

Sustainable Soltellus 2402L: Cost-Effective Halite Inhibitor & Freshwater Reduction Solution

Oilfield Operations Case Study



Background

Soltellus 2402L is a water-based solution of a high temperature stable sodium salt of polyaspartic acid. Serving as an environmentally friendly and biodegradable replacement to conventional polyacrylates, polymaleates, and their copolymers and terpolymers, Soltellus 2402L was designed to inhibit the formation of halite in extremely high brine waters. Because of the polymer's peptide features, its inhibition of sodium chloride allows for dramatic reduction in the amount of maintenance (fresh water) required.

Features

- Reduces FW requirements by 50-80%
- Increases deferred production
- Scale inhibition of Ca, Ba, Sr, & Mg
- Readily biodegradable (OECD 306)

Case Study

Prior to the implementation of Soltellus 2402L, an operator in the Bakken had been experiencing severe halite deposition and continuously decreasing oil and gas production. The well was continuously injecting fresh water (FW) at a rate of 28-30 barrels per day, which was the maximum injection rate of the system's pump. Even with the system's FW rate at a maximum, the well was still not preventing halite deposition. The operator indicated that 40-50 barrels of FW per day was required, which was beyond system capabilities. As a result, a leading independent production and chemical company implemented Soltellus 2402L at a rate of 150 ppm to mitigate halite deposition and reverse declining production trends.

Results

- Reduced FW injection rates by 50-60% over system requirements
- Eliminated halite deposition in surface equipment
- Strong scale inhibition and replacement of incumbent phosphonate scale inhibitor
- 50% increase in oil production (BOPD) and 55% increase in gas production (MCFD)

Conclusion and Highlights

Over the course of approximately 45 days, a leading independent production and midstream chemical company closely monitored chlorides, total dissolved solids (TDS), product residuals, and production levels. The chloride and TDS levels stayed below crystallization levels.

In conjunction with the operator, a leading independent production and midstream chemical company successfully reduced the FW injection rate to 18 barrels per day. Not only did the product reduce the FW injection rate by 50—60% over the estimated required rate, the operator found no halite deposition in any surface equipment.

The residual analysis also showed strong scale inhibition which prompted the operator to drop the incumbent scale inhibitor program.

The reduction in the freshwater demand over the 120 day trial, resulted in an increase in production and a greater return on investment (ROI).