PLH-10/PLMH-1/PMCH-1

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

1.1 Product identifier

Product Name	PLH-10/PLMH-1/PMCH-1
Chemical Name	Triethylenetetramine (TETA)
CAS No.	112-24-3
EINECS No.	203-950-6
REACH Registration No.	None assigned.

1.2 Recommended use of the chemical and restrictions on use

Identified Use(s)	Photostress® measurements.
Uses Advised Against	None.

1.3 Supplier's details

Company Identification	Vishay Measurements Group, Inc. Post Office Box 27777 Raleigh, NC 27611 USA
Telephone	919-365-3800
Fax	919-365-3945
E-Mail (competent person)	mm.us@vishaypg.com

1.4 Emergency Phone No.

1-800-424-9300 (U.S.)
703-527-3887 (Outside U.S.)
CHEMTREC

2. SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 GHS Classification

Met. Corr. 1;May be corrosive to metals.
Acute Tox. 4; Harmful in contact with skin.
Skin Corr. 1B; Causes severe skin burns and eye damage.
Skin Sens. 1; May cause an allergic skin reaction.
Aquatic Chronic 3; Harmful to aquatic life with long lasting effects.

2.2 Label elements

According to GHS Classification

Product Name: PLH-8/PLMH-1/PMCH-1

Hazard Pictogram(s)

Signal Word(s): Danger

Hazard Statement(s):

H290: May be corrosive to metals.
H312: Harmful in contact with skin.
H314: Causes severe skin burns and eye damage.
H317: May cause an allergic skin reaction.
H412: Harmful to aquatic life with long lasting effects.

Precautionary Statement(s):

P234: Keep only in original container.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
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 or doctor/physician.

2.3 Other hazards None.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

GHS Classification

Chemical identity of the substance	%W/W	CAS No.	EC No.	Hazard Statement(s)
Triethylenetetramine (TETA)	100	112-24-3	203-950-6	Acute Tox. 4; H312 Skin Corr. 1B; H314 Skin Sens. 1; H317 Aquatic Chronic 3; H412

3.2 Mixtures Not applicable.

4. SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin Contact: IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If irritation (redness, rash, blistering) develops, get medical attention.

Eye Contact: IF IN EYES: Flush eyes with water for at least 15 minutes while holding eyelids open.Remove contact lenses if worn. Get medical attention if eye irritation develops or persists.Continue irrigation until medical attention can be obtained.

Ingestion: IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Drink two glasses of water. Get medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed Causes damage to organs through prolonged or repeated exposure.Causes severe burns to skin, eyes, respiratory system and gastrointestinal tract. Fluid build up on the lung (pulmonary oedema) may occur up to 48 hours after exposure and could prove fatal.

4.3 Indication of any immediate medical attention and special treatment needed Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist.

5. SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing Media: Extinguish with carbon dioxide, dry chemical, foam or waterspray.

Unsuitable extinguishing Media: Do not use water jet.

5.2 Special hazards arising from the substance or mixture May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide, Nitrogen oxides.

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**	Ensure adequate ventilation. Shut off leaks if without risk. Avoid contact with skin, eyes or clothing. Avoid breathing vapours. Wear protective gloves/protective clothing/eye protection/face protection.
6.2	**Environmental precautions**	Do not allow to enter drains, sewers or watercourses.
6.3	**Methods and material for containment and cleaning up**	Adsorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a container for disposal. 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**	Ensure adequate ventilation. Do not breathe mist/vapours/spray. In case of inadequate ventilation wear respiratory protection. Wear protective gloves/protective clothing/eye protection/face protection. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work.
7.2	**Conditions for safe storage, including any incompatibilities**	Store in a well-ventilated place. Keep container tightly closed. Keep away from heat and direct sunlight.
	Storage temperature	Ambient.
	Storage life	Stable under normal conditions.
	Incompatible materials	Keep only in original container. Keep/store away from: Oxidizing agents. Storage vessels should not be made of: Copper, Aluminium, or Brass.
7.3	**Specific end use(s)**	Photostress® measurements.

