

# SAFETY DATA SHEET

Version: 3.0  
Date of Issue: 24 April 2017  
Date of First Issue: 01 November 2012


www.vishaypg.com

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

## SECTION 1: IDENTIFICATION

Product identifier used on the label	PC-10	
Other means of identification	Not applicable	
<b>Recommended use of the chemical and restrictions on use</b>		
Recommended use	Photostress® measurements.	
Restrictions on use	Anything other than the above.	
<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

<b>Classification of the substance or mixture in accordance with paragraph (d) of 29 CFR 1910.1200</b>	
Physical hazards	Not classified
Health hazards	Acute toxicity, Category 4 Skin corrosion/irritation, Category 2 Skin Sensitisation, Category 1 Eye Irritation, Category 2 Specific target organ toxicity — repeated exposure, Category 1 (Central nervous system and Blood effect – Oral) Specific target organ toxicity — repeated exposure, Category 2 (Respiratory effects – Oral) Germ cell mutagenicity, Category 2 Carcinogen, Category 2
Environmental hazards	Hazardous to the aquatic environment, Chronic , Category 2
Hazard Symbol	
Signal Word(s)	DANGER
Hazard Statement(s)	Harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Causes damage to organs. Suspected of causing genetic defects. Suspected of causing cancer. Toxic to aquatic life with long lasting effects.
Precautionary Statement(s)	Obtain special instructions before use.

# SAFETY DATA SHEET

Version: 3.0

Date of Issue: 24 April 2017

Date of First Issue: 01 November 2012

www.vishaypg.com

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

Do not handle until all safety precautions have been read and understood.  
Do not breathe vapour.  
Wash hands and exposed skin thoroughly after handling.  
Wear protective gloves/protective clothing/eye protection/face protection.  
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.  
Rinse mouth.  
IF ON SKIN: Wash with plenty of water.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
IF exposed: Call a POISON CENTER or doctor/physician.  
Store locked up.  
Dispose of contents in accordance with local, state or national legislation.

Other hazards

None known

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
Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)	<100	25068-38-6	500-033-5	Skin corrosion/irritation, Category 2 Skin Sensitisation, Category 1 Eye Irritation, Category 2 Hazardous to the aquatic environment, Chronic , Category 2
Resorcinol diglycidyl ether	34 – 40	101-90-6	202-987-5	Acute toxicity, Category 4 – Oral Acute toxicity, Category 4 – Dermal Skin corrosion/irritation, Category 2 Skin Sensitisation, Category 1 Eye Irritation, Category 2 Germ cell mutagenicity, Category 2 Carcinogen, Category 2 Hazardous to the aquatic environment, Chronic , Category 3
Aluminium powder (stabilised)	15 - 20	7429-90-5	231-072-3	Flammable solid, Category 1 Water-reactive, Category 2
P-Tert-butylphenyl 1-(2,3-epoxy)propyl ether	0.4 – 3.8	3101-60-8	221-453-2	Skin corrosion/irritation, Category 2 Skin Sensitisation, Category 1 Hazardous to the aquatic environment, Chronic , Category 2
Linseed oil, epoxidised	1 - 2	8016-11-3	232-401-3	Not classified
Resorcinol	1 - 2	108-46-3	203-585-2	Acute toxicity, Category 4 – Oral Skin corrosion/irritation, Category 2 Skin Sensitisation, Category 1 Eye damage, category 1 Specific target organ toxicity — repeated exposure, Category 1 (Central nervous system and Blood effect – Oral) Specific target organ toxicity — repeated exposure, Category 2 (Respiratory effects – Oral) Hazardous to the aquatic environment, Acute, Category 1 Hazardous to the aquatic environment, Chronic , Category 3
Stearic acid	< 1	57-11-4	200-313-4	Not classified
Silicon	< 0.5	7440-21-3	231-130-8	Not classified
Iron	< 0.5	7439-89-6	231-096-4	Not classified

# SAFETY DATA SHEET

Version: 3.0  
Date of Issue: 24 April 2017  
Date of First Issue: 01 November 2012

www.vishaypg.com

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

## SECTION 4: FIRST AID MEASURES



### 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 waistband. Apply artificial respiration if breathing has ceased or shows signs of failing. IF exposed or concerned: Get medical advice/attention.

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: Get medical advice/attention.

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. Call a POISON CENTER/doctor if you feel unwell. IF exposed or concerned: Get medical advice/attention.

### Most important symptoms and effects, both acute and delayed

Harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Causes damage to organs. Suspected of causing genetic defects. Suspected of causing cancer.

### Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5: FIRE-FIGHTING MEASURES

### Extinguishing media

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.

### Special hazards arising from the substance or mixture

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.

### Special protective equipment and precautions 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

### Personal precautions, protective equipment and emergency procedures

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.

### Methods and material for containment and cleaning up

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.

