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

1.1 Product Identifier

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Tetra Etch Compound TEC-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Name</td>
<td>Mixture</td>
</tr>
<tr>
<td>CAS No.</td>
<td>Mixture</td>
</tr>
<tr>
<td>EINECS No.</td>
<td>Mixture</td>
</tr>
<tr>
<td>REACH Registration No.</td>
<td>None assigned.</td>
</tr>
</tbody>
</table>

1.2 Recommended use of the chemical and restrictions on use

- Identified Use(s): Etchant and acids
- Uses Advised Against: For professional users only.

1.3 Supplier’s details

<table>
<thead>
<tr>
<th>Company Identification</th>
<th>VISHAY MEASUREMENTS GROUP, INC.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Office Box</td>
<td>27777</td>
</tr>
<tr>
<td>USA</td>
<td></td>
</tr>
<tr>
<td>Telephone</td>
<td>919-365-3800</td>
</tr>
<tr>
<td>Fax</td>
<td>919-365-3945</td>
</tr>
<tr>
<td>E-Mail (competent person)</td>
<td><a href="mailto:mm.us@vishaypg.com">mm.us@vishaypg.com</a></td>
</tr>
</tbody>
</table>

1.4 Emergency Phone No.

- 1-800-424-9300
- CHEMTREC

2. SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 GHS Classification

- Flam. Liq. 2; H225
- Water-react. 3; H261
- Skin Corr. 1B; H314
- Acute Tox. 4; H332
- Carc. 2; H351
- Repr. 1B; H360FD
- Aquatic Chronic 2; H411

2.2 Label elements

<table>
<thead>
<tr>
<th>Product Name</th>
<th>GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tetra Etch Compound TEC-1</td>
</tr>
</tbody>
</table>

Hazard Pictogram(s)

Signal Word(s) | Danger

Contains: Sodium, Ethylene glycol dimethyl ether and Naphthalene

Hazard Statement(s)

- H225: Highly flammable liquid and vapour.
- H261: In contact with water releases flammable gases.
- H314: Causes severe skin burns and eye damage.
- H332: Harmful if inhaled.
- H351: Suspected of causing cancer.
- H360FD: May damage fertility. May damage the unborn child.
- H411: Toxic to aquatic life with long lasting effects.

Precautionary Statement(s)

- P201: Obtain special instructions before use.
- P210: Keep away from heat, hot surfaces, sparks, open flames and other
SAFETY DATA SHEET

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Additional Information

EUH014: Reacts violently with water.
EUH019: May form explosive peroxides.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

<table>
<thead>
<tr>
<th>Chemical identity of the substance</th>
<th>%W/W</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>REACH Registration No.</th>
<th>Hazard Statement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol dimethyl ether</td>
<td>70 - 80</td>
<td>110-71-4</td>
<td>203-794-9</td>
<td>None assigned</td>
<td>Flam. Liq. 2; H225 Skin Irrit. 2; H315 Acute Tox. 4; H332 Repr. 1B; H360FD EUH019</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>&lt; 25</td>
<td>91-20-3</td>
<td>202-049-5</td>
<td>None assigned</td>
<td>Flam. Sol. 1; H228 Acute Tox. 4; H302 Carc. 2; H351 Aquatic Acute 1; H400 Aquatic Chronic 1; H410</td>
</tr>
<tr>
<td>Sodium</td>
<td>&lt; 5</td>
<td>7440-23-5</td>
<td>231-132-9</td>
<td>None assigned</td>
<td>Water-react. 1; H260 Skin Corr. 1B; H314 EUH014</td>
</tr>
</tbody>
</table>


4. SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Apply artificial respiration if necessary (do not employ mouth-to-mouth method). Immediately call a POISON CENTER/doctor.

Skin Contact
IF ON SKIN: Remove contaminated clothing and wash all affected areas with plenty of water. Contaminated clothing should be thoroughly cleaned. Immediately call a POISON CENTER/doctor.

Eye Contact
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. Treatment by an ophthalmologist due to possible caustic burn of the eyes may be required. Continue irrigation until medical attention can be obtained.

