SECTION 1: IDENTIFICATION

1.1 Product identifier

Product Name	PLM-1/ PMC-1
Chemical Name	Mixture
CAS No.	Mixture
EINECS No.	Mixture

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s)	Photostress® measurements.
Uses Advised Against	For professional users only.

1.3 Details of the supplier of the safety data sheet

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 telephone number

1-800-424-9300
CHEMTREC

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 GHS Classification

Skin Irrit. 2; H315
Skin Sens. 1; H317
Eye Irrit. 2; H319
Muta. 2; H341
Carc. 1B; H350

2.2 Label elements

GHS Classification

Product Name: PLM-1/ PMC-1

Hazard Pictogram(s):

Signal Word(s): Danger

Contains: Bis-[4-(2,3-epoxipropoxi)phenyl]propane and Phenyl Glycidyl Ether

Hazard Statement(s):

H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H341: Suspected of causing genetic defects.
H350: May cause cancer.

Precautionary Statement(s):

P201: Obtain special instructions before use.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352: IF ON SKIN: Wash with plenty of water.
P333+P313: If skin irritation or rash occurs: Get medical advice/attention.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: If eye irritation persists: Get medical advice/attention.

OSHA Defined Hazards None.

2.3 Other hazards None.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances Not applicable

3.2 Mixtures Substances in preparations / mixtures

GHS Classification

Chemical identity of the substance	%W/W	CAS No.	EC No.	Hazard classification
Bis-[4-(2,3-epoxipropoxi)phenyl]propane	96	1675-54-3	216-823-5	Skin Irrit. 2; H315 (SCL: ≥ 5%) Skin Sens. 1; H317 Eye Irrit. 2; H319 (SCL: ≥ 5%)
Phenyl Glycidyl Ether	3	122-60-1	204-557-2	Skin Irrit. 2; H315 Skin Sens. 1; H317 Acute Tox. 4; H332 STOT SE 3; H335 Muta. 2; H341 Carc. 1B; H350 Aquatic Chronic 3; H412
Hexanedioic acid, polymer with 1,2-ethanediol and 1,2-propanediol	1	26523-14-8	-	Not classified

For full text of H/P Statements see section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Self-protection of the first aider: Do not breathe vapour. Wear suitable protective clothing. Wear suitable respiratory protective equipment if exposure to high levels of material are likely. Do not use mouth-to-mouth resuscitation. Avoid all contact.

Inhalation: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Apply artificial respiration if breathing has ceased or shows signs of failing. IF exposed or concerned: 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. If skin irritation or rash occurs: Get medical advice/attention. IF exposed or concerned: 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. Get medical attention if eye irritation develops or persists.

Ingestion: IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Do not give anything by mouth to an unconscious person. If symptoms develop, obtain medical attention. IF exposed or concerned: Call a POISON CENTER/doctor.

4.2 Most important symptoms and effects, both acute and delayed May cause cancer. Suspected of causing genetic defects. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation.

4.3 Indication of any immediate medical attention and special treatment needed Treat symptomatically. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

5.1	**Extinguishing media**	
	Suitable Extinguishing media	As appropriate for surrounding fire. Extinguish preferably with foam, carbon dioxide or dry chemical. Keep container(s) exposed to fire cool, by spraying with water.
	Unsuitable extinguishing media	Do not use water jet. Direct water jet may spread the fire.
5.2	**Special hazards arising from the substance or mixture**	May decompose in a fire giving off toxic fumes. Oxides of carbon.
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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1	**Personal precautions, protective equipment and emergency procedures**	Stop leak if safe to do so. Eliminate all ignition sources if safe to do so. Ensure adequate ventilation. Do not breathe vapour. Avoid all contact. Wear suitable respiratory protection. Use personal protective equipment as required. See Section: 8
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**	
	Small spillages:	Ensure suitable personal protection during removal of spillages. Adsorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a lidded container for disposal or recovery. Residual resin may be removed using steam or hot soapy water. Ventilate the area and wash spill site after material pick-up is complete. Dispose of this material and its container as hazardous waste.
	Large spillages:	Stop leak if safe to do so. Evacuate the area and keep personnel upwind. Ensure suitable personal protection during removal of spillages. Dike area to contain the spill and prevent releases to sewers, drains, or other waterways. Transfer to a lidded container for disposal or recovery. Residual resin may be removed using steam or hot soapy water. Ventilate the area and wash spill site after material pick-up is complete. Dispose of this material and its container as hazardous waste.
6.4	**Reference to other sections**	See Section: 8, 13

