Material Safety Data Sheet
HOUGHTO-SAFE 273

1. Chemical Product and Company Identification

Product Name: HOUGHTO-SAFE 273
Company Name: Houghton International Inc.
Madison & Van Buren Aves
Valley Forge, PA  19482
Website: www.houghtonintl.com
Telephone: (610) 666-4000
Emergency 24 HOUR - (800) 424-9300
(Chemtrec)
FAX: (610) 666-1376
Customer Service: (888) 459-9844

2. Hazardous Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>Cas No</th>
<th>% by Weight</th>
<th>Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene Glycol</td>
<td>107-21-1</td>
<td>30-60</td>
<td>TLV: 100 mg/m³ - ceiling (aerosol)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PEL: N/E</td>
</tr>
</tbody>
</table>

N/E - Not Established; N/A - Not Applicable; Mfr - Manufacturer Recommendation

3. Hazards Identification

Primary Entry Routes: EYES, SKIN, INHALATION

Acute Effects

Inhalation: INHALATION OF MISTS MAY CAUSE IRRITATION OF UPPER RESPIRATORY TRACT.
Eye: CONTACT MAY CAUSE MODERATE IRRITATION TO EYES.
Skin: PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE IRRITATION.
Ingestion: AVOID INGESTION. SWALLOWING LARGE AMOUNTS OF ETHYLENE GLYCOL HAS CAUSED BIRTH DEFECTS IN LABORATORY ANIMALS.


Medical Conditions Aggravated by LongTerm Exposure: PRE-EXISTING SKIN AND RESPIRATORY CONDITIONS MAY BE AGGRAVATED BY EXPOSURE.

Chronic Effects: SEE ABOVE EFFECTS.

HMIS:   

Page 1
Continued on Next Page
3. Hazards Identification - continued

- Health: 1
- Flammability: 0
- Reactivity: 0

* indicates that there may be chronic health effects present

4. First Aid Measures

- **Inhalation**: IF INHALED, REMOVE TO SOURCE OF FRESH AIR.
- **Eye Contact**: FLUSH EYES WITH WATER FOR 15 MINUTES. CONSULT PHYSICIAN.
- **Skin Contact**: WASH SKIN WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSING. CONSULT PHYSICIAN IF IRRITATION PERSISTS.
- **Ingestion**: IF INGESTED, CONSULT PHYSICIAN.
- **Note to Physicians**: NO SPECIFIC ANTIDOTE KNOWN. BASED ON INDIVIDUAL REACTIONS OF THE PATIENT, THE PHYSICIAN'S JUDGMENT SHOULD BE USED TO CONTROL SYMPTOMS AND CLINICAL CONDITIONS.

5. Fire Fighting Measures

- **Flash Point**: N/A - PRODUCT CONTAINS WATER.
- **Autoignition Temperature**: N/D
- **LEL**: N/A
- **UEL**: N/A
- **Extinguishing Media**: IF WATER IS REMOVED, USE CARBON DIOXIDE, DRY CHEMICAL OR FOAM.
- **Unusual Fire or Explosion Hazards**: CLOSED CONTAINERS MAY SWELL AND RUPTURE WHEN EXPOSED TO EXTREME HEAT. USE WATER SPRAY TO COOL CONTAINERS EXPOSED TO FIRE AND HEAT.
- **Fire Fighting Instructions**: WEAR PROTECTIVE GEAR DURING FIREFIGHTING. IF POSSIBLE, MOVE CONTAINERS FROM FIRE AREAS.
5. Fire Fighting Measures - continued

<table>
<thead>
<tr>
<th>Health</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>0</td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
</tr>
<tr>
<td>Special</td>
<td>N/A</td>
</tr>
</tbody>
</table>

N/A - Not Applicable; ND - Not Determined; > - Greater Than; < - Less Than

6. Accidental Release Measures

Spill or Release Procedures FOR SMALL QUANTITIES, FLUSH AREA WITH WATER AND MOP UP THOROUGHLY. FOR LARGE QUANTITIES, DIKE TO CONTAIN SPILL. COLLECT SPILLED MATERIAL AND REUSE OR DISPOSE OF DEPENDING ON CONDITION.

7. Handling and Storage

Handling Precautions AVOID CONTACT WITH EYES, SKIN AND CLOTHING. AVOID INGESTION. WASH THOROUGHLY AFTER HANDLING. USE WITH ADEQUATE VENTILATION.

