

# SAFETY DATA SHEET

Version: 3.0  
Date of Issue: 20-Apr-2017  
Date of First Issue: 13-Aug-2014

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ACCORDING TO OSHA HCS (29 CFR 1910.1200)

## SECTION 1: IDENTIFICATION

<b>Product identifier used on the label</b>	Tetra Etch Compound TEC-1	
<b>Other means of identification</b>		
Chemical Name	Mixture	
CAS No.	Mixture	
EINECS No.	Mixture	
<b>Recommended use of the chemical and restrictions on use</b>		
Recommended use	Etchant and acids	
Restrictions on use	For professional users only.	
<b>Details of the supplier of the safety data sheet</b>		
Supplier	VISHAY MEASUREMENTS GROUP, INC.	
Address of Supplier	Post Office Box 27777 Raleigh, NC 27611 USA	
Telephone	+1 919-365-3800	
Fax	+1 919-365-3945	
E-Mail (competent person)	<a href="mailto:mm.us@vishaypg.com">mm.us@vishaypg.com</a>	
<b>Emergency telephone number</b>	1-800-424-9300	CHEMTREC (24 hours)

## SECTION 2: HAZARD(S) IDENTIFICATION

### Classification of the substance or mixture in accordance with paragraph (d) of 29 CFR 1910.1200

Physical hazards	Flammable Liquid, Category 2 Water-reactive, Category 3
Health hazards	Skin corrosion/irritation, Category 1 Acute toxicity, Category 4 (Inhalation) Carcinogen, Category 2 Reproductive toxicity, Category 1
Environmental hazards	Hazardous to the aquatic environment, Acute, Category 1 Hazardous to the aquatic environment, Chronic, Category 1

Hazard Symbol



Signal Word(s)

DANGER

Hazard Statement(s)

Highly flammable liquid and vapour.  
In contact with water releases flammable gases.  
Causes severe skin burns and eye damage.  
Harmful if inhaled.  
Suspected of causing cancer (Inhalation).  
May damage fertility. May damage the unborn child (embryotoxicity, damage of testes).  
Very toxic to aquatic life with long lasting effects.

Precautionary Statement(s)

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.

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Do not allow contact with water.  
Do not breathe vapour.  
Wash hands and exposed skin thoroughly after handling.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Keep container tightly closed.  
Do not eat, drink or smoke when using this product.  
Wear protective gloves/protective clothing/eye protection/face protection.  
IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
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.  
IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician  
Store locked up.  
Dispose of contents in accordance with local, state or national legislation.

**Other hazards**

None.

**Percent of the mixture consists of ingredient(s) of unknown acute toxicity:**

0%

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

**Substances** Not applicable

**Mixtures** Substances in preparations / mixtures

Chemical identity of the substance	%W/W	CAS No.	EC No.	Hazard classification
Ethylene glycol dimethyl ether	70 - 80	110-71-4	203-794-9	Flammable Liquid, Category 2 Acute toxicity, Category 4 (Inhalation) Skin corrosion/irritation, Category 2 Carcinogen, Category 2 Reproductive toxicity, Category 1
Naphthalene	25	91-20-3	202-049-5	Acute toxicity, Category 4 (Oral) Carcinogen, Category 2 Hazardous to the aquatic environment, Acute, Category 1 Hazardous to the aquatic environment, Chronic, Category 1
Sodium	< 5	7440-23-5	231-132-9	Water-reactive, Category 2 Skin corrosion/irritation, Category 1

## SECTION 4: FIRST AID MEASURES



### Description of first aid measures

Self-protection of the first aider

Wear appropriate personal protective equipment, avoid direct contact. Keep away sources of ignition. Ensure adequate ventilation. Do not breathe vapour. Avoid all contact.

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

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Eye Contact	plenty of water. Contaminated clothing should be thoroughly cleaned. Immediately call a POISON CENTER/doctor. 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.
<b>Most important symptoms and effects, both acute and delayed</b>	Causes severe skin burns and eye damage. Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Can be absorbed through skin. Harmful if inhaled. Suspected of causing cancer. May damage fertility. May damage the unborn child. Inhalation of solvent vapours may give rise to nausea, headaches and dizziness.
<b>Indication of any immediate medical attention and special treatment needed</b>	Treat symptomatically. Due to possible delayed effect of poisoning and for safety reasons, they should be kept under medical observation for at least 48 hours.
Notes to a physician:	IF IN EYES: Obtain prompt consultation, preferably from an ophthalmologist. IF INHALED: Initiate inhalative cortisone therapy (e.g. Auxiloson, Thomae).

## SECTION 5: FIRE-FIGHTING MEASURES

<b>Extinguishing media</b> Suitable Extinguishing Media Unsuitable extinguishing Media <b>Special hazards arising from the substance or mixture</b>	Dry powder (Nitrogen propellant) Do not use water. In contact with water releases flammable gases. 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, Hydrogen and polycyclic compounds. May form explosive peroxides. Containers may explode when involved in a fire.
<b>Special protective equipment and precautions for fire fighters</b>	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.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

<b>Personal precautions, protective equipment and emergency procedures</b>	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.
<b>Methods and material for containment and cleaning up</b>	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.