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. Avoid all contact. Do not breathe vapour. Ensure adequate ventilation. 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.
7.2	**Conditions for safe storage, including any incompatibilities**	Keep container tightly closed and dry. Keep away from heat, sources of ignition and direct sunlight.
	Storage temperature	Ambient. Keep at a temperature not exceeding (°C): 27 (80°F).
	Storage life	Stable under normal conditions.
	Incompatible materials	Keep away from: Acids, strong bases and Amines.
7.3	**Specific end use(s)**	See Section: 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational Exposure Limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Phenyl Glycidyl Ether	122-60-1	-	-	1	6	NIOSH, Ceiling limit value (15 min)
		10	60	-	-	OSHA
		0.1	-	-	-	ACGIH, Skin, A3

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

Skin: Potential significant contribution to the overall exposure by the cutaneous route.
A3: Confirmed animal carcinogen with unknown relevance to humans.

Occupational exposure limits have not been established for the other components listed in Section 3.

8.1.2 Biological limit value — Not established.

8.2 Exposure controls

8.2.1 Appropriate engineering controls — Ensure adequate ventilation or use appropriate containment. 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.

Skin protection

Hand protection: Wear impervious gloves. Gloves should be changed regularly to avoid permeation problems. The gloves type used must be chosen based on the work activity and duration as well as concentration/quantity of material being handled.

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

Respiratory protection

Use only in well-ventilated areas. In case of inadequate ventilation wear respiratory protection. Open system(s): Wear suitable respiratory protective equipment. Use NIOSH approved respiratory protection.

Thermal hazards — When dealing with heated material: Do not breathe vapour.

8.2.3 Environmental Exposure Controls — Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Water-White to yellow liquid /semi-solid
Odour	Not available.
Odour threshold	Not available.
pH	Not established.
Melting point/freezing point	Not established.
Initial boiling point and boiling range	Not established.
Flash point	252°C (485°F) [Closed cup]

Evaporation rate	Not applicable
Flammability (solid, gas)	Not applicable - Liquid
Upper/lower flammability or explosive limits	Not established.
Vapour pressure	< 0.1 mm Hg
Vapour density	>1 (Air = 1)
Relative density	1.16 (Water = 1)
Solubility(ies)	Solubility (Water): Negligible
Partition coefficient: n-octanol/water	Not established.
Auto-ignition temperature	Not established.
Decomposition Temperature	Not established.
Viscosity	Not available.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

9.2 Other information Volatile Organic Compound Content (%): <1

SECTION 10: STABILITY AND REACTIVITY

10.1	**Reactivity**	Stable under normal conditions.
10.2	**Chemical stability**	Excess heating over long periods of time degrades the resin.
10.3	**Possibility of hazardous reactions**	Hazardous Polymerization: Will not occur by itself, but masses of more than 500 gramms of product plus an aliphatic amine will cause irreversible polymerization with considerable heat buildup.
10.4	**Conditions to avoid**	Keep away from heat, sources of ignition and direct sunlight.
10.5	**Incompatible materials**	Keep away from: Acids, strong bases and Amines.
10.6	**Hazardous decomposition product(s)**	May decompose in a fire giving off toxic fumes. Oxides of carbon.

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	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 20.0 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 Irrit. 2: Causes skin irritation.
Serious eye damage/irritation	Eye Irrit. 2: Causes serious eye irritation.
Respiratory or skin sensitization	Skin Sens. 1: May cause an allergic skin reaction.
Germ cell mutagenicity	Muta. 2: Suspected of causing genetic defects.
Carcinogenicity	Carc. 1B: May cause cancer.
Reproductive toxicity	Based upon the available data, the classification criteria are not met.
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.