# SAFETY DATA SHEET



Version: 3.0  
 Date of Issue: 24 April 2017  
 Date of First Issue: 01 November 2012

www.vishaypg.com

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

## SECTION 7: HANDLING AND STORAGE

### Precautions for safe handling

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.

### Conditions for safe storage, including any incompatibilities

Storage temperature  
 Storage life  
 Incompatible materials

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.

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

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Occupational Exposure Limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m <sup>3</sup> )	STEL (ppm)	STEL (mg/m <sup>3</sup> )	Note
Aluminium	7429-90-5	-	10	-	-	NIOSH Total Dust Respirable Fraction Soluble Salts, alkyls
		-	5	-	-	
		-	3	-	-	
		-	15	-	-	OSHA Total Dust Respirable Dust
		-	5	-	-	
		-	1	-	-	
Resorcinol	108-46-3	10	45	20(1)	90(1)	NIOSH
		10	-	20	-	ACGIH, A4
Silicon	7440-21-3	-	10	-	-	NIOSH Total Dust Respirable Dust
		-	5	-	-	
		-	15	-	-	OSHA Total Dust Respirable Dust
		-	5	-	-	

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

(1) 15 minutes average value

A4: Not Classifiable as a Human Carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of the lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories.

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

### Biological Exposure Indices

Not established

### Appropriate engineering controls

Ensure adequate ventilation or use appropriate containment. Atmospheric levels should be controlled in compliance with the occupational exposure limit. Have available eyewash bottle with clean water.

### 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

# SAFETY DATA SHEET

Version: 3.0

Date of Issue: 24 April 2017

Date of First Issue: 01 November 2012

www.vishaypg.com

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

Eye/face protection



should be thoroughly cleaned. Contaminated leather articles should be discarded (e.g. shoes). Do not eat, drink or smoke at the work place.

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. Recommended: Neoprene.

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

Respiratory protection



In case of inadequate ventilation wear respiratory protection. Open system(s): Wear suitable respiratory protective equipment.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Appearance	Aluminium Coloured liquid
Odor	Faint Odour
Odor Threshold	Not available.
pH	Not established.
Melting Point/Freezing Point	Not available.
Initial boiling point and boiling range	204°C
Flash Point	110°C [Closed cup]
Evaporation rate (Butyl acetate = 1)	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	1.51 (H <sub>2</sub> O = 1)
Solubility(ies)	Insoluble in water.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not applicable.
Decomposition Temperature	Not available.
Viscosity	Not available.

## SECTION 10: STABILITY AND REACTIVITY

### Reactivity

Stable under normal conditions.

### Chemical stability

Stable under normal conditions.

### 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.

Keep away from heat, sources of ignition and direct sunlight.

### Conditions to avoid

Keep away from: Acids, strong bases, Amines and mercaptans.

### Incompatible materials

May decompose in a fire giving off toxic fumes. Carbon monoxide, carbon dioxide, Phenolics, Aluminium oxides and Aldehydes.

### Hazardous decomposition product(s)

# SAFETY DATA SHEET

Version: 3.0  
Date of Issue: 24 April 2017  
Date of First Issue: 01 November 2012

www.vishaypg.com

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

## SECTION 11: TOXICOLOGICAL INFORMATION

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

<b>Acute toxicity - Ingestion</b>	Acute toxicity, Category 4: Harmful if swallowed. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 1244 mg/kg bw/day.
<b>Acute toxicity - Inhalation</b>	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 20.0 mg/l.
<b>Acute toxicity - Skin Contact</b>	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 corrosion/irritation, Category 2: Causes skin irritation.
<b>Serious eye damage/irritation</b>	Eye Irritation, Category 2: Causes serious eye irritation.
<b>Respiratory or skin sensitization</b>	Skin Sensitisation, Category 1: May cause an allergic skin reaction.
<b>Germ cell mutagenicity</b>	Germ cell mutagenicity, Category 2: Suspected of causing genetic defects.
<b>Carcinogenicity</b>	Carcinogen, Category 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>	Specific target organ toxicity — single exposure, Category 1; Causes damage to organs. Central nervous system and Blood effect – Oral Specific target organ toxicity — single exposure, Category 2; May cause damage to organs. Respiratory effects – Oral
<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.

### Information on likely routes of exposure

Inhalation	Possible – accidental exposure
Ingestion	Unlikely – accidental exposure
Skin Contact	Unlikely – accidental exposure
Eye Contact	Unlikely – accidental exposure

**Early onset symptoms related to exposure** Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation.

**Delayed health effects from exposure** Harmful if swallowed. Causes damage to organs. (Central nervous system and Blood effect, Respiratory effects). Suspected of causing genetic defects. Suspected of causing cancer.

