

# SAFETY DATA SHEET

Revision: 1.1 Date: 26.08.2015


ACCORDING TO EC-REGULATIONS 1907/2006 (REACH),  
1272/2008 (CLP) & 2015/830

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

<b>1.1</b>	<b>Product identifier</b>	
	Product Name	PL1/PC1C
	Chemical Name	Mixture
	CAS No.	Mixture
	EINECS No.	Mixture
	REACH Registration No.	None assigned.
<b>1.2</b>	<b>Relevant identified uses of the substance or mixture and uses advised against</b>	
	Identified Use(s)	Photostress® measurements.
	Uses Advised Against	For professional users only.
<b>1.3</b>	<b>Details of the supplier of the safety data sheet</b>	
	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
<b>1.4</b>	<b>Emergency telephone number</b>	1-800-424-9300 CHEMTREC

## 2. SECTION 2: HAZARDS IDENTIFICATION

<b>2.1</b>	<b>Classification of the substance or mixture</b>	
<b>2.1.1</b>	<b>GHS Classification</b>	Skin Irrit. 2; H315 Skin Sens. 1; H317 Eye Irrit. 2; H319 Muta. 2; H341 Carc. 1B; H350 Aquatic Chronic 2; H411
<b>2.2</b>	<b>Label elements</b>	
	Product Name	GHS Classification PL1/PC1C
	Hazard Pictogram(s)	
	Signal Word(s)	Danger
	Contains:	Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700), N-Butyl Glycidyl Ether, P-tert-butylphenyl 1-(2,3-epoxy)propyl ether 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. H411: Toxic to aquatic life with long lasting effects.
	Precautionary Statement(s)	P201: Obtain special instructions before use. P280: Wear protective gloves/protective clothing/eye protection/face protection.

# SAFETY DATA SHEET

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ACCORDING TO EC-REGULATIONS 1907/2006 (REACH),  
1272/2008 (CLP) & 2015/830

www.vishaypg.com

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.

#### Additional Information

None.

#### 2.3 Other hazards

Can form explosive mixture with air particularly in empty uncleaned receptacles.

### 3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1 Substances Not applicable

#### 3.2 Mixtures

GHS Classification

Chemical identity of the substance	%W/W	CAS No.	EC No.	REACH Registration No.	Hazard Statement(s)
Reaction product: bisphenol-A- (epichlorhydrin) epoxy resin (number average molecular weight $\leq$ 700)	< 100	25068-38-6	500-033-5	None assigned.	Skin Irrit. 2; H315 (SCL: $\geq$ 5%) Skin Sens. 1; H317 Eye Irrit. 2; H319 (SCL: $\geq$ 5%) Aquatic Chronic 2; H411
N-Butyl Glycidyl Ether	5 - 7	2426-08-6	219-376-4	None assigned.	Flam. Liq. 3; H226 Acute Tox. 4; H302 Skin Sens. 1; H317 Acute Tox. 4; H332 STOT SE 3; H335 Muta. 2; H341 Carc. 2; H351 Aquatic Chronic 3; H412
P-Tert-butylphenyl 1-(2,3- epoxy)propyl ether	< 5	3101-60-8	221-453-2	None assigned.	Skin Irrit. 2; H315 Skin Sens. 1; H317 Aquatic Chronic 2; H411
Phenyl Glycidyl Ether	1 - 3	122-60-1	204-557-2	None assigned	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

H226: Flammable liquid and vapour. H302: Harmful if swallowed. 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. H351: Suspected of causing cancer. H411: Toxic to aquatic life with long lasting effects. H412: Harmful to aquatic life with long lasting effects. SCL: Specific Concentration Limit.

### 4. SECTION 4: FIRST AID MEASURES



#### 4.1 Description of first aid measures

Self-protection of the first aider

Inhalation

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.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.

# SAFETY DATA SHEET

Revision: 1.1 Date: 26.08.2015

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH),  
1272/2008 (CLP) & 2015/830

www.vishaypg.com

Skin Contact	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. 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. If vomiting occurs spontaneously, keep head below hips to prevent aspiration into the lungs. Make victim drink water. Do not give anything by mouth to an unconscious person. If symptoms develop, obtain medical attention.
<b>4.2 Most important symptoms and effects, both acute and delayed</b>	Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Suspected of causing genetic defects. May cause cancer.
<b>4.3 Indication of any immediate medical attention and special treatment needed</b>	Treat symptomatically.