Storage Requirements STORE AWAY FROM STRONG OXIDIZERS. KEEP CONTAINERS CLOSED WHEN NOT IN USE.

8. Exposure Controls/Personal Protection

Engineering Controls PROVIDE GENERAL AND/OR LOCAL EXHAUST VENTILATION TO MAINTAIN AIRBORNE CONCENTRATIONS BELOW THE EXPOSURE LIMITS IN SECTION 2.

Personal Protective Equipment

Eye/Face Protection WEAR SAFETY GOGGLES OR SAFETY GLASSES WITH SIDE SHIELDS.

Skin Protection WEAR GLOVES AND LONG SLEEVES TO MINIMIZE SKIN EXPOSURE. USE APRON OR OVERALLS IF SPLASHING IS EXPECTED.

Respiratory Protection OSHA REGULATIONS (29 CFR 1910.134) STATE THAT THE EMPLOYER IS RESPONSIBLE FOR DETERMINING WHEN RESPIRATORS ARE NEEDED AND WHAT TYPE SHOULD BE USED.

Other EYE WASH AND SAFETY SHOWER RECOMMENDED.
8. Exposure Controls/Personal Protection - continued

Comments

USE OF GLOVES AND OTHER SKIN PROTECTION DEPENDS ON THE DURATION OF EXPOSURE AND THE TASK BEING PERFORMED. IF NECESSARY, USE CHEMICALLY RESISTANT GLOVES SUCH AS NEOPRENE, NITRILE OR EQUIVALENT MATERIALS.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, or applying cosmetics.

9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>CLEAR RED FLUID</td>
</tr>
<tr>
<td>Odor</td>
<td>AMINE ODOR</td>
</tr>
<tr>
<td>Vapor Pressure (mmHg)</td>
<td>N/D</td>
</tr>
<tr>
<td>Vapor Density (Air = 1)</td>
<td>N/D</td>
</tr>
<tr>
<td>Specific Gravity (Water = 1)</td>
<td>1.08</td>
</tr>
<tr>
<td>pH (Neat)</td>
<td>9.6</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>215°F/102°C</td>
</tr>
<tr>
<td>Freezing/ Melting Point</td>
<td>N/D</td>
</tr>
<tr>
<td>Evaporation Rate (BuAc = 1)</td>
<td>&lt; 1</td>
</tr>
</tbody>
</table>

N/D - Not Determined; N/A - Not Applicable; > - Greater Than; < - Less Than

10. Stability and Reactivity

Stability

THIS PRODUCT IS STABLE AT ROOM TEMPERATURE IN CLOSED CONTAINERS UNDER NORMAL STORAGE AND HANDLING CONDITIONS.

Chemical Incompatibilities

STRONG OXIDIZERS

Hazardous Decomposition Products

THERMAL; OXIDES OF CARBON AND NITROGEN.

Hazardous Polymerization

HAZARDOUS POLYMERIZATION WILL NOT OCCUR.
11. Toxicological Information

NO DATA AVAILABLE

12. Ecological Information

NO DATA AVAILABLE

13. Disposal Considerations

Disposal
DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

RCRA Hazardous Waste Number
N/A

14. Transportation Information

Proper Shipping Name
NOT HAZARDOUS UNDER DOT, AIR OR IMO REGULATIONS.

15. Regulatory Information

TSCA Section 8(b)
ALL OF THE COMPONENTS IN THIS PRODUCT ARE ON THE TSCA INVENTORY.

CERCLA Reportable Quantity
ETHYLENE GLYCOL: RQ - 5000 LBS.

SARA Title III, Section 313
35% ETHYLENE GLYCOL (CAS 107-21-1)

Ozone Depleting Substances
THIS PRODUCT WAS NOT MANUFACTURED, DOES NOT CONTAIN, AND WAS NOT PACKAGED USING ANY CLASS I OR CLASS II OZONE DEPLETING SUBSTANCE AS DEFINED BY THE CLEAN AIR ACT.

16. Other Information

Prepared By
GARY CARL

Title
MANAGER, PRODUCT SAFETY
Disclaimer: The information presented herein has been compiled from sources considered to be dependable and is accurate as of the date issued. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use are beyond our control, Houghton International makes no warranty regarding the accuracy of such data or its suitability for any purchaser's use or for any consequence of its use. The data in this MSDS relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process. Safe handling and use remains the responsibility of the purchaser and the purchaser has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. Houghton International assumes no responsibility for injury to the recipient or to third persons or for any damage to any property and the recipient assumes all such risks.