

Improvisation of N₂ Foam with Black Rice Husk Ash in Enhanced Oil Recovery

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Abstract : Because nanoparticles have the potential to improve foam stability, only a small amount of surfactant or polymer is required to control gas mobility in the reservoir. Numerous researches have revealed that this specific application is in use. The goal is to improve foam formation and foam stability. As a result, the foam stability and foam ability of black rice husk ash were investigated. By injecting N₂ gases into a core flood condition, black rice husk ash was used to produce stable foam. The properties of black rice husk ash were investigated using a variety of characterization techniques. The black rice husk ash was mixed with the best-performing anionic foaming surfactants at various concentrations (ppm). Sodium dodecyl benzene sulphonate was the anionic surfactant used (SDBS). In this article, the N₂ gas- black rice husk ash (BRHA) with high Silica content is shown to be beneficial for foam stability and foam ability. For the test, a 30 cm sand pack was prepared. For the experiment, N₂ gas cylinders and SDBS surfactant liquid cylinders were used. Two N₂ gas experiments were carried out: one without a sand pack and one with a sand pack and oil addition. The black rice husk and SDBS surfactant concentration was 0.5 percent. The high silica content of black rice husk ash has the potential to improve foam stability in sand pack conditions, which is beneficial. On N₂ foam, there is an increase in black rice husk ash particles, which may play an important role in oil recovery.

Keywords : black rice husk ash nanoparticle, surfactant, N₂ foam, sand pack

Conference Title : ICPG 2022 : International Conference on Petroleum Geostatistics

Conference Location : Bangkok, Thailand

Conference Dates : November 29-30, 2022