11.2 Other information

Likely routes of exposure

Inhalation	Yes, when product is heated.
Ingestion	Accidental
Skin Contact	Yes

Further Carcinogenicity Information

NTP Report on Carcinogens	None of the components are listed.
IARC Monographs	Phenyl glycidyl ether (CAS# 122-60-1): Group 2B: Possibly carcinogenic to humans.

Regulated as a Carcinogen by OSHA	None of the components are listed.
NIOSH Occupational Carcinogens List	Phenyl glycidyl ether (CAS# 122-60-1) is listed.

SECTION 12: ECOLOGICAL INFORMATION

12.1	**Ecotoxicity**	Based upon the available data, the classification criteria are not met. Estimated Mixture LC50 > 100 mg/l (Fish)
12.2	**Persistence and degradability**	Part of the components are poorly biodegradable.
12.3	**Bioaccumulative potential**	The product has low potential for bioaccumulation.
12.4	**Mobility in soil**	The product is predicted to have low mobility in soil.
12.5	**Other adverse effects**	Not classified as PBT or vPvB. None of the substances in this product fulfil the criteria for being regarded as a PBT or vPvB substance.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1	**Waste treatment methods**	Dispose of this material and its container as hazardous waste. Containers of this material may be hazardous when empty since they retain product residue. Can form explosive mixture with air particularly in empty uncleaned receptacles. Dispose of contents in accordance with local, state or national legislation.

SECTION 14: TRANSPORT INFORMATION

Not classified according to the United Nations 'Recommendations on the Transport of Dangerous Goods'.

		ADR/RID / IMDG / IATA
14.1	**UN number**	Not applicable
14.2	**UN proper shipping name**	Not applicable
14.3	**Transport hazard class(es)**	Not applicable
14.4	**Packing group**	Not applicable.
14.5	**Environmental hazards**	Not classified
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.

SECTION 15: REGULATORY INFORMATION

15.1	**Safety, health and environmental regulations/legislation specific for the substance or mixture**	
15.1.1	**U.S. Federal Regulations**	
	TSCA Inventory Status	All components of this product are listed in the Toxic Substance Control Act Chemical Substance Inventory (TSCA).
15.1.2	**US State Regulations**	None known.
15.1.1	**European regulations**	
	Substance(s) of Very High Concern (SVHCs)	None
	Authorisations and/or Restrictions On Use	For professional users only. Phenyl Glycidyl Ether (CAS# 122-60-1): REACH: ANNEX XVII restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles. Entry number: 28.
	Wassergefährdungsklasse (Germany)	Water hazard class: 3
15.2	**Chemical Safety Assessment**	Not available.

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.
Version 1.0
Date of preparation 21.10.15

References: Existing Safety Data Sheet (SDS), Harmonised Classification(s) for Bis-[4-(2,3-epoxipropoxi)phenyl]propane (CAS# 1675-54-3) and

Phenyl Glycidyl Ether (CAS# 122-60-1), and Existing ECHA registration(s) for Phenyl Glycidyl Ether (CAS# 122-60-1).

GHS Classification of the substance or mixture	Classification Procedure
Skin Irrit. 2; H315	Threshold Calculation
Skin Sens. 1; H317	Threshold Calculation
Eye Irrit. 2; H19	Threshold Calculation
Muta. 2; H341	Threshold Calculation
Carc. 1B; H350	Threshold Calculation

LEGEND

ACGIH: American Conference of Governmental Industrial Hygienists
IARC: International Agency for Research on Cancer
LTEL: Long Term Exposure Limit
NTP: National Toxicology Program
OSHA: The Occupational Safety & Health Administration
PBT: Persistent, Bioaccumulative and Toxic
PELs: Permissible Exposure Limits
RELs: Recommended Exposure Limits
STEL: Short Term Exposure Limit
TLVs: Threshold limit values
vPvB: very Persistent and very Bioaccumulative

Hazard Statement(s)

H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H332: Harmful if inhaled.
H335: May cause respiratory irritation.
H341: Suspected of causing genetic defects.
H350: May cause cancer.
H412: Harmful to aquatic life with long lasting effects.
SCL: Specific Concentration Limit

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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