

Case Study:

ScaleFix SSD:

High performance sulfate dissolver

Choke replacement and restored production made possible by pumping ScaleFix SSD sulfate scale dissolver.

Well Data

Location: Western Canada
Well type: Unconventional
Reservoir temperature: 230°F



Background

An international E&P company operating in Western Canada experienced ongoing issues with barium sulfate scale deposition in the tubing. The E&P company attempted to remove the barium sulfate scale with various commercially available dissolvers, but they were unable to remove the scale. Mechanical solutions were not possible because of the large-scale tubing deposition.

Tendeka Solution

ScaleFix SSD was recommended to remove the scale deposits and retrieve or completely free the choke of scale. Although ScaleFix SSD will perform without agitation at low temperatures, to optimize the ScaleFix SSD performance, agitation along with the elevated temperatures expedited dissolution.

Approximately 500 gallons of ScaleFix SSD was used to remove the scale deposition. A wireline unit deployed a scraper brush into the wellbore and was used to create agitation around the scale as the ScaleFix SSD was periodically spotted and left to soak. Over time the BHA reached its target depth and once contact was established the choke was successfully retrieved.

Project results

The operator was very satisfied with the results as they had attempted many different chemicals over the years and quoted; "This is the first time I have dealt with a chemical that has done anything on this type of scale".

Utilizing the ScaleFix SSD along with agitation from the BHA, they were able to remove enough scale to retrieve the choke and optimize the production of the well. Utilizing ScaleFix SSD, the operator was able to solubilise over 80kg of scale, allowing the choke to be removed and sized accordingly to current flow rates and pressures.

Value

ScaleFix SSD solubilizes more than two times the leading competitions claimed rates of BaSO₄. It is non-damaging to wellbore metals and seals which allows long soaks to be performed (+24hr).

With a high temperature stability of 270°F and a lower pH profile than most dissolvers of 10.5 to 11, ScaleFix SSD provides an increased level of performance and safety to your operations.

Technical Specification

| | |
|------------------|-------------------------|
| Appearance | Colourless liquid |
| Specific gravity | 1.13 - 1.17 |
| Freezing point | -25°C / -13°F |
| Boiling point | ~ >110°C / 230°F |
| pH | ~ 10.5 - 11 |
| Flash point | > 100°C / 212°F |
| Shelf life | 1 year |
| Solubility | Highly soluble in water |
| Thermal ceiling | ~130°C / 270° |

| Scale dissolver | Scale dissolved (lb/gal) | Temperature (°F) | Time (hour) |
|---------------------------|--------------------------|------------------|-------------|
| ScaleFix SSD | 0.44 | 158 | 4 |
| Barsol NS, (Alkali/EDTA) | 0.2 | 158 | 4 |
| DTPA-K ₅ + KOH | 0.28 | 176 | 24 |