



USE CASE

Optimizing Surfactant Selection and Application for Enhanced Oil and Gas Recovery

Unlock efficiency and sustainability in oil and gas operations by optimizing surfactant selection using advanced AI applications

Target

Use science-based AI to optimize surfactant selection, design, and application across various stages, leading to enhanced efficiency, cost reduction, and environmental sustainability.

Challenge

Surfactants play a crucial role in the myriad of oil and gas operations, from enhanced oil recovery (EOR) to drilling muds, fracturing, and pipeline transportation.

- Selecting the right surfactant for each application is complex due to vast chemical diversity and dynamic reservoir conditions.
- Traditional methods rely on limited datasets and expert knowledge, often leading to suboptimal results, inefficient resource utilization, increased operational costs, and higher environmental risks.

Solution

For Enhanced Oil Recovery (EOR), SBAI models can predict surfactant efficacy in mobilizing trapped oil based on reservoir conditions and crude oil properties, and recommend surfactant blends optimized for interfacial tension reduction and viscosity modification, unlocking hidden reserves and maximizing production.

In Drilling Muds and Fracturing Fluids, SBAI models select surfactants that enhance mud lubricity and stability while minimizing formation damage. They optimize surfactant formulations for improved proppant transport and fracture network conductivity, leading to more efficient drilling and fracturing operations.

Finally, for Pipeline Transportation, our AI identifies surfactants that effectively prevent pipeline corrosion and paraffin deposition, based on pipeline materials and flow conditions.