Ingestion
IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Make victim drink plenty of water. Do not give anything by mouth to an unconscious person. Immediately call a POISON CENTER or doctor/physician.

4.2 Most important symptoms and effects, both acute and delayed

Causes severe skin burns and eye damage. Due to irritant properties,

5. SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing media: Dry powder (Nitrogen propellant)

Unsuitable extinguishing media: Do not use water. In contact with water releases flammable gases.

5.2 Special hazards arising from the substance or mixture

Highly flammable liquid and vapour. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. May decompose in a fire giving off toxic fumes. Oxides of carbon, Acrid smoke, Naphthalene, Vinyl methyl ether, Methanol, Sodium methoxide, Vinyl chloride, Polycyclic compounds. May form explosive peroxides. Containers may explode when involved in a fire.

5.3 Advice for fire-fighters

Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.

6. SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Ensure adequate ventilation. Stop leak if safe to do so. Eliminate all ignition sources if safe to do so. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid all contact. Use personal protective equipment as required. See Section: 8. Avoid breathing vapours.

6.2 Environmental precautions

Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.

6.3 Methods and material for containment and cleaning up

Use non-sparking equipment when picking up flammable spill. Adsorb spillages onto sand, earth or any suitable adsorbent material. Do not use water. Transfer to a container for disposal. Suitable containers: Polyethylene or Steel (drums), with a polyethylene liner. Dispose of this material and its container as hazardous waste.

6.4 Reference to other sections

See Section: 8, 13

7. SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Handle and open container with care. Take precautionary measures against static discharge. Do not use sparking tools. Ensure adequate ventilation. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid all contact. Do not breathe vapour. Use personal protective equipment as required. See Section: 8. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Protect from moisture.

7.2 Conditions for safe storage, including any incompatibilities


Storage temperature: Keep at temperature not exceeding (°C): 0.

Storage life: Stable under normal conditions.
Incompatible materials
Strong oxidising agents and Acids. Keep from any possible contact with water.
Keep away from moisture.

Suitable containers:
Keep only in original container.

7.3 Specific end use(s)
Etchant and acids. See Section: 1.2.

8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
8.1.1 Occupational Exposure Limits

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>CAS No.</th>
<th>LTEL (8 hr TWA ppm)</th>
<th>LTEL (8 hr TWA mg/m³)</th>
<th>STEL (ppm)</th>
<th>STEL (mg/m³)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>10</td>
<td>50</td>
<td>15*</td>
<td>75*</td>
<td>NIOSH</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>10</td>
<td>50</td>
<td>-</td>
<td>-</td>
<td>OSHA</td>
</tr>
</tbody>
</table>

Note: Note: OSHA 1910.1000 TABLE Z-1 / *NIOSH 15 minute average value

8.1.2 Biological limit value
Not established.

8.1.3 PNECs and DNELs
Not established.

8.2 Exposure controls
8.2.1 Appropriate engineering controls
Ensure adequate ventilation or use appropriate containment. Atmospheric levels should be controlled in compliance with the occupational exposure limit. Local exhaust recommended. Guarantee that the eye flushing systems and safety showers are located close to the working place.

8.2.2 Individual protection measures, such as personal protective equipment (PPE)
General hygiene measures for the handling of chemicals are applicable. Avoid all contact. Do not breathe vapour. Wash hands before breaks and after work. Keep work clothes separately. Contaminated clothing should be thoroughly cleaned. Do not eat, drink or smoke at the work place.

Eye/ face protection
Wear protective eye glasses for protection against liquid splashes. Wear eye protection with side protection (EN166).

Skin protection
Hand protection: Wear impervious gloves (EN374). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves’ producer. Recommended: Butyl rubber.

Body protection: Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection
In case of inadequate ventilation wear respiratory protection. Open system(s):
Wear suitable respiratory protective equipment. Recommended: Full-face mask (DIN EN 138).

