

Title (en)

Method for the oxidation of hydrocarbonaceous subterranean sedimentary formations.

Title (de)

Verfahren zur Oxydation von kohlenwasserstoffhaltigen untertägigen sedimentären Lagerstätten.

Title (fr)

Procédé d'oxydation de couches sédimentaires souterraines contenant des matières hydrocarbonées.

Publication

EP 0131499 A1 19850116 (FR)

Application

EP 84401286 A 19840621

Priority

FR 8310829 A 19830630

Abstract (en)

1. A method for the oxidation of sedimentary subterranean formations (3), containing hydrocarbonaceous materials by injecting in a first step a gas inert or little oxidizing and in a second step a gas containing oxygen into at least one injection shaft (1) coming from the surface (2) and opening in said subterranean formation (3) to provoke the partial or total oxidation of said hydrocarbonaceous materials and the effluence thereof in the fluid state to at least one production shaft arranged in a distance from said injection shaft (1) and opening also in said subterranean formation, said injection shaft (1) consisting of a first central tube (4), a second tube (5) concentric with the first one and defining a first annular space (7) and a shaft tube (6) concentric with said second tube (5) and defining a second annular space (8) and extending deeper into the subterranean formation (3) than said first and second tubes, characterized in that the first and second tubes (4 and 5) open in the lower part of said shaft tube (6) after having crossed an annular sealing joint (9) arranged between the second tube (5) and the shaft tube (6), a circulation of cold water being established in the second annular space (8) during the step of injection of oxygen, that during the first step one injects the gas inert or little oxidizing in the first central tube (4), that during the second step one injects into said central tube (4) an oxidizing gas and increases progressively the concentration of oxygen of said oxidizing gas and injects into the first annular space (7) reaction water, the injected reaction fluids penetrating into the subterranean formation (3) through perforations (10) regularly distributed and arranged in the side wall of the lower part of the shaft tube (6), and that during the second step one controls the pressure where the reaction takes place within said sedimentary subterranean formations (3) to detect a danger of explosion, the injection of the reaction fluids being stopped immediately, when a variation of pressure corresponding to such a danger of explosion has been found, and in the annular space (7) a security fluid selected from the group hydrogen, carbon dioxide and flooding water is injected, the sequence of injection of fluids according to the two above steps being presumed after having controlled the incident.

Abstract (fr)

L'invention concerne l'oxydation de couches sédimentaires souterraines contenant des matières hydrocarbonées. Le procédé consiste à injecter un gaz contenant de l'oxygène dans le tube central (4) d'un puits (1) débouchant dans la couche souterraine (3) et de l'eau dans l'espace annulaire (7) défini par un tube (5) concentrique au tube central (4) et ledit tube central (4). On contrôle la réaction en remplaçant, si nécessaire, l'eau injectée dans ledit espace annulaire (7) par un fluide de sécurité. Application à la gazéification du charbon et à la récupération assistée du pétrole.

IPC 1-7

E21B 43/243; **E21B 36/00**; **C10J 5/00**

IPC 8 full level

E21B 36/00 (2006.01); **E21B 43/243** (2006.01)

CPC (source: EP)

E21B 36/001 (2013.01); **E21B 43/243** (2013.01)

Citation (search report)

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Designated contracting state (EPC)

AT BE CH DE FR GB IT LI LU NL SE

DOCDB simple family (publication)

EP 0131499 A1 19850116; **EP 0131499 B1 19861210**; AT E24226 T1 19861215; AU 2999784 A 19850103; AU 556316 B2 19861030; BR 8403250 A 19850611; DE 3461669 D1 19870122; FR 2548207 A1 19850104; FR 2548207 B1 19870605

DOCDB simple family (application)

EP 84401286 A 19840621; AT 84401286 T 19840621; AU 2999784 A 19840628; BR 8403250 A 19840629; DE 3461669 T 19840621; FR 8310829 A 19830630