Title (en)

Process for the isomerisation of gasolines with high benzene content

Title (de)

Verfahren zur Isomerizierung von Benzinen mit hohem Benzolgehalt

Title (fr)

Procédé f d'isomérisation d'essences à teneur élevée en benzène

Publication

EP 0949317 A1 19991013 (FR)

Application

EP 99400568 A 19990309

Priority

FR 9803958 A 19980331

Abstract (en)

Upstream of the reactor a balance fluid is introduced, which, at 40 degrees C and atmospheric pressure, is a gas and has a density less than or equal to that of pentane under the same conditions. The paraffins have 5 or 6 atoms and more than 2 wt.% benzene, in which the load is passed through a reactor (5) containing an isomerization catalyst in the presence of hydrogen, at a total pressure greater than 10 x 10<5> Pa (10 bars) and a mean temperature of 100-200 degrees C. The balance fluid is injected immediately upstream of the first isomerization reactor, at a level in the introduction zone where the fluids are mixed, at mid- height of the catalyst bed (6), and after preheating of the reaction mixture and before injecting the mixture into the reactor. The balance fluid contains a substantial quantity of hydrogen and/or hydrocarbons with 1-5 (or 1-4) C. The fluid also contains a small quantity of hydrocarbons with 6 or 7 C and/or inert gases such as nitrogen or other appropriate light fluid. The fluid contains a substantial quantity of the light components from a fractionating column (20) for the effluents from the isomerization unit. The composition and/or flow rate of the balance fluid is optimized as a function of the characteristics of the load to be treated, in particular its benzene content. The balance fluid is injected at a rate of 5-150 Nm<3>/m<3> of load, preferably 5-60 Nm<3>/m<3> of load, and at a temperature less than or equal to that of the reactants, preferably 20-180 degrees C. The isomerization unit contains several reactors in series (5, 8) and a section rich in non-isomerized paraffins with 5 or 6 C containing naphthenes, is separated from the effluent of the isomerization unit and is recycled immediately downstream of the first reactor. Independent claims are included for: (i) the apparatus for the above process; and (ii) the use of the unit to isomerize light petrols from catalytic cracking, on their own or part of a mixture.

Abstract (fr)

L'invention concerne un procédé d'isomérisation d'une charge hydrocarbonée contenant une quantité substantielle d'hydrocarbures paraffiniques à 5 ou 6 atomes de carbone et du benzène à une teneur supérieure ou égale à 2 % en poids, dans lequel la charge à traiter passe, en présence d'hydrogène, à une pression totale supérieure ou égale à 10.10<5> Pa (10 bars) et à une température moyenne comprise entre 100 et 200°C, dans au moins un réacteur (5) contenant un catalyseur. Selon l'invention, on introduit, dans la partie amont de la zone réactionnelle, un fluide d'appoint qui, à 40°C et sous pression atmosphérique (1,0134.10<5> Pa), se trouve à l'état gazeux et possède une densité inférieure ou égale à celle du normal-pentane considéré dans les mêmes conditions. <IMAGE>

IPC 1-7

C10G 45/58; C10G 65/08

IPC 8 full level

C10G 49/02 (2006.01); **C10G 45/58** (2006.01); **C10G 65/08** (2006.01)

CPC (source: EP US)

C10G 45/58 (2013.01 - EP US); C10G 2400/02 (2013.01 - EP US)

Citation (search report)

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