8.2.3 Environmental Exposure Controls
Avoid release to the environment.

9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties
Appearance
Green - Black Coloured liquid.
Odour
Naphthalene Odour
Odour threshold
< 1 ppm
pH
> 12.5 (aqueous)
Melting point/freezing point: Not known.
Initial boiling point and boiling range: 85 °C.
Flash point: 0.5 °C (Closed cup).
Evaporation rate: 5 (BuAc = 1) (Ethylene Glycol Dimethyl Ether).
Flammability (solid, gas): Not applicable - Liquid.
Upper/lower flammability or explosive limits:
Flammable Limits (Upper) (%v/v): 1.8 (Air).
Flammable Limits (Lower) (%v/v): 10.4 (Air).

Vapour pressure: 48 mm Hg (Mixture).
Vapour density: 3.11 (Air = 1) (Ethylene Glycol Dimethyl Ether).
Relative density: Not available.
Solubility(ies): Partially soluble (Water).
Partition coefficient: n-octanol/water: Not available.
Auto-ignition temperature: 192 °C.
Decomposition Temperature: Not available.
Viscosity: Not available.
Explosive properties: Not explosive (May form explosive peroxides).
Oxidising properties: Not oxidising.

9.2 Other information
Volatile Organic Compound Content: 73%

10. SECTION 10: STABILITY AND REACTIVITY

10.1 Stability and reactivity
Stable under normal conditions.
10.2 Chemical stability
Stable under normal conditions.
10.3 Possibility of hazardous reactions
Highly flammable liquid and vapour. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. May react violently with water. In contact with water releases flammable gases.
10.4 Conditions to avoid
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
10.5 Incompatible materials
Strong oxidising agents and Acids. Keep from any possible contact with water. Keep away from moisture.
10.6 Hazardous decomposition product(s)
May decompose in a fire giving off toxic fumes. Oxides of carbon, Acid smoke, Naphthalene, Vinyl methyl ether, Methanol, Sodium methoxide, Hydrogen and polycyclic compounds.
Reacts with - Water. Forms sodium hydroxide, naphthalene, polycyclic compounds and hydrogen.

11. SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects (Substances in preparations / mixtures)

Acute toxicity

Ingestion: Based upon the available data, the classification criteria are not met.
Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day.

Inhalation: Acute Tox. 4: Harmful if inhaled.
Acute Toxicity Estimate Mixture Calculation: Estimated LC50 14.7 mg/l.

Skin Contact: Based upon the available data, the classification criteria are not met.
Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day.

Skin corrosion/irritation: Skin Corr. 1B: Causes serious eye damage.
Serious eye damage/irritation: Skin Corr. 1B: Causes severe skin burns.
Respiratory or skin sensitization: Based upon the available data, the classification criteria are not met.
Germ cell mutagenicity: Based upon the available data, the classification criteria are not met.
Carcinogenicity: Carc. 2: Suspected of causing cancer.
Reproductive toxicity: Repr. 1B: May damage fertility. May damage the unborn child.
STOT - single exposure: Based upon the available data, the classification criteria are not met.
STOT - repeated exposure: Based upon the available data, the classification criteria are not met.
Aspiration hazard: Based upon the available data, the classification criteria are not met.
12. **SECTION 12: ECOLOGICAL INFORMATION**

12.1 **Toxicity**
Aquatic Chronic 2: Toxic to aquatic life with long lasting effects. Estimated Mixture LC50 > 1 ≤ 10 mg/l (Fish).

12.2 **Persistence and degradability**
No data for the mixture as a whole. Part of the components are poorly biodegradable.

12.3 **Bioaccumulative potential**
No data for the mixture as a whole.

12.4 **Mobility in soil**
The product is predicted to have moderate mobility in soil.

12.5 **Results of PBT and vPvB assessment**
Not classified as PBT or vPvB.

12.6 **Other adverse effects**
None known.

13. **SECTION 13: DISPOSAL CONSIDERATIONS**

13.1 **Waste treatment methods**
Do not release undiluted and unneutralised to the sewer. Dispose of this material and its container as hazardous waste. Containers must be decontaminated in accordance with all applicable regulations.

13.2 **Additional Information**
Dispose of contents in accordance with local, state or national legislation.