## 5. SECTION 5: FIREFIGHTING MEASURES

<b>5.1 Extinguishing media</b> Suitable Extinguishing media	As appropriate for surrounding fire. Extinguish with carbon dioxide, dry chemical, foam or waterspray. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.
Unsuitable extinguishing media	Do not use water jet. Direct water jet may spread the fire.
<b>5.2 Special hazards arising from the substance or mixture</b>	May decompose in a fire giving off toxic fumes. Carbon monoxide, carbon dioxide, Aldehydes and Acids. Containers may explode when involved in a fire. Can form explosive mixture with air particularly in empty uncleaned receptacles. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback.
<b>5.3 Advice 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.

## 6. SECTION 6: ACCIDENTAL RELEASE MEASURES

<b>6.1 Personal precautions, protective equipment and emergency procedures</b>	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
<b>6.2 Environmental precautions</b>	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.
<b>6.3 Methods and material for containment and cleaning up</b>	Absorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a container for disposal. Ventilate the area and wash spill site after material pick-up is complete. Dispose of this material and its container as hazardous waste.
<b>6.4 Reference to other sections</b>	See Section: 8, 13

## 7. SECTION 7: HANDLING AND STORAGE

<b>7.1 Precautions for safe handling</b>	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. Do not apply pressure to empty containers.
<b>7.2 Conditions for safe storage, including any</b>	Ground/bond container and receiving equipment. Keep away from heat, sources

# SAFETY DATA SHEET

Revision: 1.1 Date: 26.08.2015

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH),  
1272/2008 (CLP) & 2015/830

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| <p>incompatibilities</p> <p>Storage temperature</p> <p>Storage life</p> <p>Incompatible materials</p> <p>7.3 Specific end use(s)</p> | <p>of ignition and direct sunlight.</p> <p>Ambient.</p> <p>Stable under normal conditions.</p> <p>Keep away from: Acids, strong bases and Amines.</p> <p>Photostress® measurements.</p> |
|--|---|

**8. 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
N-Butyl Glycidyl Ether	2426-08-6	-	-	5.6*	30*	NIOSH
N-Butyl Glycidyl Ether	2426-08-6	50	270	-	-	OSHA
Phenyl Glycidyl Ether	122-60-1	-	-	1*	6*	NIOSH
Phenyl Glycidyl Ether	122-60-1	10	60	-	-	OSHA

Note: OSHA/\*NIOSH 15 minutes average value

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| <p>8.1.2 Biological limit value</p> <p>8.1.3 PNECs and DNELs</p> <p>8.2 Exposure controls</p> <p>8.2.1 Appropriate engineering controls</p> <p>8.2.2 Individual protection measures, such as personal protective equipment (PPE)</p> <p>Eye/ face protection</p>  <p>Skin protection</p>  <p>Respiratory protection</p>  <p>Thermal hazards</p> <p>8.2.3 Environmental Exposure Controls</p> | <p>Not established.</p> <p>Not established.</p> <p>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.</p> <p>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. Contaminated leather articles should be discarded (e.g. shoes). Do not eat, drink or smoke at the work place.</p> <p>Wear protective eye glasses for protection against liquid splashes. Wear eye protection with side protection (EN166).</p> <p>Hand protection: Wear impervious gloves (EN374). 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.</p> <p>Body protection: Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate, to prevent skin contact.</p> <p>In case of inadequate ventilation wear respiratory protection. Open system(s): Wear suitable respiratory protective equipment.</p> <p>Not applicable.</p> <p>Avoid release to the environment.</p> |
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# SAFETY DATA SHEET

Revision: 1.1 Date: 26.08.2015

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH),  
1272/2008 (CLP) & 2015/830

