OIL AND GAS INSTITUTE

Demulsifier-based oil desalination method

P.379109

Inventors: Dariusz Bęben

Emulsions constitute a substantial proportion of oil extracted worldwide. In 25%-35%, they contain formation water, which has to be separated from oil before oil is transported to the refinery.

Formation water contains NaCl, $MgCl_2$, $CaCl_2$, which deteriorate oil quality. NaCl accounts for approximately 80% of chlorides. When the salt content is very high and that of water low, it may happen that the water solution is supersaturated and some chlorides occur as crystals in oil. It is more difficult to purge oil of chloride crystals than of chlorides dissolved in the water solution.

The oil desalination according to the invention involves the addition of silicone demulsifier to the reservoir fluid in the wellhead zone. Then the reservoir fluid and the demulsifier become mixed while flowing into the separator; the desalinated oil is separated from the brine at temperatures from 290K to 320K.

The solution provides an easy way to mix the demulsifier with the reservoir fluid during pipeline flow and energy savings during oil desalination. The chloride content of the oil desalinated using the method according to the invention dropped from 220 mg/dm^3 down to 5 mg/dm^3.

ASSOCIATION OF POLISH INVENTORS AND RATIONALIZERS
Rydygiera 8, 01-793 Warsaw, POLAND
phone/fax: +48 22 633 84 82

OIL AND GAS INSTITUTE
Lubicz 25A, 31-503 Krakow, POLAND
phone: +48 12 421 00 33, fax +48 12 430 38 85
www.inig.pl office@inig.pl