

Safe-Scav NA

Safe-Scav* NA oxygen scavenger is a liquid bisulfite-base additive designed to be used in sodium-and potassium-base brines.

It reacts with, and eliminates, dissolved oxygen as a possible source of corrosion in workover and completion fluids as well as packer and drilling fluids. In addition to reducing oxygen corrosion, Safe-Scav NA additive is essential to extending the temperature limit of polymers, such as Flo-Vis* (xanthan gum) and Flo-Trol* (modified starch), used in the Flo-Pro* NT reservoir drill-in fluid system.

Typical Physical Properties

Physical appearance	Straw-to-yellow colored liquid
Specific gravity	1.3
pH (1% solution)	4.9-5.5
Solubility in water	Soluble

Applications

Safe-Scav NA additive inhibits corrosion caused by the presence of dissolved oxygen in completion and workover brines. It can be used in all monovalent-base brines which do not contain significant amounts of calcium or magnesium.

The recommended initial treatment is 1 gal/100 bbl of brine (0.24 kg/m³) (0.025% by volume). If the concentration of oxygen is known to be high, then this level should be increased. Safe-Scav NA additive should be added directly to the pump suction and not through the mixing hopper.

To reduce the amount of air entrained in the brine and the amount of oxygen which may be incorporated into the system, use of the mixing hopper and agitation of the completion fluid by surface equipment should be minimized.

To assure the complete removal of dissolved oxygen, maintain an excess sulfite (SO₃ 2-) content in the fluid of 100 to 300 ppm. For systems which contain some hardness or for polymer-viscosified brines, increase the concentration of excess sulfite to the 300-ppm level. Use a sulfite test kit to determine excess SO₃ 2-. Instructions are included in the test kit.

Inject Safe-Scav NA additive directly into the pump suction if at all possible and avoid exposure of the product to the air. The best method of application is to inject the product using a chemical proportioning pump. Injection rate is dependent upon the oxygen content and fluid circulation rate. Typical injection rates can be 1.0 to 2.5 gal/hr (3.8 to 9.5 L/hr). The injection rate should be adjusted based on the measured excess sulfite concentration at the flowline.

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Advantages

- Removes dissolved oxygen, thereby reducing corrosion
- Concentrated fast-acting oxygen scavenger, effective at low levels
- Liquid, easy-to-mix product
- Reduces rig equipment maintenance cost
- Extends the life of casing strings and production tubing

Limitations

- Is not compatible with calcium-containing fluids with total hardness >300 mg/L
- Is not compatible with aldehyde-type biocides

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).

CAUTION: Avoid exposure to Safe-Scav NA additive and handle only when fully protected. Open containers and mix only in a well-ventilated area; avoid inhaling any vapors. Safe-Scav NA additive is a highly reactive chemical; do not mix it directly with any other chemicals. The product should only be added directly to water or brine.

Packaging and Storage

Safe-Scav NA additive is packaged in 5-gal (18.9-L) cans.

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

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