

# ScaleFix SSD-E

**A unique sulfate scale dissolver with the ability to dissolve extremely high amounts of sulfate scale in a shorter amount of time**

ScaleFix SSD-E is a unique sulfate scale dissolver that has double the solubility ability of  $K_5DTPA$ , a leading chemistry used in this application.

The high-dissolving capacity of 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, ScaleFix SSD-E has a higher rate of dissolution compared to competing chemistries. This reduces the amount of soaking time required. The dissolution rate of sulfate does increase with temperature. ScaleFix SSD-E performs best at temperatures above  $40^{\circ}C$  ( $104^{\circ}F$ ). Treatment times vary between 8 - 24 hours depending on the temperature and degree of agitation.

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

ScaleFix SSD-E includes an additional surfactant package which further disperses barium sulfate scale after solubilizing to a size predominantly  $<1$  micron and prevents the scale from flocculating should there be a significant pH shift.

## Features

- Dissolves  $BaSO_4$ ,  $SrSO_4$  and  $CaSO_4$
- Non-corrosive to metal or typical oilfield elastomers and seals
- Low pH profile compared to other dissolvers, 10.5-11
- Thermal stability of  $132^{\circ}C$  ( $270^{\circ}F$ )
- Non-damaging to the formation
- Enhanced dissolving capacity of  $BaSO_4$
- 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	$25^{\circ}C$ / $-13^{\circ}F$
Boiling Point	$\sim >110^{\circ}C$ / $230^{\circ}C$
pH	$\sim 10.5 - 11$
Flash point °F	$100^{\circ}C$ / $212^{\circ}F$
Shelf Life	1 year
Solubility	Highly soluble in water
Thermal Ceiling	$130^{\circ}C$ / $270^{\circ}F$
Total solubility of $BaSO_4$	0.34lb/gal
Total solubility of $SrSO_4$	0.48lb/gal
Total solubility of $CaSO_4$	0.54lb/gal

## Applications

- ScaleFix SSD treatments are performed to remove sulfate scales located downhole:
  - Tubulars
  - Chokes and valves ( in, over and under DHSV, GLV, ASV etc. )
  - Freeing stuck equipment
  - Scale squeeze operations
- ScaleFix SSD can also be used to remove 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

ScaleFix SSD-E 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 ScaleFix SSD-E nitrile gloves, chemical goggles and protective clothing are required. Eye wash bottle/station and shower must be available. ScaleFix SSD-E 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. ScaleFix SSD-E is considered "corrosive" under the Transportation of Dangerous Goods regulations. Class 8, Packing Group III placards and labels must be displayed.

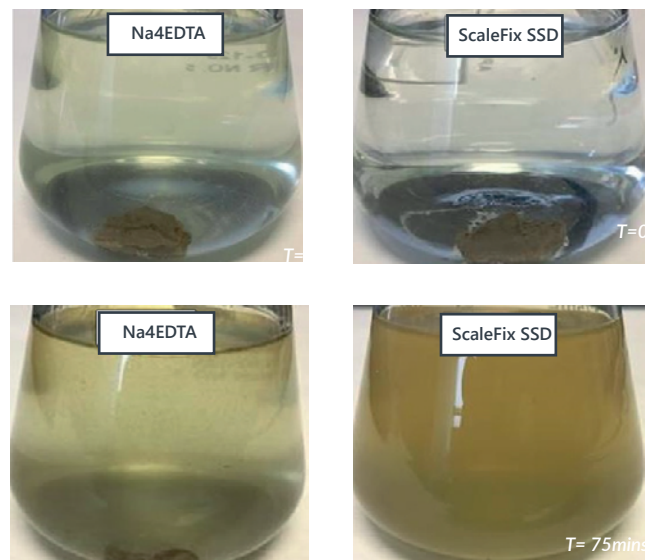
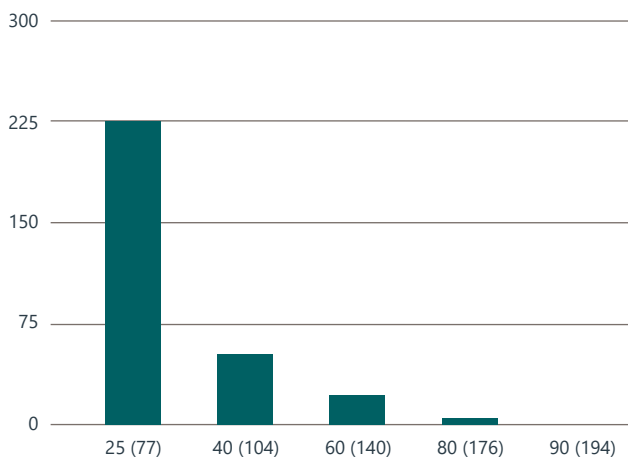
ScaleFix SSD-E can be shipped in IBC tote containers or by bulk methods. Container should remain closed when not in use. Caution when handling and storing. PPE is required when handling this product. Consult the MSDS for complete handling instructions.

Fluid	Time dissolved
K5DTPA (40%)	1 hour 44 mins
ScaleFix SSD	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 ScaleFix SSD