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From: *Ingebret Fjelde*

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MSc and BSc Thesis: *Wettability alteration*

Topics on wettability alteration in carbonate reservoirs are proposed below.

Wettability alteration

Background

Processes for alteration of wettability to more water-wet conditions have been developed to increase the spontaneous imbibition of brine in fractured carbonate reservoirs. At the University in Stavanger and IRIS, wettability alteration processes by changing composition of injection water and by addition of chemicals (e.g. cationic surfactants) have been studied.

Thesis topics: Wettability alteration

1. Sulfate in reservoir limestone

Sulfate has been found to alter the wettability conditions to more water-wet and thereby increase the spontaneous imbibition of water. Outcrop chalk and reservoir chalk samples have been found to contain sulfate concentrations high enough to affect the wettability conditions.

The objective is to determine the concentrations of sulfate in different reservoir limestones (a type of carbonate rock). If sulfate is found in the reservoir limestone, it will be evaluated whether these concentrations are high enough to affect the wettability conditions. Both the concentrations of easily accessible sulfate on mineral surfaces and the concentrations of sulfate inside the grains will be determined.

One student can work on this subject.

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