8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1	**Occupational Exposure Limits**	Not established.
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.
8.2.2	**Individual protection measures, such as personal protective equipment (PPE)**	Use personal protective equipment as required. Wash contaminated clothing before reuse. Avoid contact with skin and eyes. Guarantee that the eye flushing systems and safety showers are located close to the working place.
	Eye/face protection 	Wear goggles giving complete protection to eyes to protect against liquid splashes (EN166).
	Skin protection 	Wear impervious gloves (EN374). Breakthrough time of the glove material: refer to the information provided by the gloves' producer. Wear chemical resistant apron. Wear suitable protective clothing.Unsuitable gloves materials
	Respiratory protection 	Wear suitable respiratory protective equipment if exposure to high levels of material are likely. When no local exhaust ventilation is available, use a properly fitted, air-purifying or air-fed respirator complying with an approved standard.
	Thermal hazards	Not applicable.
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	Yellow Coloured liquid.
Odour	Amine-like Odour
Odour Threshold	Not available.
pH	Not established.
Melting Point/Freezing Point	Not established.
Initial boiling point and boiling range	277°C (Mixture)
Flash point	149°C (Setaflash)
Evaporation Rate	<1 (BuAc = 1)
Flammability (solid, gas)	Non-flammable
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	<1.3e-3 kPa at 20ºC
Vapour density	5 (Air = 1)
Relative density	0.98 (H_2O = 1)
Solubility(ies)	Soluble in water.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	Not available.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

9.2 Other information None.

10. SECTION 10: STABILITY AND REACTIVITY

10.1	**Reactivity**	Stable under normal conditions.
10.2	**Chemical stability**	Stable under normal conditions.
10.3	**Possibility of hazardous reactions**	May decompose in a fire giving off toxic fumes.
10.4	**Conditions to avoid**	Keep away from heat and flame.
10.5	**Incompatible materials**	Keep away from: Oxidizing agents.
10.6	**Hazardous decomposition product(s)**	Carbon monoxide, Carbon dioxide, Oxides of nitrogen.

11. SECTION 11: TOXICOLOGICAL INFORMATION

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

Acute toxicity

Ingestion	Will cause corrosion of and damage to the gastrointestinal tract.
Inhalation	May cause respiratory irritation.
Skin Contact	Acute Tox. 4; (Dermal). May cause sensitization by skin contact.
Eye Contact	Causes serious eye damage.
Irritation	Not classified.
Corrosivity	Skin Corr. 1B; Causes severe damage to eyes and skin.
Sensitisation	Skin Sens. 1; May cause sensitization by skin contact.
Repeated dose toxicity	Not classified.
Carcinogenicity	No evidence of carcinogenicity.
Mutagenicity	There is no evidence of mutagenic potential.
Toxicity for reproduction	Not classified.

11.2 Other information

NTP: Not Listed
IARC Monographs: Not Listed
OSHA Regulated: Not Listed

12. SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity Toxic to aquatic life with long lasting effects. (Aquatic Chronic 3). TETA is

		resistant to biodegradation in biological wastewater treatment plants. It could be toxic to the biomass in a treatment plant and could be toxic to fish.
12.2	**Persistence and degradability**	The product is poorly biodegradable.
12.3	**Bioaccumulative potential**	The product has low potential for bioaccumulation.
12.4	**Mobility in soil**	The product is predicted to have high mobility in soil. Soluble in water.
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**	This material and its container must be disposed of as hazardous waste. Send after pre-treatment to a appropriate hazardous waste incinerator facility according to legislation.
13.2	**Additional Information**	Dispose of contents in accordance with local, state or national legislation.

14. SECTION 14: TRANSPORT INFORMATION

		ADR/RID / IMDG / IATA
14.1	**UN number**	UN 2259
14.2	**Proper Shipping Name**	TRIETHYLENETHETRAMINE
14.3	**Transport hazard class(es)**	8
14.4	**Packing group**	II
14.5	**Environmental hazards**	Not classified as a Marine Pollutant. / Environmentally hazardous substance
14.6	**Special precautions for user**	Causes burns to skin and eyes.
14.7	**Transport in bulk according to Annex II of MARPOL73/78 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**	Not available.
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) and Harmonised Classification(s) for Triethylenetetramine (CAS# 112-24-3).

Classification of the substance or mixture According to Regulation (EC) No. 1272/2008 (CLP)	**Classification Procedure**
Met. Corr. 1; H290	T.D.G. Classification
Acute Tox. 4; H312	Harmonised Classification
Skin Corr. 1B; H314	Harmonised Classification
Skin Sens. 1; H317	Harmonised Classification
Aquatic Chronic 3; H412	Summation Calculation

LEGEND

LTEL	Long Term Exposure Limit
STEL	Short Term Exposure Limit
DNEL	Derived No Effect Level

PNEC	Predicted No Effect Concentration
PBT	PBT: Persistent, Bioaccumulative and Toxic
vPvB	vPvT: very Persistent and very Toxic
NTP	National Toxicology Program
IARC	International Agency for Research on Cancer
NIOSH	National Institute for Occupational Safety and Health
OSHA	Ocupational Safety and Health Standards

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.

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Annex to the extended Safety Data Sheet (eSDS)

No information available.

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