

PETROSTEP[®] AOS-LT-C

Freeze/Thaw Stable Alpha Olefin Sulfonate

Alpha olefin sulfonates (AOS) are excellent foamers for oilfield applications. For cold-weather sites, however, typical AOS poses a handling issue because it does not reconstitute easily if it has been exposed to temperatures lower than its freeze point.

Stepan Oilfield Solutions' PETROSTEP AOS-LT-C is an advantaged AOS because it provides the desired foaming properties without the reconstituting issues.

A freeze/thaw stable AOS blend, PETROSTEP AOS-LT-C does not form a gel when thawed, as ordinary AOS does. It needs only mild agitation to have a uniform solution after thawing. In the images on reverse side, you can see the solution with PETROSTEP AOS-LT-C is clear after it has been frozen, thawed and mixed, whereas the solution with the typical AOS is cloudy due to the gel formation.



INITIAL



FROZEN, THAWED AND MIXED

TYPICAL PROPERTIES

- pH (as is): 11 minimum
- Flash Point (PMCC): > 94°C
- Color Gardner: 6 maximum
- Freeze Point: > -13°C
- Pour Point: > -12°C
- Viscosity at 25°C: 10 cps

In addition to improved handling characteristics, PETROSTEP AOS-LT-C has the characteristics of a typical AOS. It is preserved with excess alkalinity. The table below shows the comparison of properties between a typical AOS and PETROSTEP AOS-LT-C.

TEST	TYPICAL AOS	PETROSTEP AOS-LT-C
SURFACE TENSION	39 MN/M	40 MN/M
CMC	1150 MG/L	1330 MG/L
IFT (DECANE)	8 MN/M	14 MN/M
DRAVES WETTING*	18 SECONDS	25 SECONDS
SHAKE FOAM	340 ML @ 15 SECONDS 340 ML @ 5 SECONDS	440 ML @ 15 SECONDS 440 ML @ 5 MINUTES
ROSS-MILES FOAM	12.6 ML INITIAL 12.6 ML @ 5 MINUTES	12.6 ML INITIAL 12.6 ML @ 5 MINUTES

Test was performed at 0.1 wt% of PETROSTEP AOS-LT-C in deionized water solution.

**Draves wetting test was performed at 0.1% of actives in deionized water.*

PETROSTEP® is a registered trademark of Stepan Company. The information contained herein is based on the manufacturer's own study and the works of others and is subject to change without prior notice. The information is not intended to be all-inclusive, including as to the manner and conditions of use, handling, storage or disposal or other factors that may involve additional legal, environmental, safety or performance considerations. Nothing contained herein grants or extends a license, express or implied, in connection with any patents issued or pending of the manufacturer or others, or shall be construed as a recommendation to infringe any patents. STEPAN COMPANY MAKES NO PRODUCT WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR USE, EXPRESS OR IMPLIED, AND NO OTHER WARRANTY OR GUARANTY, EXPRESS OR IMPLIED, IS MADE, INCLUDING AS TO INFORMATION REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY, ACCURACY, COMPLETENESS, OR ADEQUACY. Stepan Company (and its employees, subsidiaries and affiliates) shall not be liable (regardless of fault) to the vendee, its employees, or any other party for any direct, indirect, special or consequential damages arising out of or in connection with the accuracy, completeness, adequacy, furnishing, use, or reliance upon information provided herein. The vendee assumes and releases Stepan Company (and its employees, subsidiaries and affiliates) from all liability, whether in tort, contract or otherwise to the fullest extent possible under the relevant law.