## SECTION 7: HANDLING AND STORAGE

<b>Precautions for safe handling</b>	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
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### Conditions for safe storage, including any incompatibilities

Storage temperature  
 Incompatible materials

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.

Ground/bond container and receiving equipment. Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources. Keep container tightly closed. Handle and open container with care. Store contents under: Nitrogen.

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

Strong oxidising agents and Acids. Keep from any possible contact with water. Keep away from moisture.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Occupational Exposure Limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Naphthalene	91-20-3	10	50	15*	75*	NIOSH
		10	50	-	-	OSHA
		10	-	15	-	ACGIH, Sk A3

Note: OSHA PELs 1910.1000 TABLE Z-1 / NIOSH RELs / ACGIH TLVs

\* 15 minute average value

Sk - Can be absorbed through skin.

A3: Confirmed Animal Carcinogen with Unknown Relevance to Humans: The agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histological type(s), or by mechanism(s) that may not be relevant to worker exposure. Available epidemiological studies do not confirm an increased risk of cancer in exposed humans. Available evidence does not suggest that the agent is likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

The other components listed in Section 3 do not have occupational exposure limits.

### Biological Exposure Indices

SUBSTANCE	CAS No.	Determinant	Biological Exposure Indices	Sampling Time	Note
Naphthalene	91-20-3	1-Naphthol* + 2-Naphthol*	-	End of shift	Nq, Ns

Source: 2015 ACGIH Biological Exposure Indices (BEIs)

Nq – Nonquantitative (Biological monitoring should be considered for this substance, however, a specific BEI could not be determined due to insufficient data)

Ns – Nonspecific

The other components listed in Section 3 do not have biological exposure indices.

### 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.

### 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.

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Skin protection



Respiratory protection



Hand protection: Wear impervious gloves. 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.

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

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Appearance	Green - Black Coloured liquid.
Odor	Naphthalene Odour
Odor 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 (Butyl acetate = 1)	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.

### Other information

Volatile Organic Compound Content: 73%

## SECTION 10: STABILITY AND REACTIVITY

<b>Reactivity</b>	Stable under normal conditions.
<b>Chemical stability</b>	Stable under normal conditions.
<b>Possibility of hazardous reactions</b>	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.
<b>Conditions to avoid</b>	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
<b>Incompatible materials</b>	Strong oxidising agents and Acids. Keep from any possible contact with water. Keep away from moisture.
<b>Hazardous decomposition product(s)</b>	May decompose in a fire giving off toxic fumes. Oxides of carbon, Acrid smoke, Naphthalene, Vinyl methyl ether, Methanol, Sodium methoxide, Hydrogen and polycyclic compounds. Reacts with - Water. Forms sodium hydroxide, naphthalene, polycyclic compounds and hydrogen.

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## SECTION 11: TOXICOLOGICAL INFORMATION

### 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.

Naphthalene

LD50 533 mg/kg body weight

#### Acute toxicity - Inhalation

Acute toxicity, Category 4 (Inhalation): Harmful if inhaled.

Ethylene Glycol Dimethyl Ether

Acute Toxicity Estimate Mixture Calculation: Estimated LC50 14.7 mg/l.

#### Acute toxicity - Skin Contact

Converted acute toxicity point estimate: 11

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 corrosion/irritation, Category 1: Causes serious eye damage.

#### Serious eye damage/irritation

Skin corrosion/irritation, Category 1: 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

Carcinogen, Category 2: Suspected of causing cancer (Inhalation).

#### Reproductive toxicity

Reproductive toxicity, Category 1: May damage fertility. May damage the unborn child (embryotoxicity, damage of testes).

#### 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.

### Information on likely routes of exposure

Inhalation

Unlikely – accidental exposure

Ingestion

Unlikely – accidental exposure

Skin Contact

Possible – accidental exposure

Eye Contact

Unlikely – accidental exposure

### Early onset symptoms related to exposure

Causes severe skin burns and eye damage. Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture.

### Delayed health effects from exposure

Can be absorbed through skin. Suspected of causing cancer. May damage fertility. May damage the unborn child. May affect embryotoxicity and damage testes. Inhalation of solvent vapours may give rise to nausea, headaches and dizziness.

### Other information

NTP Report on Carcinogens

Naphthalene: Reasonably anticipated to be a human carcinogen.

IARC Monographs

Naphthalene: Possibly carcinogenic to humans

OSHA Designated Carcinogen

Not Listed

## SECTION 12: ECOLOGICAL INFORMATION

### Ecotoxicity

Hazardous to the aquatic environment, Acute, Category 1: Very toxic to aquatic life.

Estimated Mixture LC50 (for fish)  $\leq$  1 mg/l (96 hr)

Hazardous to the aquatic environment, Chronic, Category 1: Very toxic to aquatic life with long lasting effects.

