

**TEXAS SPECIFICATION NO. 180-93-03B**  
**SURFACTANT, NONIONIC -- LINEAR PRIMARY ALCOHOL ETHOXYLATE**  
 Effective Date: May 2011

1. **SCOPE:** This specification establishes the minimum requirements for a linear alcohol ethoxylate for use in liquid laundry detergents and janitorial products.

This surfactant is severely irritating to the eyes and skin, and is slightly toxic if absorbed through the skin. If inhaled, the product may make breathing difficult. See the manufacturer's Material Safety Data Sheet (MSDS) for handling and emergency procedures.

2. **DEFINITIONS:**

Terminology used in this specification is intended to be generic in nature and consistent with meanings that have been defined through general use and/or accepted trade practices. Where variant meanings may exist, the applicable interpretation shall be determined by the Texas Procurement and Support Services, a division of the Texas Comptroller of Public Accounts (CPA).

3. **SPECIFICATION REQUIREMENTS:** Surfactant furnished under this specification shall meet or exceed the following requirements:

3.1 **GENERAL REQUIREMENTS:** The product shall be a clear to hazy, sediment free liquid with a mild odor

3.2 **CHEMICAL AND PHYSICAL REQUIREMENTS:** The product shall conform to the requirements below, when tested by the procedure of Section 4.

Property	Requirement	Testing Method
Hydroxyl Number, mg KOH/g	97 - 123	ASTM D 4252
EO/Alcohol, Mol/Mol <b>OR</b> ,	6.0 - 7.5	Paragraph 6.1.
Ethylene Oxide Content, *pbw	57 - 60	ASTM D 2959
Water, *pbw	0.3 maximum	ASTM 1364 /E 203
Ash, *pbw	0.2 maximum	ASTM D 482
Cloud Point, 1% aqueous, C	40 - 57	ASTM D 2024
Pour Point, C	15 approximately	ASTM D 97
Specific gravity, 25/25 C	0.97 - 0.99	ASTM D 2111
pH, 1% solution	5.5 - 7.5	ASTM E 70
Color, Pt-Co (APHA)	50 maximum	ASTM D1209

**\*pbw: percent by weight**

4. **TESTING:** Testing shall be performed by **American Society for Testing and Materials (ASTM)** procedures: [www.astm.org](http://www.astm.org)

**ASTM D 97** - Standard Test Method for Pour Point of Petroleum Products

**ASTM D 482** - Standard Test Method for Ash from Petroleum Products

**ASTM D 1209** - Standard Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)

**ASTM D 1364** - Standard Test Method for Water in Volatile Solvents (Karl Fischer Reagent Titration Method)

**ASTM D 2024** - Standard Test Method for Cloud Point of Nonionic Surfactants

**ASTM D 2111** - Standard Test Method for Specific Gravity of Halogenated Organic Solvents and their Admixtures

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**ASTM D 2959** - Standard Test Method for Ethylene Oxide Content of Polyethoxylated Nonionic Surfactants

**ASTM D 4252** - Standard Test Method for Chemical Analysis of Alcohol Ethoxylates and Alkylphenol Ethoxylates

**ASTM E 70** - Standard Test Method for pH of Aqueous Solutions the Glass Electrode

**ASTM E 203** - Standard Test Method for Water Using Volumetric Karl Fischer Titration

Testing shall be done by an independent laboratory (preferred ASTM recommended, <http://www.astm.org/LABS/search.html>). Tests shall be performed on products will be provided to ordering agencies.

The product furnished under this specification shall be tested by the following methods for the chemical and physical requirements as listed in the table of Section 3.2:

- 4.1 **EO/Alcohol Ratio:** Calculate the EO/alcohol ratio from the hydroxyl number and the molecular weight of the parent alcohol.
- 4.2 **Certification:** When so specified in the Invitation for Bids, the vendor shall provide technical data sheets from the manufacturer and material safety data.
5. **INSPECTION:** Products furnished under this specification shall be inspected by, or at the direction of the customer at the time of delivery.
6. **PACKAGING:**  
Container Size: The product shall be furnished in non-returnable, 55 gallon tight-head steel drums, weigh approximately 450 pounds. The material of the container shall neither affect nor be affected by the contents for a period of one year from date of delivery.