14. **SECTION 14: TRANSPORT INFORMATION**

14.1 **UN number**
UN 2924

14.2 **Proper Shipping Name**
FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Sodium / Ethylene Glycol Dimethyl Ether).

14.3 **Transport hazard class(es)**
3 + 8

14.4 **Packing group**
II

14.5 **Environmental hazards**
Classified as a Marine Pollutant/ Environmentally hazardous substance

14.6 **Special precautions for user**
See Section: 2

14.7 **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**
Not applicable.

14.8 **Additional Information**
None.

15. **SECTION 15: REGULATORY INFORMATION**

15.1 **Safety, health and environmental regulations/legislation specific for the substance or mixture**

15.1.1 **National regulations**
USA
NTP Report on Carcinogens List: Naphthalene (CAS# 91-20-3) – Reasonably anticipated to be a human carcinogen.
OSHA regulated: Not listed

15.1.2 **IARC Monographs**
Naphthalene (CAS# 91-20-3) – Possibly carcinogenic to humans

15.1.1 **European regulations**
Authorisations and/or Restrictions On Use
For professional users only. CMR effects (carcinogenity, mutagenicity and toxicity for reproduction). Ethylene Glycol Dimethyl Ether (CAS# 110-71-4): REACH Entry 30.

SVHCs
Ethylene Glycol Dimethyl Ether (CAS# 110-71-4)

Wassergefährdungsklasse (Germany)
Water hazard class: 3

15.2 **Chemical Safety Assessment**
Not available.

16. **SECTION 16: OTHER INFORMATION**

The following sections contain revisions or new statements: 1-16.

**References:** Existing Safety Data Sheet (SDS), Harmonised Classification(s) for Ethylene Glycol Dimethyl Ether (CAS# 110-71-4), Naphthalene
(CAS# 91-20-3) and Sodium (CAS# 7440-23-5), Existing ECHA registration(s) for Ethylene Glycol Dimethyl Ether (CAS# 110-71-4), Naphthalene (CAS# 91-20-3) and Sodium (CAS# 7440-23-5).

<table>
<thead>
<tr>
<th>GHS Classification of the substance or mixture</th>
<th>Classification Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq. 2; H225</td>
<td>Flash Point [Closed cup] Test Result/ Boiling Point (°C)</td>
</tr>
<tr>
<td>Water-react. 3; H261</td>
<td>Estimated Physico-chemical properties of substance</td>
</tr>
<tr>
<td>Skin Corr. 1B; H314</td>
<td>Physico-chemical properties of substance</td>
</tr>
<tr>
<td>Acute Tox. 4; H332</td>
<td>Acute Toxicity Estimate Mixture Calculation</td>
</tr>
<tr>
<td>Carc. 2; H351</td>
<td>Threshold Calculation</td>
</tr>
<tr>
<td>Repr. 1B; H360FD</td>
<td>Threshold Calculation</td>
</tr>
<tr>
<td>Aquatic Chronic 2; H411</td>
<td>Summation Calculation</td>
</tr>
</tbody>
</table>

LEGEND

<table>
<thead>
<tr>
<th>Acronyms</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTEL</td>
<td>Long Term Exposure Limit</td>
</tr>
<tr>
<td>STEL</td>
<td>Short Term Exposure Limit</td>
</tr>
<tr>
<td>DNEL</td>
<td>Derived No Effect Level</td>
</tr>
<tr>
<td>PNEC</td>
<td>Predicted No Effect Concentration</td>
</tr>
<tr>
<td>PBT</td>
<td>PBT: Persistent, Bioaccumulative and Toxic</td>
</tr>
<tr>
<td>vPvB</td>
<td>very Persistent and very Bioaccumulative</td>
</tr>
<tr>
<td>NTP</td>
<td>National Toxicology Program</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>OSHA</td>
<td>The Occupational Safety &amp; Health Administration</td>
</tr>
<tr>
<td>NIOSH</td>
<td>National Institute for Occupational Safety and Health</td>
</tr>
</tbody>
</table>

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

Disclaimers

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Annex to the extended Safety Data Sheet (eSDS)

No information available.