

SAFE-SCAV HSB

SAFE-SCAV* HSB hydrogen sulfide scavenger is brine soluble and remains soluble after reacting with H₂S. Based on an organic chemical in place of the typical zinc- or iron-base compound, it provides a solids-free solution to H₂S intrusion.

Typical Physical Properties

Physical appearance.....	Liquid
Specific gravity.....	1.08 @ 60°F (16°C)
pH (5% solution in 75/25 isopropanol/water)	9.4-11.4
Solubility in water.....	Soluble
Flash point.....	>212°F (>100°C) (PMCC)
Pour point.....	<-4°F (<-20°C)

Applications

SAFE-SCAV HSB scavenger is designed specifically for brine-base fluid systems to remove H₂S.

Recommended treatment levels are 0.1 lb/bbl (1 gal/100 bbl) (0.29 kg/m³). Use higher concentrations where higher levels of H₂S exist in the mud to be treated. Under optimal conditions, each pound per barrel (2.85 kg/m³) of SAFE-SCAV HSB scavenger can consume 800 mg/L of dissolved H₂S.

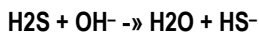
SAFE-SCAV HSB scavenger has been used successfully to treat water-base fluids where zinc cannot be used for environmental reasons.

Many hydrogen sulfide scavengers use inorganic chemicals to tie up H₂S. For example, zinc oxide is a partially soluble product which liberates zinc ion as a scavenger. Similarly, SV-120*, which is essentially completely soluble, yields an active zinc component for sulfide removal. Both products irreversibly tie up the zinc as solid zinc sulfide:



In many completion fluid applications, the resulting solid zinc sulfide is undesirable.

Another popular treatment for H₂S is to rely on high pH to neutralize the acidic hydrogen sulfide (also known as hydrosulfuric acid) and render it non-volatile.



This can be done in a completely solids-free way, and any base can do it; however, treatment with base raises the pH of the fluid. Getting enough sodium hydroxide in solution to provide a large capacity for scrubbing requires a very high pH, approximately 12 to 13. Lime is somewhat better in this regard because it has limited solubility at high pH. This allows additional capacity to scrub H₂S to be built up in the system in the form of undissolved lime.

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Eastern Hemisphere
 Gamle Forusvei 43
 N-4033 Stavanger,
 Norway
 Phone: +47-51-57-73-00
 Fax: +47-51-57-74-51

Western Hemisphere
 P.O. Box 42842
 Houston, Texas 77242-2842
 Phone: 281-561-1300
 Fax: 281-561-1441
 www.miswaco.slb.com



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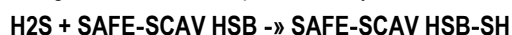


Applications (continued)

Organic amines, such as ethanolamine, can also provide a high-pH sink for H₂S, while buffer-ing the pH around 10.

All of these pH methods have a significant drawback in that the H₂S which is "scrubbed" will be immediately released if the pH is lowered. Carbon dioxide influx can lower the pH enough to release H₂S. Furthermore, while hydrogen sulfide is no longer being released, the corrosive effects are unabated and, in fact, can even be enhanced at higher pH.

SAFE-SCAV HSB scavenger offers a solution to many of these scavenging problems in non-zinc brines. While nitrogen-based, the unique chemistry of SAFE-SCAV HSB scavenger results in an irreversible reaction with H₂S:



Unlike the zinc or iron scrubbers, the final product is still brine- and water-soluble, delivering solids-free sulfide scrubbing.

Advantages

- Chemically "ties up" the H₂S in an irreversible reaction preventing release if pH is dropped
- Is not zinc-based
- Does not form a precipitate

Toxicity and Handling

Bioassay information is available upon request.

Handle as an industrial chemical, wearing protective equipment and observing the precautions described in the Material Safety Data Sheet (MSDS).

Packaging and Storage

SAFE-SCAV HSB scavenger is packaged in 5-gal (18.9-L) cans.

Store in a dry, well-ventilated area. Keep container closed. Store away from incompatibles. Follow safe warehousing practices regarding palletizing, banding, shrink-wrapping and/or stacking.

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Fax: 281-561-1441
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