Storage: Safe and proper handling and disposal shall be indicated.

Packing for shipment shall be in accordance with the manufacturer's standard practice and in a manner readily accepted by common carriers engaged in interstate commerce. Within the shipping carton, units shall be packed in a manner designed to minimize damage during the shipment because of rough or improper handling.

6.1. **PACKAGE MARKINGS:** Each shipping container shall be clearly marked with the following:

- 6.1.1. Name of contents, including brand name, if any.
- 6.1.2. Quantity contained in pounds and/or kilograms.
- 6.1.3. Name and address of the manufacturer.
- 6.1.4. Warning statements as required by governmental regulations. A label on a container of a hazardous chemical must meet the requirements of the most current OSHA standards.
- 6.1.5. The following additional information shall either be marked on the container or appear on the shipping documents:
  - Purchase order number or contract number.
  - Name and address of customer.
  - Customer's requisition number.

6.2. **LABELING:** Each container shall bear a durable label containing the name of the product and

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instructions for use, including required precautionary statements.

7. **COMPLIANCE:** The vendor must comply with the following documents upon delivery:

**7.1. Certificate of Analysis (CA):** A certificate of analysis from the manufacturer shall be submitted with each shipment.

**7.2. Material Safety Data Sheets (MSDS):** All Items must conform to the Texas Hazard Communications Act by being certified as nontoxic or providing an official MSDS sheet conforming to the requirements of the most current OSHA standards. A copy of the official MSDS sheet for each applicable chemical product must be submitted with each sample; each initial shipment; and updated MSDS must be provided with the first shipment after update.

8. **APPROVED PRODUCTS LIST (APL):**

The CPA maintains an APL of products that meet or exceed the requirements of this specification. The products being approved are listed as follows:

<b>Manufacturer</b>	<b>Brand Name / Product Number</b>
Tomah Chemical Company	TOMADOL 23-6.5
Huntsman Chemical Company	Surfonic L24-7
Vista Chemical Company	ALFONIC 1412-60
Stepan	BIO-SOFT N 23-6.5

**To have a new product listed on the APL, the following procedures are required:**

8.1. Submit a written request to CPA, Texas Procurement and Support Services Division and include the following documentations:

- **Official Certificate of Analysis from an independent laboratory**  
The official Certificate of Analysis must list the following:
  - ✓ Chemical Name (CTFI/INCI name) and CAS No.
  - ✓ Manufacturer Name
  - ✓ Brand Name or Trade Name
  - ✓ Batch or Lot Identification Number
  - ✓ Each analytical result given as outlined in the RFP specifications
  - ✓ Laboratory Name, Address, and Contact Information
- **Detailed technical specifications**
- **Product literature**
- **Material Safety Data Sheet (MSDS)**

8.2. The Certificate of Analysis will be reviewed and if approved, samples will be requested, in writing by CPA, for compatibility testing. The shipping instructions will be provided to the vendor at the time of the request.

8.3. A minimum of sixty (60) days will be required for compatibility testing to be conducted.

8.4. Sample sizes should be no less than 250 grams for powders and 500 ml for liquids. **Each sample must be accompanied with a current MSDS from the manufacturer.** More samples may be

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requested in writing by CPA. Samples will not be accepted unless accompanied with the current MSDS document for that material.

- 8.5. **CONTINUED COMPLIANCE:** Listing an approved product shall not relieve the vendor of providing products meeting each requirement of this specification. The vendor shall notify the CPA, in writing, of any changes in the product, address, brand name, etc.
- 8.6. **REMOVAL FROM APL:** Products on the APL may be removed for non-compliance, as determined by the CPA, or for failure to provide notification of any change to APL product(s).