SAFETY DATA SHEET

By Product Ethoxylate

SECTION 1  IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

<table>
<thead>
<tr>
<th>Trade name</th>
<th>By Product Ethoxylate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>Ethoxylated Alcohol</td>
</tr>
<tr>
<td>Use</td>
<td>Agricultural</td>
</tr>
<tr>
<td>Company</td>
<td>Sasol Chemicals (USA) LLC</td>
</tr>
<tr>
<td></td>
<td>(an affiliate of Sasol Chemicals North America LLC)</td>
</tr>
<tr>
<td>Address</td>
<td>12120 Wickchester Lane, Houston, TX 77079</td>
</tr>
<tr>
<td>Telephone</td>
<td>CHEMTREC North America Transportation Emergency (24-hr) (800) 424 9300</td>
</tr>
<tr>
<td></td>
<td>CHEMTREC World Wide (703) 527-3887</td>
</tr>
<tr>
<td></td>
<td>Other Emergencies (24-hr) (337) 494 5142</td>
</tr>
<tr>
<td></td>
<td>SDS and Product Information (8:00am-4:30pm CST) (281) 588 3491</td>
</tr>
<tr>
<td></td>
<td>Health and Safety Information (7:30am-4:00pm CST) (281) 588 3492</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:SasolElectronicSDS@us.sasol.com">SasolElectronicSDS@us.sasol.com</a></td>
</tr>
</tbody>
</table>

SECTION 2  HAZARDS IDENTIFICATION

<table>
<thead>
<tr>
<th>OSHA/GHS Hazards</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (Oral)</td>
<td>4</td>
</tr>
<tr>
<td>Acute toxicity (Dermal)</td>
<td>4</td>
</tr>
<tr>
<td>Serious eye damage</td>
<td>1</td>
</tr>
<tr>
<td>Skin irritation</td>
<td>2</td>
</tr>
<tr>
<td>Acute aquatic toxicity</td>
<td>1</td>
</tr>
<tr>
<td>Chronic aquatic toxicity</td>
<td>3</td>
</tr>
</tbody>
</table>

LABEL ELEMENTS

Hazard symbols

Signal word: Danger

Hazard statements

H302  Harmful if swallowed.
H312  Harmful in contact with skin.
H315  Causes skin irritation.
H318  Causes serious eye damage.
H400  Very toxic to aquatic life.
H412  Harmful to aquatic life with long lasting effects.
SAFETY DATA SHEET

By Product Ethoxylate

Precautionary statements

**Prevention**
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ eye protection/ face protection.
P273 Avoid release to the environment.

**Response**
P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P303 Rinse mouth.
P302 + P313 If skin irritation occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P391 Collect spillage.

**Disposal**
P501 Dispose of contents/ container to an approved waste disposal plant.

**Additional advice**
This product may contain residual levels of alcohols which, even under normal handling conditions, may smell and irritate the eyes, nose, and throats of some individuals.

### SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohols, C6-C12, ethoxylated</td>
<td>68439-45-2</td>
<td>0 - 100</td>
</tr>
<tr>
<td>Alcohols, C10-16, ethoxylated</td>
<td>68002-97-1</td>
<td>0 - 100</td>
</tr>
<tr>
<td>Alcohols, C12-18, Ethoxylated</td>
<td>68213-23-0</td>
<td>0 - 100</td>
</tr>
<tr>
<td>Alcohols, C16-C18, ethoxylated</td>
<td>68439-49-6</td>
<td>0 - 100</td>
</tr>
<tr>
<td>Castor oil, ethoxylated</td>
<td>61791-12-6</td>
<td>0 - 10</td>
</tr>
<tr>
<td>1,4-Butanediol, ethoxylated</td>
<td>61886-16-6</td>
<td>0 - 10</td>
</tr>
<tr>
<td>Polyethylene glycol</td>
<td>25322-68-3</td>
<td>0 - 10</td>
</tr>
</tbody>
</table>

See Section 8 for Exposure Guidelines and Section 15 for Regulatory Classifications.

### SECTION 4 FIRST AID MEASURES

**Eye contact** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**Skin contact** Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. When symptoms persist or in all cases of doubt seek medical advice. Wash contaminated clothing before re-use.
Inhalation  Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately.

