1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name(s) and Synonyms: SA 320; Sulfonic Acid; Mono Linear Dodecyl Benzene Sulfonic Acid; Mono Linear Alkyl Benzene Sulfonic Acid

Product Uses: For use in the manufacture of surfactants

COMPANY IDENTIFICATION: EMERGENCY TELEPHONE NUMBERS

Allied Petrochemical, LLC CHEMTREC: 800-424-9300
2330 F.M. 2917
Alvin, TX 77511

MSDS Requests: (281) 393-1233
Environmental, Safety, & Health Info: (281) 393-1233
Product Information: (281) 393-1233

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS #</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono Linear Dodecyl Benzene Sulfonic Acid</td>
<td>27176-87-0</td>
<td>95 – 98</td>
</tr>
<tr>
<td>Benzene, C10-C16 Alkyl derivatives</td>
<td>68648-87-3</td>
<td>0.5 – 3.50</td>
</tr>
<tr>
<td>Sulfuric Acid</td>
<td>7664-93-9</td>
<td>1.00 – 1.5</td>
</tr>
</tbody>
</table>

Toxicological Data on Ingredients: Linear Mono Alkyl Benzene Sulfonic Acid: ORAL (LD50): Acute: 650 mg/kg [Rat].

3. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Extremely hazardous in case of eye contact (irritant). Very hazardous in case of skin contact (irritant), of ingestion, of inhalation (lung irritant). Hazardous in case of skin contact (permeator). Slightly hazardous in case of skin contact (corrosive). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.

Repeated or prolonged contact with spray mist may produce chronic eye irritation, severe skin irritation and respiratory tract irritation leading to frequent attacks of bronchial infection.

4. FIRST AID MEASURES

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with
running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

**Serious Skin Contact:**
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhalation:**
Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

**Serious Inhalation:**
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

**Ingestion:**
Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**Serious Ingestion:**
Not available.

### 5. FIRE FIGHTING MEASURES

<table>
<thead>
<tr>
<th>NFPA Rankings:</th>
<th>Health: 2</th>
<th>Fire: 1</th>
<th>Reactivity: 0</th>
</tr>
</thead>
</table>

- **Flammability of the Product:** May be combustible at high temperature.
- **Auto-Ignition Temperature:** Not available.
- **Flash Points:** COC: > 200°F.
- **Flammable Limits:** Not available.
- **Products of Combustion:** SO₂, CO, CO₂
- **Fire Hazards:** Not available.
- **Explosion Hazards:** Not available.
- **Risks of explosion:** Not available.
- **Risks of explosion:** Not available.

Fire Fighting Media and Instructions:
DRY chemical powder; Water spray; fog or foam. DO NOT USE WATER JET.

### 6. ACCIDENTAL RELEASE MEASURES

**Small Spill:**
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

**Large Spill:**
Corrosive liquid.
Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

### 7. HANDLING AND STORAGE
Precautions:
Keep container dry. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporation the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/vapour/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage:
Keep container dry. Keep in a cool place. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe gas/fumes/vapour/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical state and appearance:</th>
<th>Liquid. (Viscous liquid.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor:</td>
<td>Acidic to Mild to None</td>
</tr>
<tr>
<td>Taste:</td>
<td>Not available</td>
</tr>
<tr>
<td>Equivalent Molecular Weight:</td>
<td>320 g/mole</td>
</tr>
<tr>
<td>pH (1% soln/water):</td>
<td>Acidic (Degree Not Determined)</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>Decomposes</td>
</tr>
<tr>
<td>Melting Point:</td>
<td>Not available</td>
</tr>
<tr>
<td>Critical Temperature:</td>
<td>Not available</td>
</tr>
<tr>
<td>Specific Gravity:</td>
<td>1.02 – 1.07 (Water = 1)</td>
</tr>
<tr>
<td>Viscosity:</td>
<td>30 - 40 cSt (100°C)</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Density:</td>
<td>Not available</td>
</tr>
<tr>
<td>Volatility:</td>
<td>Not available</td>
</tr>
<tr>
<td>Odor Threshold:</td>
<td>Not available</td>
</tr>
<tr>
<td>Water/Oil Dist. Coeff.:</td>
<td>Not available</td>
</tr>
<tr>
<td>Ionicity (in Water):</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility:</td>
<td>Partially Soluble in water &lt; methanol.</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

| Stability:                  | The product is stable. |
| Instability Temperature:    | Not available.         |
| Conditions of Instability:  | Not available.         |
| Incompatibility with various substances: | Not available. |
| Corrosivity:                | Non-corrosive in presence of glass. |
|                             | Corrosive on metals    |
11. TOXICOLOGICAL INFORMATION

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.
Toxicity to Animals: Acute oral toxicity (LD50): 650 mg/kg [Rat].
Chronic Effects on Humans: Not available.
Other Toxic Effects on Humans: Very hazardous in case of skin contact (irritant), of ingestion, of inhalation (lung irritant).
Hazardous in case of skin contact (permeator).
Slightly hazardous in case of skin contact (corrosive).
Special Remarks on Toxicity to Animals: Not available.
Special Remarks on Chronic Effects on Humans: Not available.

12. ECOLOGICAL INFORMATION

ECOTOXICITY: This material may be toxic to aquatic organisms and should be kept out of sewage and drainage systems and all bodies of water.
ENVIRONMENTAL FATE: No data available.

13. DISPOSAL CONSIDERATIONS

Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations. Contact your local environmental or health authorities for approved disposal of this material.

14. TRANSPORT INFORMATION

Proper Shipping Name: Alkyl sulfonic acids, liquid with not more than 5% free sulfuric Acid
Hazard Class: 8 Corrosive Liquid
ID Number: UN2586
Packing Group: PG III
Exceptions: 154
Labels Required: Corrosive
Reportable Quantity: N/A
Freight Classification: Petroleum Oil, NOIBN
Special Transportation Notes: Container size limited to 5 liters in passenger aircraft or railcars. In cargo aircraft, container size limited to 60 liters.

15. REGULATORY INFORMATION

Federal and State Regulations:
Pennsylvania RTK: Alkyl Benzene Sulfonic Acid
Massachusetts RTK: Alkyl Benzene Sulfonic Acid
New Jersey: Alkyl Benzene Sulfonic Acid
TSCA 8(b) Inventory: Alkyl Benzene Sulfonic Acid

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:
WHMIS (Canada): CLASS E: Corrosive liquid.
DSCL (EEC):
R37/38- Irritating to respiratory system and skin.  R41- Risk of serious damage to eyes.

16. OTHER INFORMATION

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modification of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.