Estimated Mixture LC50 (for fish)  $\leq$  1 mg/l (96 hr)

### Persistence and degradability

No data for the mixture as a whole. Part of the components are poorly

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<b>Bioaccumulative potential</b>	biodegradable.
<b>Mobility in soil</b>	No data for the mixture as a whole.
<b>Other adverse effects</b>	The product is predicted to have moderate mobility in soil. None known.

## SECTION 13: DISPOSAL CONSIDERATIONS

<b>Waste treatment methods</b>	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.
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## SECTION 14: TRANSPORT INFORMATION

	<b>ADR/RID</b>	<b>IMDG</b>	<b>IATA</b>
<b>UN number</b>	UN 2924	UN 2924	UN 2924
<b>UN proper shipping name</b>	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Sodium / Ethylene Glycol Dimethyl Ether).	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Sodium / Ethylene Glycol Dimethyl Ether).	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Sodium / Ethylene Glycol Dimethyl Ether).
<b>Transport hazard class(es)</b>	3 + 8	3 + 8	3 + 8
<b>Packing group</b>	II	II	II
<b>Environmental hazards</b>	Environmentally hazardous substance	Classified as a Marine Pollutant	Environmentally hazardous substance
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not applicable.		
<b>Special precautions for user</b>	See Section: 2		

## SECTION 15: REGULATORY INFORMATION

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

#### US Federal Regulations

TSCA (Toxic Substance Control Act)	Ethylene Glycol Dimethyl Ether: Subject to 2,500 lb reporting threshold Naphthalen: Subject to 2,500 lb reporting threshold Sodium: Subject to 2,500 lb reporting threshold All chemicals are not listed
EPCRA/SARA Section 302 Extremely Hazardous Substances	All chemicals are not listed
EPCRA Section 313 Toxics Release Inventory (TRI) Program	Naphthalene: De Minimis limit: 0.1%
NIOSH Occupational Carcinogen List	All chemicals are not listed
OSHA List of highly hazardous chemicals, toxics and reactives	All chemicals are not listed
NTP Report on Carcinogens (RoC) List	Naphthalene: Reasonably anticipated to be a human carcinogen
Poison Prevention Packaging Act	All chemicals are not listed

#### US State Regulations

California State, Proposition 65 List	Naphthalene: Safe harbor level - NSRL: 5.8 ug/day
California State, Safer Consumer Products Regulations	Ethylene Glycol Dimethyl Ether: Candidate Chemicals List, Group Member List: Glycol ethers Naphthalene: Initial Candidate Chemicals List Sodium: Candidate Chemicals List
Maine State, Toxic Chemicals in Children's Products Act	Naphthalene: COC list
New Jersey State Worker and Community RTK Act	Ethylene Glycol Dimethyl Ether: RTKHSL. SHHSL Naphthalene: RTKHSL. SHHSL Sodium: RTKHSL. SHHSL
Pennsylvania State, Worker and Community RTK Act	Naphthalene: Hazardous Substance List. Environmental Hazard List Sodium: Hazardous Substance List. Environmental Hazard List
Rhode Island State, Hazardous Substances RTK Act	Naphthalene: Listed; Hazardous Substance List Sodium: Hazardous Substance List



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## Non-Regional

IARC Monographs, List of Classifications

Naphthalene: Possibly carcinogenic to humans

## SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: Updated substance / mixture classification. New SDS Regulation compliant with HazCom 2012 format, all sections have been updated to include new information. Please review SDS with care.

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### References:

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

GHS Classification of the substance or mixture	Classification Procedure
Flammable Liquid, Category 2	Flash Point [Closed cup] Test Result/ Boiling Point (°C)
Water-reactive, Category 3	Estimated Physico-chemical properties of substance
Skin corrosion/irritation, Category 1	Physico-chemical properties of substance
Acute toxicity, Category 4 (Inhalation)	Acute Toxicity Estimate Mixture Calculation
Carcinogen, Category 2	Threshold Calculation
Reproductive toxicity, Category 1	Threshold Calculation
Hazardous to the aquatic environment, Acute, Category 1	Summation Calculation
Hazardous to the aquatic environment, Chronic, Category 1	Summation Calculation

### LEGEND

ACGIH: American Conference of Governmental Industrial Hygienists  
BEI: Biological Exposure Indices (ACGIH)  
IARC: International Agency for Research on Cancer  
Irr: Irritation  
NIOSH: National Institute of Occupational Safety and Health  
NTP: National Toxicology Program  
OSHA: The Occupational Safety & Health Administration  
PBT: Persistent, Bioaccumulative and Toxic  
PEL: Permissible exposure limit

REL: Recommended exposure limit  
SCL: Specific Concentration Limit  
Skin<sup>o</sup>: Risk of overexposure via dermal contact  
STEL: Short Term Exposure Limit  
TLV: Threshold Limit value  
TSCA: Toxic Substance Control Act  
TWA: Time Weighted Average  
URT: Upper respiratory tract  
vPvB: very Persistent and very Bioaccumulative

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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