



Case Study: Enviro-Syn® BSD-40™: High performance barium sulphate dissolver

Choke replacement and restored production made possible by pumping Enviro-Syn BSD-40 barium sulphate 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 sulphate scale deposition in the tubing. The E&P company attempted to remove the barium sulphate 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

BSD-40 Barium Sulphate Dissolver was recommended to remove the scale deposits and retrieve or completely free the choke of scale. Although BSD-40 will perform without agitation at low temperatures, to optimize the BSD-40 performance, agitation along with the elevated temperatures expedited dissolution.

Approximately 500 gallons of BSD-40 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 BSD-40 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.

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°

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 BSD-40 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 BSD-40, the operator was able to solubilize over 80kg of scale, allowing the choke to be removed and sized accordingly to current flow rates and pressures.

Value

BSD-40 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, BSD-40 provides an increased level of performance and safety to your operations.

Scale dissolver	Scale dissolved (lb/gal)	Temperature (°F)	Time (hour)
Enviro-Syn BSD-40	0.44	158	4
Barsol NS, (Alkali/EDTA)	0.2	158	4
DTPA-K5 + KOH1	0.28	176	24