

# SAFETY DATA SHEET

Revision: 1.1 Date: 25.08.2015


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	PC-11
	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	None known.
<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. 2; H351 Aquatic Chronic 2; H411
<b>2.2</b>	<b>Label elements</b>	
	Product Name	GHS Classification PC-11
	Hazard Pictogram(s)	
	Signal Word(s)	Warning
	Contains:	Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700), N-Butyl Glycidyl and Ether P-Tert-butylphenyl 1-(2,3-epoxy)propyl 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. H351: Suspected of causing 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.

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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

None.

### 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)	75 - 80	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
Aluminium powder (stabilised)	15 - 20	7429-90-5	231-072-3	None assigned.	Flam. Sol. 1; H228 Water-react. 2; H261
N-Butyl Glycidyl Ether	4 - 6	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
Tert-butylphenyl 1-(2,3- epoxy)propyl ether	0.1 - 5	3101-60-8	221-453-2	None assigned.	Skin Irrit. 2; H315 Skin Sens. 1; H317 Eye Irrit. 2; H319 Aquatic Chronic 2; H411
Stearic acid	< 1	57-11-4	200-313-4	None assigned.	Not classified
Silicon	< 0.5	7440-21-3	231-130-8	None assigned.	Not classified
Iron	< 0.5	7439-89-6	231-096-4	None assigned.	Not classified

H226: Flammable liquid and vapour. H228: Flammable solid. H261: In contact with water releases flammable gases. 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. 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

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.

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

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Skin Contact	waistband. Apply artificial respiration if breathing has ceased or shows signs of failing. Call a POISON CENTER/doctor if you feel unwell. 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. Do not give anything by mouth to an unconscious person. IF exposed or concerned: Call a POISON CENTER/doctor.
<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. Suspected of causing 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 dry sand or special powder for metal fire.
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, Phenolics, Aluminium oxides and Aldehydes. Sealed containers may rupture explosively if hot. Dense smoke is emitted when burned without sufficient oxygen.
<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>	Ensure adequate ventilation. Eliminate all ignition sources if safe to do so. Stop leak if safe to do so. Use personal protective equipment as required. See Section: 8. Do not breathe vapour.
<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>	Ensure suitable personal protection during removal of spillages. Adsorb 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. This material and its container must be disposed of 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 contact with skin, eyes or clothing. 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.
<b>7.2 Conditions for safe storage, including any incompatibilities</b> Storage temperature Storage life	Store in a well-ventilated place. Keep container tightly closed. Keep away from heat, sources of ignition and direct sunlight. Protect from moisture. Ambient. Stable under normal conditions.

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Incompatible materials

Keep away from: Acids, strong bases, Oxidizing agents, mercaptans and unintended contact with amines. The following may occur: Hazardous Polymerization.

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

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Aluminium	7429-90-5	-	10 (1) 5 (2) 3 (3)	-	-	NIOSH
Aluminium	7429-90-5	-	15 (1) 5 (4)	-	-	OSHA
N-Butyl Glycidyl Ether	2426-08-6	-	-	5.6 (5)	30 (5)	NIOSH
N-Butyl Glycidyl Ether	2426-08-6	50	270	-	-	OSHA
Silicon	7440-21-3	-	10 (1) 5 (6)	-	-	NIOSH
Silicon	7440-21-3	-	15 (1) 5 (4)	-	-	OSHA

Note: OSHA 1910.1000 TABLE Z-1 / NIOSH

- 1) Total dust
- 2) Respirable fraction, pyro powders, welding fumes
- 3) Soluble salts, alkyls
- 4) Respirable dust
- 5) 15 minutes average value
- 6) Respirable fraction

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. 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 contact with skin, eyes or clothing. 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.

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. The gloves type used must be chosen based on the work activity and duration as well as concentration/quantity of material being handled. Recommended: Neoprene.

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Respiratory protection



Thermal hazards

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.

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	Aluminium 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	199°C [Closed cup]
Evaporation rate	Not available.
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	1.13 (H <sub>2</sub> O = 1)
Solubility(ies)	Insoluble in water.
Partition coefficient: n-octanol/water	$\geq 2.64 \leq 3.78 \log Pow$ (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

Volatile Organic Compound Content (%): 0

## 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	Keep away from: Acids, strong bases, Amines and mercaptans. The following may occur: Hazardous Polymerization. Contact with aliphatic amines will cause irreversible polymerization with considerable heat build-up.
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, Amines and mercaptans.
10.6 Hazardous decomposition product(s)	May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide, Phenolics, Aluminium oxides and Aldehydes.

## 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.

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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.
<b>Skin corrosion/irritation</b>	Skin Irrit. 2: Causes skin irritation.
<b>Serious eye damage/irritation</b>	Eye Irrit. 2: Causes serious eye irritation.
<b>Respiratory or skin sensitization</b>	Skin Sens. 1: May cause an allergic skin reaction.
<b>Germ cell mutagenicity</b>	Muta. 2: Suspected of causing genetic defects.
<b>Carcinogenicity</b>	Carc. 2: Suspected of causing cancer.
<b>Reproductive toxicity</b>	Based upon the available data, the classification criteria are not met.
<b>STOT - single exposure</b>	Based upon the available data, the classification criteria are not met.
<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>	
NTP Report on Carcinogens	Not listed
IARC Monographs	Not listed

## 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. (Insoluble in water.)
<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.
<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 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>	
OSHA Occupational Safety and Health Standards	None.
<b>15.1.2 European regulations</b>	
Authorisations and/or Restrictions On Use	None.
Substance(s) of Very High Concern (SVHCs)	None.
Wassergefährdungsklasse (Germany)	Water hazard class: 2

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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 Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight  $\leq$  700) (CAS# 25068-38-6), Aluminium powder (stabilised) (CAS# 7429-90-5) and N-Butyl Glycidyl Ether (CAS# 2426-08-6). Existing ECHA registration(s) for Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight  $\leq$  700) (CAS# 25068-38-6), P-Tertbutylphenyl Glycidyl Ether (CAS# 3101-60-8), Aluminium powder (stabilised) (CAS# 7429-90-5), Stearic acid (CAS# 57-11-4), Silicon (CAS# 7440-21-3) and Iron (CAS# 7439-89-6).

Classification of the substance or mixture According to Regulation (EC) No. 1272/2008 (CLP)	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. 2; H351	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.