

Product Bulletin

Product Name
Chemical Structure
CAS Registry No.
Chemical Description
Applications

BIO-SOFT® N91 SERIES

CH₃(CH₂)_n-O(CH₂CH₂O)_y n = 8-10
y = average moles of ethoxylation

68439-46-3

Alcohol ethoxylates based on a C9-11 synthetic alcohol

The BIO-SOFT N91 series is a line of high active nonionic surfactants. The BIO-SOFT N91 series products are stable in both aqueous acidic and alkaline solutions, allowing for application in a wide range of products. The alcohol ethoxylates containing between one and five moles of ethoxylation are primarily useful in oil-based systems.

Functional Properties

- Detergent
- Excellent wetting agents
- Moderate foam production
- Compatible with a number of solvents
- Emulsification
- Solubilizer
- Can be used in conjunction with anionic, amphoteric and cationic surfactants

End Product Uses

- Laundry products
- All-purpose cleaners
- I&I cleaners
- Paints
- Hard surface cleaners
- Pesticides
- Textiles
- HI&I machine based low foam cleaning (BIO-SOFT N91-2.5 only)

Typical Properties

	<u>BIO-SOFT N91-2.5</u>	<u>BIO-SOFT N91-6</u>	<u>BIO-SOFT N91-8</u>
Appearance at 25 °C.....	Clear to slightly hazy liquid	Clear to slightly hazy liquid	Clear to slightly hazy liquid
Average No. Moles EO.....	2.5	6.0-6.5	8.3
HLB	8.5	12.4	13.9
pH, 1% aqueous.....	6.7	6.0	6.0
Density, g/ml (lbs/U.S. gal).....	0.925 (7.71)	0.990 (8.25)	1.008 (8.40)
Actives, %	99.5 min.	99.5 min.	99.5 min.
Color, APHA.....	50 max.	50 max.	50 max.
Pour Point, °C (°F)	-13(9)	6 (43)	15 (59)
Viscosity at 38 °C (100 °F), cps.....	13	22	29
Cloud Point, 1% aqueous, °C (°F).....	N/A	47-58 (116-136)	78-85 (172-185)
Flash Point, PMCC, °C (°F).....	>94 (>201)	>94 (>201)	>94 (>201)
RVOC, U.S. EPA, %.....	0	0	0
Preservative	Not required	Not required	Not required

Environmental Effects

The BIO-SOFT N91 Series products are readily biodegradable. A detailed biodegradability statement is available upon request.

Health Effects

The BIO-SOFT N91 Series products are slightly toxic orally (LD₅₀ ≥ 2700mg/kg). Undiluted the BIO-SOFT N91 Series products are severe skin and eye irritants while a 1% dilution generally causes slight to mild skin irritation. A detailed mammalian toxicity statement is available upon request.



Storage & Handling

Normal safety precautions (i.e., gloves, safety goggles) should be employed when handling BIO-SOFT N91 Series products. Avoid contact with eyes, nose or prolonged skin contact. Wash exposed areas thoroughly after handling material.

While diluting the BIO-SOFT N91 Series products, as with all alcohol ethoxylates, they are prone to gelling. If the product is diluted into water, heating may be required to minimize or eliminate gel formation.

It is recommended that the BIO-SOFT N91 Series products be stored in sealed containers and kept in a cool, dry place. If the products are frozen, they should be heated gently and stirred to ensure they are homogeneous before use.

Standard Packaging: The BIO-SOFT N91 Series products are available in 55-gallon drums (450lb/205 kg) and in bulk quantities.

Workplace Exposure

Occupational exposure can occur primarily through skin contact or via inhalation of vapors and mists. Engineering controls, personal protective equipment, and other workplace practices should be used to control these exposures.

Clearances

All components of the BIO-SOFT N91 Series products are listed in the following countries; the registration number of the active ingredient is listed in parentheses: United States (TSCA 68439-46-3), Canada (DSL 68439-46-3), Australia (AICS 68439-46-3), Korea (ECL KE-13383), Philippines (PICCS 68439-46-3), China (IECSC 68439-46-3), Japan (ENCS 7-97), and New Zealand (NZIoC 68439-46-3).

It is the responsibility of the formulator to review the chemical control regulations for each country where the end product is intended to be sold or used.

The BIO-SOFT N91 Series is available as Kosher Certified.

The BIO-SOFT N91 Series is approved for use under EPA 40CFR 180.910, pre- and post-harvest, 180.930, animals.

BIO-SOFT N91-6 and BIO-SOFT N91-8 meet the U.S. EPA Safe Choice Program's surfactant screen and are listed on www.cleangredients.org (an on-line database for green formulators). For further information, visit www.cleangredients.org. Additional Stepan ingredient listing can be found at www.stepan.com.

Product Stewardship

This product bulletin has been written in accordance with ACC's Product Stewardship guidelines.

Additional Safety Information

A Safety Data Sheet is available upon request.



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."

Stepan 
Corporate Headquarters
Northfield, Illinois 60093, U.S.A.
Phone: 847-446-7500
Fax: 874-501-2100
Website: www.stepan.com

For Technical Service Call:
Stepan North America **+1-800-745-7837**
Stepan Mexico **+55-11-5089-2208**
Stepan Quimica **+55-11-5089-2200**
Stepan Colombia **+571-636-2808**
Stepan Europe **+33-476-505-160**
Stepan Asia **+656-879-9855**
Stepan Philippines **+656-879-9855**

For Customer Service Call:
Stepan North America **+1-800-457-7673**
Stepan Mexico **+52-555-533-1967**
Stepan Quimica **+55-11-5089-2200**
Stepan Colombia **+57-6-8993125**
Stepan UK **+44-161-338-5511**
Stepan France **+33-476-50-51-00**
Stepan Philippines **+63-2-842-7951**