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(54) **Titre : RECUPERATION RENFORCEE DE PETROLE BRUT A L'AIDE DE SILICIURES DE METAUX**
(54) **Title: ENHANCED CRUDE OIL RECOVERY USING METAL SILICIDES**

(57) **Abrégé/Abstract:**

Enhanced oil recovery techniques include introduction of alkali metal silicides into subterranean reservoirs to generate hydrogen gas, heat, and alkali metal silicate solutions in situ upon contact with water. The alkali metal silicides, such as sodium silicide, are used to recover hydrocarbons, including heavier crudes where viscosity and low reservoir pressure are limiting factors. Hydrogen, which is miscible with the crude oil and can beneficiate the heavier fractions into lighter fractions naturally or with addition of catalytic materials, is generated in-situ. It. Heat is also generated at the reaction site to reduce viscosity and promote crude beneficiation. The resulting alkaline silicate solution saponifies acidic crude components to form surfactants which emulsify the crude to improve mobility toward a production well. The silicate promotes profile modification passively via consumptive reactions or actively via addition of acidic gelling agents.