Ingestion  If swallowed, call a poison control centre or doctor immediately. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

SECTION 5  FIREFIGHTING MEASURES

FLAMMABLE PROPERTIES

Fire/explosion  NFPA Class IIIB combustible liquid.

Suitable extinguishing media  Water spray, Foam, Dry chemical, Carbon dioxide (CO2)

Protective equipment and precautions for firefighters  Wear self-contained breathing apparatus for firefighting if necessary.

Further information  Keep containers and surroundings cool with water spray. Do not use a solid water stream as it may scatter and spread fire. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6  ACCIDENTAL RELEASE MEASURES

Methods and materials for containment and cleaning up  Evacuate personnel to safe areas. Remove all sources of ignition. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Do not flush into surface water or sanitary sewer system.

SECTION 7  HANDLING AND STORAGE

Safe handling advice  Take precautionary measures against static discharges.

Storage/Transport pressure  Ambient

Load/Unload temperature  Above product melting point.

Storage and handling materials  Suitable: Carbon steel coated with baked phenolic. Any moisture may cause rusting of carbon steel. If product is moisture free, uncoated carbon steel tanks.
Further information on storage conditions
Mix thoroughly before use. When stored in the liquid form, ethoxylates should be padded with a dry inert gas, such as nitrogen, to prevent oxygen or air from entering the tank. Prolonged storage in the presence of air or oxygen may cause product degradation. Oxidation is not expected when stored under a nitrogen atmosphere. Inert gas blanket and breathing system needed to maintain color stability. Use dry inert gas having at least -40°C (-40°F) dew point.

SECTION 8  EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING MEASURES
Ensure adequate ventilation, especially in confined areas. Trace amounts of ethylene oxide may be present in the product and could accumulate in vapor spaces of storage or transport vessels.

PERSONAL PROTECTIVE EQUIPMENT

Eyes
Wear as appropriate: Goggles, Face-shield

Skin
Full protective clothing, chemical boots, and chemical gloves. High standards of skin care and personal hygiene should be exercised at all times.

Inhalation
Use respirator when performing operations involving potential exposure to vapour of the product. Use NIOSH approved respiratory protection.

EXPOSURE GUIDELINES

<table>
<thead>
<tr>
<th>Components</th>
<th>Exposure limit(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Ethandiol</td>
<td>ACGIH STEL (Short Term Exposure Limit) 10 mg/m3 (inhaleable fraction)</td>
</tr>
<tr>
<td></td>
<td>ACGIH TLV (8-hour) 25 ppm (vapor fraction)</td>
</tr>
<tr>
<td></td>
<td>ACGIH STEL (Short Term Exposure Limit) 50 ppm (vapor fraction)</td>
</tr>
</tbody>
</table>

PEL= Permissible Exposure Limits  
TLV= Threshold Limit Value  
EL= Excursion Limit  
TWA= Time Weighted Average (8 hr.)  
STEL= Short Term Exposure Limit (15 min.)  
WEEL= Workplace Environmental Exposure Level

SECTION 9  PHYSICAL AND CHEMICAL PROPERTIES

Appearance     liquid;

Colour         Clear to slightly hazy

Form           liquid

Odour          sweet pungent

Odour Threshold No data available

Flash point    > 212 °C, > 413 °F; PM;
SAFETY DATA SHEET

By Product Ethoxylate

**Flammability**
Upper explosion limit: No data available
Lower explosion limit: No data available

**Boiling point/boiling range**
ca. 121 - 260 °C, 250 - 500 °F;

**Melting point/range**
-5 - 31 °C, 23 - 87.8 °F;

**Auto-ignition temperature**
Typically > 236 °C, > 457 °F;

**Decomposition temperature**
No data available

**Flammability (solid, gas)**
No data available

**Vapour pressure**
egligible

**Vapour density**
> 4

**Density**
0.87 - 0.97 g/cm³

**Relative density**
No data available

**Water solubility**
partly miscible

**Viscosity**
No data available

**pH**
No data available

**Evaporation rate**
No data available

**Partition coefficient: n-octanol/water**
No data available

---

**SECTION 10 STABILITY AND REACTIVITY**

**Reactivity**
Stable at normal ambient temperature and pressure.

**Chemical stability**
No decomposition if stored and applied as directed.
Conditions to avoid

Reacts slowly with air or oxygen. Storage under heated conditions in the presence of air or oxygen increases reaction rate. For example, after storing at 95°F/35°C for 30 days in the presence of air, there is measureable oxidation of the ethoxylate. Lower temperatures will allow for longer storage time and higher temperatures will shorten the storage time if stored under an air or oxygen atmosphere.

