SAFETY DATA SHEET

By Product Ethoxylate

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

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

SECTION 2 HAZARDS IDENTIFICATION

OSHA/GHS Hazards
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

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.
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.
P330  Rinse mouth.
P302 + P352  IF ON SKIN: Wash with plenty of soap and water.
P332 + 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.
By Product Ethoxylate

**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**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fire/explosion</strong></td>
<td>NFPA Class IIIB combustible liquid.</td>
</tr>
</tbody>
</table>

**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

Eye 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-Ethanediol</td>
<td>ACGIH STEL (Short Term Exposure Limit) 10 mg/m3 (inhaerable 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;
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**
- negligible

**Vapour density**
- > 4

**Density**
- 0.87 - 0.97 g/cm3

**Specific gravity**
- 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.
By Product Ethoxylate

**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 measurable 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.

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**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
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
By Product Ethoxylate

Other adverse effects  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
This product is regulated as a hazardous material according to the Department of Transportation only in bulk quantities (greater than 119 gallons per package).

IATA  UN 3082, Environmentally hazardous substance, liquid, n.o.s. (Alcohol C12-16 poly (1-6) ethoxylate), 9, III
This product is regulated as a dangerous good as defined by ICAO/IATA for air transportation.

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
U.S. FEDERAL REGULATIONS

TSCA Inventory Listing

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
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<tbody>
<tr>
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</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),.α-hydro-.ω-hydroxy-</td>
<td>25322-68-3</td>
</tr>
</tbody>
</table>

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 |
By Product Ethoxylate

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 Not listed
New Zealand. Inventory of Chemical Substances Not listed
Switzerland 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.

SECTION 16 OTHER INFORMATION

HAZARD RATINGS

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

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SAFETY DATA SHEET

By Product Ethoxylate

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