### Other information

NTP Report on Carcinogens	Resorcinol diglycidyl ether: Reasonably anticipated to be a human carcinogen
IARC Monographs	Resorcinol diglycidyl ether: Group 2B
	Resorcinol: Group 3
OSHA Designated Carcinogen	All chemicals are not listed

## SECTION 12: ECOLOGICAL INFORMATION

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

## SECTION 13: DISPOSAL CONSIDERATIONS

<b>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.
--------------------------------	---

# SAFETY DATA SHEET

Version: 3.0  
Date of Issue: 24 April 2017  
Date of First Issue: 01 November 2012

www.vishaypg.com

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

## Additional Information

Dispose of contents in accordance with local, state or national legislation.

## SECTION 14: TRANSPORT INFORMATION

	ADR/RID	IMDG	IATA
UN number	UN 3082	UN 3082	UN 3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight $\leq$ 700) and Tert-butylphenyl 1-(2,3-epoxy)propyl ether)		
Transport hazard class(es)	9	9	9
Packing group	III	III	III
Environmental hazards	Environmentally hazardous substance	Classified as a Marine Pollutant	Environmentally hazardous substance
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.		
Special precautions for user	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)	Not listed
EPCRA/SARA Section 302 Extremely Hazardous Substances	Not listed
EPCRA Section 313 Toxics Release Inventory (TRI) Program	Resorcinol diglycidyl ether: De Minimis limit: 0.1% Aluminium: De Minimis limit: 0.1%
NIOSH Occupational Carcinogen List	Not listed
OSHA List of highly hazardous chemicals, toxics and reactives	Not listed
NTP Report on Carcinogens (RoC) List	Resorcinol diglycidyl ether: Reasonably anticipated to be a human carcinogen
Poison Prevention Packaging Act	Not listed
<b>US State Regulations</b>	Not listed
California State, Proposition 65 List	Resorcinol diglycidyl ether: Safe harbor level - NSRL: 0.4 ug/day
California State, Safer Consumer Products Regulations	Resorcinol diglycidyl ether: Candidate Chemicals List Aluminium: Initial Candidate Chemicals List
Maine State, Toxic Chemicals in Children's Products Act	Resorcinol: COC list
New Jersey State Worker and Community RTK Act	Resorcinol: RTKHSL Silicon: RTKHSL. SHHSL
Pennsylvania State, Worker and Community RTK Act	Resorcinol diglycidyl ether: Hazardous Substance List. Special Hazardous Substance List Aluminium: Hazardous Substance List. Environmental Hazard List Resorcinol: Hazardous Substance List. Environmental Hazard List Silicon: Hazardous Substance List
Rhode Island State, Hazardous Substances RTK Act	Aluminium: Hazardous Substance List Resorcinol: Hazardous Substance List Silicon: Hazardous Substance List

#### Non-Regional

IARC Monographs, List of Classifications	Resorcinol diglycidyl ether: Group 2B Resorcinol: Group 3
--	--

## 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.

Version 3.0  
Revision Date 24 April 2017  
Date of First Issue 01 November 2012



# SAFETY DATA SHEET

Version: 3.0

Date of Issue: 24 April 2017

Date of First Issue: 01 November 2012

www.vishaypg.com

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

**References:** Existing Safety Data Sheet (SDS), EU Harmonised Classification(s) for Resorcinol diglycidyl ether (CAS No. 101-90-6), Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight  $\leq$  700) (CAS No. 25068-38-6), Aluminium powder (stabilised) (CAS No. 7429-90-5) and Resorcinol (CAS No.108-46-3). Existing EU ECHA registration(s) for Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight  $\leq$  700) (CAS No. 25068-38-6), Tert-butylphenyl 1-(2,3-epoxy)propyl ether (CAS No. 3101-60-8), Aluminium (CAS No. 7429-90-5), Linseed oil, Epoxidized (CAS No. 8016-11-3), Resorcinol (CAS No. 108-46-3), Stearic acid (CAS No. 57-11-4), Silicon (CAS No. 7440-21-3) and Iron (CAS# 7439-89-6).

GHS Classification of the substance or mixture	Classification Procedure
Acute toxicity, Category 4	Acute Toxicity Estimate Mixture Calculation
Skin corrosion/irritation, Category 2	Threshold Calculation
Skin Sensitisation, Category 1	Threshold Calculation
Eye Irritation, Category 2	Threshold Calculation
Specific target organ toxicity — repeated exposure, Category 1 (Central nervous system and Blood effect – Oral)	Threshold Calculation
Specific target organ toxicity — repeated exposure, Category 2 (Respiratory effects – Oral)	Threshold Calculation
Germ cell mutagenicity, Category 2	Threshold Calculation
Carcinogen, Category 2	Threshold Calculation
Aquatic Chronic 2; H411	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

Information contained in this publication or as otherwise supplied to Users is believed to be accurate and is given in good faith, but it is for the Users to satisfy themselves of the suitability of the product for their own particular purpose. Vishay Precision Group gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. Vishay Precision Group accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patents, Copyright and Designs cannot be assumed.