Hazardous decomposition products

When storing this product in air or oxygen, decomposition may occur, generating vapors which could be irritating. Ensure adequate ventilation, especially in confined areas. Oxidation is not expected when stored under a nitrogen atmosphere.

Materials to avoid

Can react with strong oxidizers, inorganic acids, and halogens.

Hazardous polymerisation

None.

SECTION 11

TOXICOLOGICAL INFORMATION

Additional Remarks

The product itself has not been tested. May be harmful by inhalation, ingestion, skin absorption.

Acute dermal toxicity

LD50: 1,000 - 2,000 mg/kg

Acute inhalation toxicity

LC50 value expected to exceed the saturated vapor concentration in air.

Acute oral toxicity

LD50: 1,000 - 2,000 mg/kg

Skin corrosion/irritation

Irritating to skin.

Serious eye damage/eye irritation

Causes severe irritation

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

Genotoxicity in vitro: No data available

Genotoxicity in vivo: No data available

Assessment Mutagenicity: No data available

Reproductive toxicity

Reproductive toxicity: No data available
**SAFETY DATA SHEET**

**By Product Ethoxylate**

**Assessment Reproductive toxicity:**
No data available

**Teratogenicity:**
No data available

**Assessment teratogenicity:**
No data available

**STOT - single exposure**
No data available

**STOT - repeated exposure**
No data available

**Aspiration toxicity**
No data available

**Carcinogenicity**
**Assessment carcinogenicity:**
No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**SECTION 12 ECOLOGICAL INFORMATION**

**Aquatic toxicity**
Very toxic to aquatic life. Harmful to aquatic life with long lasting effects.

**Toxicity to fish**
LC50 (Fish) 96 hours: > 0.1 - 1 mg/l
Category approach

**Toxicity to aquatic invertebrates**
EC50 (Daphnia (water flea)) 48 hours: > 0.1 - 1 mg/l
Category approach

**Toxicity to algae**
EC50 (Green algae) 72 hours: > 0.1 - 1 mg/l
Category approach

**Chronic toxicity to fish**
No data available

**Chronic toxicity to aquatic invertebrates**
EC10 (Daphnia (water flea)) 21 d: > 0.1 - 1 mg/l
Category approach

**Biodegradation**
Expected to be biodegradable
This product has not been tested for biodegradability.

**Bioaccumulative potential**
No data available

**Mobility in soil**
No data available
SECTION 13  DISPOSAL CONSIDERATIONS

Waste Code  Any unused product or empty containers may be disposed of as non-hazardous in accordance with state and federal requirements. Re-evaluation of the product may be required by the user at the time of disposal, since the product uses, transformations, mixtures, contamination, and spillage may change the classification. If the resulting material is determined to be hazardous, please dispose in accordance with state and federal (40 CFR 262) hazardous waste regulations.

Disposal methods  Dispose of only in accordance with local, state, and federal regulations.

Empty containers  Empty containers retain product residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Empty drums should be completely drained, triple-rinsed, properly bunged and promptly returned to a drum reconditioner, or properly disposed.

SECTION 14  TRANSPORT INFORMATION

DOT  UN 3082, Environmentally hazardous substance, liquid, n.o.s. (Alcohol C12-16 poly (1-6) ethoxylate), 9, III, Marine pollutant
Not regulated in non-bulk packaging of 119 gallons or less or a net mass of 882 pounds or less per package.

IATA  UN 3082, Environmentally hazardous substance, liquid, n.o.s. (Alcohol C12-16 poly (1-6) ethoxylate), 9, III
Not regulated in non-bulk packaging of 5L or less or a net mass of 5kg or less per package.

IMDG  UN 3082, Environmentally hazardous substance, liquid, n.o.s., (Alcohol C12-16 poly (1-6) ethoxylate), 9, III, Marine pollutant
This product is regulated as a Marine Pollutant when shipped by water in all quantities according to the IMDG Code.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Remarks  No data available

SECTION 15  REGULATORY INFORMATION
SAFETY DATA SHEET

By Product Ethoxylate

U.S. FEDERAL REGULATIONS

TSCA Inventory Listing

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohols, C6-C12, ethoxylated</td>
<td>68439-45-2</td>
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<td>68439-49-6</td>
</tr>
<tr>
<td>Castor oil, ethoxylated</td>
<td>61791-12-6</td>
</tr>
<tr>
<td>Poly(oxy-1,2-ethanediyl), α,α'-1,4-butanediylbis[ω-hydroxy-</td>
<td>61886-16-6</td>
</tr>
<tr>
<td>Poly(oxy-1,2-ethanediyl),.alpha.-hydro-.omega.-hydroxy-</td>
<td>25322-68-3</td>
</tr>
</tbody>
</table>

All chemical substances in this product are either on the TSCA Active Inventory, or in compliance with the inventory.

SARA 302 Status

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SARA 311/312 Classification

Skin irritation, Serious eye damage, Acute toxicity

SARA 313 Chemical

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Ethanediol</td>
<td>107-21-1</td>
<td>&lt;= 900 PPM</td>
</tr>
</tbody>
</table>

US. EPA CERCLA Hazardous Substances (40 CFR 302)

<table>
<thead>
<tr>
<th>Components</th>
<th>Reportable Quantity</th>
<th>Weight percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Ethanediol</td>
<td>5,000 LB</td>
<td>&lt;= 900 PPM</td>
</tr>
</tbody>
</table>

INTERNATIONAL REGULATIONS

WHMIS Classification

- Acute toxicity (Oral) Category 4
- Acute toxicity (Dermal) Category 4
- Serious eye damage Category 1
- Skin irritation Category 2
- Acute aquatic toxicity Category 1
- Chronic aquatic toxicity Category 3
European Union
Classification according to Regulation (EU) 1272/2008.
Acute toxicity (Oral), Category 4
Acute toxicity (Dermal), Category 4
Serious eye damage, Category 1
Skin irritation, Category 2
Acute aquatic toxicity, Category 1
Chronic aquatic toxicity, Category 3

Australia. Inventory of Chemical Substances (AICS)    Listed
Japan. Inventory of Existing and New Chemical Substances (ENCS)    Not listed
Japan. ISHL - Inventory of Chemical Substances    Not listed
Canada. Domestic Substances List (DSL) Inventory    Listed
Canada. Non-Domestic Substance Listing (NDSL)    Not listed
Philippines. Inventory of Chemicals / Chemical Substances (PICCS)    Listed
Korea. Existing Chemicals Inventory (KECI)    Not listed
China. Inventory of Existing Chemical Substances (IECSC)    Listed
Mexico. National Inventory of Chemical Substances (INSQ)    Not listed
New Zealand. Inventory of Chemical Substances (NZIoC)    Not listed
Switzerland. Inventory of Notified New Substances (CHINV)    Not listed
Taiwan. National Existing Chemical Inventory (NECI)    Not listed

Please note: The names and CAS numbers which are used for this product in the stated inventories may deviate from the information which is listed in Section 3.

STATE REGULATIONS

California Prop. 65
Components
Ethylene Oxide
1,2-Ethanediol

CAS-No.
75-21-8
107-21-1

Sasol Chemicals (USA) LLC's ethoxylation products may contain detectable quantities of ethylene oxide and 1,2-Ethanediol which are chemicals on the California Proposition 65 list. The level is typically below 1.0ppm for Ethylene Oxide and below 1000ppm for 1,2-Ethanediol, although it may vary. The manufacturing process is controlled to reduce the residual ethylene oxide and 1,2-Ethanediol content.
By Product Ethoxylate

SECTION 16 OTHER INFORMATION

HAZARD RATINGS

<table>
<thead>
<tr>
<th></th>
<th>Health</th>
<th>Flammability</th>
<th>Physical Hazard/Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMIS®</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>NFPA</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

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