid and gas at 30-550 degrees C at 2-35 MPa, an hourly space velocity of 0.1-10 per hour and in the presence of 20-5000 Nm³ of hydrogen per m³ feedstock, where the net conversion of products boil below 360 degrees C is 1-80 wt.%; separation from the effluent of a gas that contains hydrogen, hydrogen sulfide and a heavier fraction than the gas oil; hydrotreatment by contact with a catalyst(s) of a distillate fraction(s) and that includes a gas oil fraction at 30-500 degrees C at 2-12 MPa, an hourly space velocity of 0.1-10 per hr and in the presence of 20-5000 Nm³ of hydrogen per m³ feedstock; separation of hydrogen, gasses and the gas-oil fraction with a 50 ppm sulfur. The make-up hydrogen is brought to hydrotreatment. At least 80 wt.% of the feedstocks boil above 340 degrees C and contain ≥ 0.005 wt.% sulfur for producing a gas oil fraction with a sulfur of ≤ 50 ppm. <??>An Independent claim is also included for an installation for treatment of petroleum feedstocks comprising a zone (I) for ebullated-bed hydroconversion of a hydroconversion catalyst and with a pipe (1) for introducing the feedstock to be treated, a pipe (11) for the output of the hydroconverted effluent, a pipe (31) for drawing off catalyst and/or a pipe (32) for supplying fresh catalyst, as well as a pipe (29) for introducing hydrogen where the zone is operated with an upward flow of feedstock and gas; a zone (II) for separation having a separator(s) (3, 6) for separating the hydrogen-rich gas via a pipe (4) for separating the hydrogen sulfide in pipe (7) and obtaining a liquid fraction in pipe (8) and also includes a distillation column (9) for separating a distillate fraction(s) that includes a gas-oil fraction in pipe (11) and a heavy fraction in pipe (10); hydrotreatment zone (III) that contains a fixed bed hydrotreatment catalyst for treating a gas oil with a pipe (30) for introducing make-up hydrogen and a pipe (12) for the output of the hydrotreated effluent; and a separation zone (IV) that includes a separator (13, 16) for separating hydrogen via pipe (14) for separating the hydrogen sulfide in pipe (17) and for separating a gas-oil that has less than 50 ppm via pipe (18).

Abstract (fr)

L'invention concerne un procédé de traitement des charges pétrolières lourdes pour produire une coupe gazole ayant une teneur en soufre inférieure à 50 ppm et le plus souvent 10 ppm qui comprend les étapes suivantes : a) hydrocraquage en lit bouillonnant de catalyseur, b) séparation du sulfure d'hydrogène, d'une coupe distillat incluant une fraction gazole et d'une fraction plus lourde que le gazole, c) hydrotraitement de ladite coupe distillat, d) séparation d'une coupe gazole à moins de 50 ppm soufre. Le procédé opérant avec de l'hydrogène d'appoint amené au niveau de l'étape c) et très avantageusement tout l'hydrogène d'appoint du procédé est introduit à l'étape c). Avantageusement la fraction lourde est envoyée en craquage catalytique. L'invention concerne également une installation utilisable pour mettre en oeuvre ce procédé. <IMAGE>

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CPC (source: EP)

C10G 49/007 (2013.01); **C10G 2400/06** (2013.01)

Citation (search report)

- [Y] US 3380910 A 19680430 - GRIFFITHS GRAHAM N
- [Y] FR 2791354 A1 20000929 - INST FRANCAIS DU PETROLE [FR]

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