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## 9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance	Clear - Light Coloured liquid
Odour	Faint Odour
Odour threshold	Not available.
pH	Not established.
Melting point/freezing point	-16 °C (CAS# 25068-38-6)
Initial boiling point and boiling range	~320°C (CAS# 25068-38-6)
Flash point	≥ 264 ≤ 268°C (CAS# 25068-38-6)
Evaporation rate	<1 (BuAc = 1)
Flammability (solid, gas)	Not applicable - Liquid.
Upper/lower flammability or explosive limits	Not applicable.
Vapour pressure	<1 mm Hg
Vapour density	>1 (Air = 1)
Relative density	1.14 (H <sub>2</sub> O = 1) (Mixture)
Solubility(ies)	Partly soluble in water. (CAS# 25068-38-6)
Partition coefficient: n-octanol/water	≥ 2.64 < 3.78 log Pow (25 °C) (CAS# 25068-38-6)
Auto-ignition temperature	Not applicable.
Decomposition Temperature	>350°C (CAS# 25068-38-6)
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	Can react vigorously with strong Lewis or mineral acids and strong mineral and organic bases, especially primary and secondary aliphatic amines. Can form explosive mixture with air particularly in empty uncleaned receptacles. Reaction with some curing agents may produce considerable heat.
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. Carbon monoxide, Carbon dioxide, Aldehydes and Acids.

## 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

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.

# SAFETY DATA SHEET

Revision: 1.1 Date: 26.08.2015

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH),  
1272/2008 (CLP) & 2015/830

www.vishaypg.com

<b>STOT - repeated exposure</b>	Based upon the available data, the classification criteria are not met.
<b>Aspiration hazard</b>	Based upon the available data, the classification criteria are not met.
<b>11.2 Other information</b>	Not listed
NTP Report on Carcinogens	Phenyl Glycidyl Ether (CAS# 122-60-1): Group 2B – Possibly carcinogenic to humans.
IARC Monographs	

## 12. SECTION 12: ECOLOGICAL INFORMATION

<b>12.1 Toxicity</b>	Aquatic Chronic 2: Toxic to aquatic life with long lasting effects. Estimated Mixture LC50 > 1 ≤ 10 mg/l (Fish)
<b>12.2 Persistence and degradability</b>	Part of the components are poorly biodegradable.
<b>12.3 Bioaccumulative potential</b>	The product has low potential for bioaccumulation.
<b>12.4 Mobility in soil</b>	The product is predicted to have low mobility in soil.
<b>12.5 Results of PBT and vPvB assessment</b>	Not classified as PBT or vPvB.
<b>12.6 Other adverse effects</b>	None known.

## 13. SECTION 13: DISPOSAL CONSIDERATIONS

<b>13.1 Waste treatment methods</b>	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.
<b>13.2 Additional Information</b>	Dispose of contents in accordance with local, state or national legislation.

## 14. SECTION 14: TRANSPORT INFORMATION

	<b>ADR/RID / IMDG / IATA</b>
<b>14.1 UN number</b>	UN 3082
<b>14.2 UN proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700) and P-Tert-butylphenyl 1-(2,3-epoxy)propyl ether)
<b>14.3 Transport hazard class(es)</b>	9
<b>14.4 Packing group</b>	III
<b>14.5 Environmental hazards</b>	Classified as a Marine Pollutant/ Environmentally hazardous substance
<b>14.6 Special precautions for user</b>	See Section: 2
<b>14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not applicable.
<b>14.8 Additional Information</b>	None.

## 15. SECTION 15: REGULATORY INFORMATION

<b>15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture</b>	
<b>15.1.1 National regulations</b>	None.
OSHA Occupational Safety and Health Standards	
<b>15.1.2 European regulations</b>	None
Substance(s) of Very High Concern (SVHCs)	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.
Authorisations and/or Restrictions On Use	Water hazard class: 3
Wassergefährdungsklasse (Germany)	Not available.
<b>15.2 Chemical Safety Assessment</b>	

# SAFETY DATA SHEET

Revision: 1.1 Date: 26.08.2015

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH),  
1272/2008 (CLP) & 2015/830

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## 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 Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight  $\leq$  700) (CAS# 25068-38-6), N-Butyl Glycidyl Ether (CAS# 2426-08-6) and Phenyl Glycidyl Ether (CAS# 122-60-1). Existing ECHA registration(s) for Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight  $\leq$  700) (CAS# 25068-38-6) and P-Tert-butylphenyl 1-(2,3-epoxy)propyl ether (CAS# 3101-60-8).

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
Aquatic Chronic 2; H411	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	very Persistent and very Bioaccumulative
NTP	National Toxicology Program
IARC	International Agency for Research on Cancer
OSHA	The Occupational Safety & Health Administration
NIOSH	National Institute for Occupational Safety and Health

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.