



Description:

Surfactants are used as additives to generate steam foams in thermal EOR. Steam foams improve the efficiency of heavy oil recovery processes. The EOR Alliance developed a workflow to design efficient combinations of additives for steam foams.



Application:

SAGD and continuous or cyclic steam injection.



Results:

Thermal stability of specific surfactants has been demonstrated up to 250°C in anaerobic conditions. Optimized formulations exhibit remarkable foam stability up to 200°C.

Proposed Workflow

1

Using high temperature, high pressure and anaerobic conditions, various surfactants are screen-tested for thermal stability of chemical structures.

2

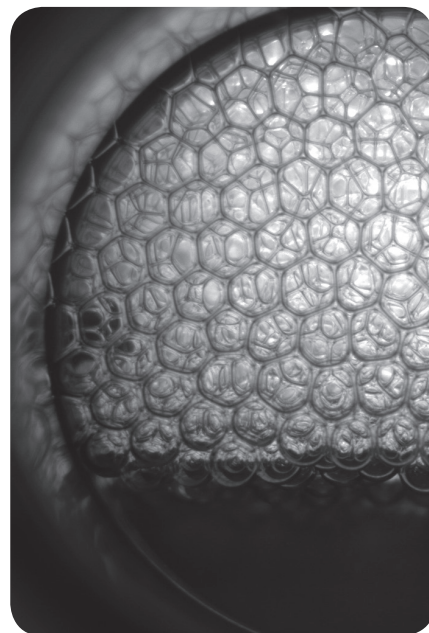
Surfactants are combined to optimize foam stability of formulations as a function of foam half life time and resistance to oil at 90°C and atmospheric pressure.

4

Coreflood experiments are carried out to check Mobility Reduction Factor in presence of steam foams.

3

A custom high pressure/ high temperature sapphire view cell is utilized to measure foam life time at reservoir pressure and steam temperature.



High temperature foam obtained with optimized formulation at 200 °C

References: SPE16729, SPE35692, SPE170129, SPE174469, SPE179806, SPE181160, SPE190455.

An Alliance between:

