

Enviro-Syn[®] BSD-40[™]

A unique barium sulfate dissolver with ability to dissolve extremely high amounts of barium sulfate in shorter amount of time

Enviro-Syn BSD-40 is a unique barium sulfate dissolver that has double the solubility ability of K₅DTPA, a leading chemistry used in this application

The high-dissolving capacity of barium sulfate means that less volume is required compared to other leading chemistries. Typically, large volumes are required to totally dissolve the scale and the wellbore volume dictates how much volume can be spotted for a soaking treatment at a given time. Furthermore, BSD-40 has a higher rate of dissolution compared to competing chemistries. This reduces the amount of soaking time required. The dissolution rate of barium sulfate does increase with temperature. BSD-40 performs best at temperatures above 104°F. Treatment times vary between 8 - 24 hours depending on the temperature and degree of agitation.

Barium sulfate causes formation damage, hosts bacteria, fouls piping, tanks and process equipment, thereby reducing production and profitability.

Features

- Dissolves BaSO₄, SrSO₄ and CaSO₄
- Non-corrosive to metal or typical oilfield elastomers and seals
- Low pH profile compared to other dissolvers, 10.5- 11
- Thermal stability of 270°F
- Non-damaging to the formation
- Enhanced dissolving capacity of BaSo₄
- High-dissolving rate compared to leading chemistries

Benefits

- Increased production
- Cost effective (less volume requirements, reduced logistics, shorter treatments)
- Chemical exposure is less of a risk to personnel than compared to leading chemistries
- Reduces decommissioning time and costs

Technical Specification

Appearance	Colorless liquid
Specific gravity	1.13 - 1.17
Freezing point	-25 °C/-13°F
Boiling point	~>110°C/230°C
pH	~10.5 - 11
Flash point °F	100°C/212°F
Shelf life	1 year
Solubility	Highly soluble in water
Thermal ceiling	130°C/270°F
Total solubility of BaSO ₄	0.34lb/gal
Total solubility of SrSO ₄	0.48lb/gal
Total solubility of CaSO ₄	0.54lb/gal

In partnership with:





Applications

- BSD-40 treatments are performed to remove barium sulfate located downhole:
 - Tubulars
 - Chokes and valves (in, over and under DHSV, GLV, ASV, etc.)
 - Freeing stuck equipment
 - Scale squeeze operations
- BSD-40 can also be used to remove barium sulfate scale built up in the following surface equipment:
 - Entire production / process system
 - Pipes separators
 - Hydrocyclones
 - De-gassers
 - Heat-exchangers
- Injection and disposal wells
- Some geothermal wells
- Decommissioning projects (scale is removed prior to the piping being recycled)
- Piping and process equipment in oil refineries
- Equipment being cleaned at surface (soak equipment in heated bath with circulation)

Storage

BSD-40 is a strong base. Therefore, for long-term storage, sealed drums or IBC totes should be used. Also, HDPE, brass, or stainless steel fittings and valves should be used.

Safety Requirements

When handling BSD-40 nitrile gloves, chemical goggles and protective clothing are required. Eye wash bottle/station and shower must be available. BSD-40 is a strong base, therefore a hazard risk assessment for each application should be completed and the appropriate PPE should be worn.

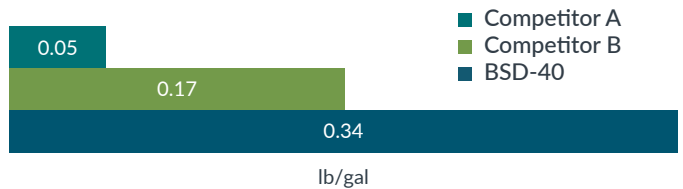
Shipping and Handling

The types of fittings, hoses and pumping equipment used should be able to withstand strong bases. BSD-40 is considered "corrosive" under the Transportation of Dangerous Goods regulations. Class 8, Packing Group III placards and labels must be displayed.

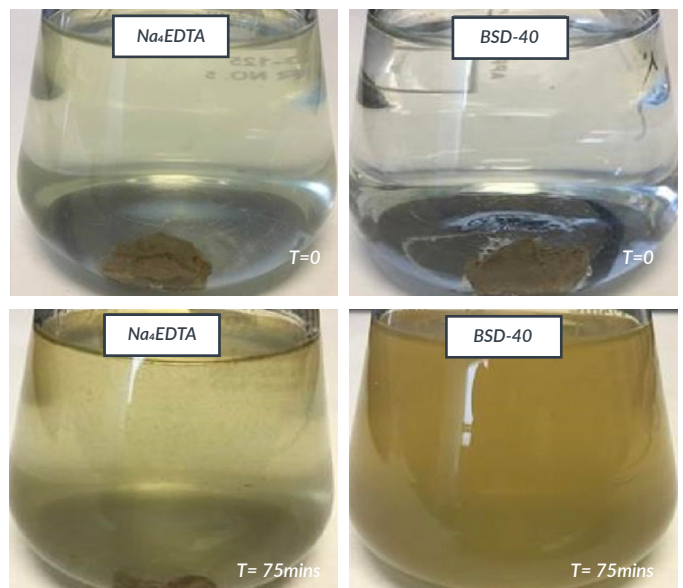
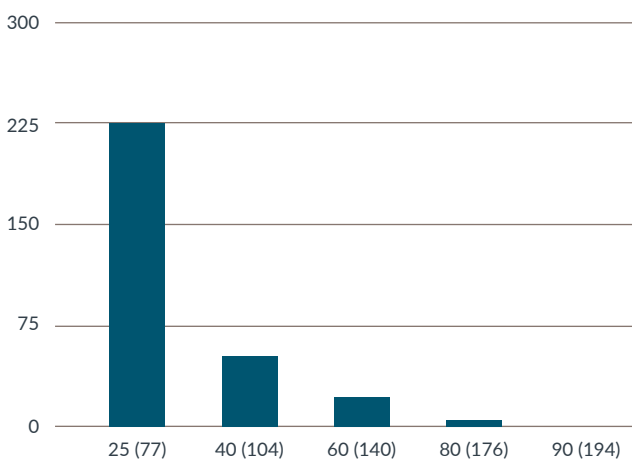
BSD-40 can be shipped in IBC tote containers or by bulk methods. Container should remain closed when not in use. Caution when handling and storing. PPE is required when handling this product. Consult the MSDS for complete handling instructions.

Fluid	Time dissolved
K _s DTPA (40%)	1 hour 44 mins
Enviro-Syn BSD-40	30 mins
DTPA-K5 + KOH*	0.28

Total Solubility Barium Sulfate



Barium Sulfate Temperature Dependent Dissolution of 0.02lb/gal



Barium Sulfate dissolution comparison between Na₄EDTA and BSD-40