SAFETY DATA SHEET

Version: 2.0
Date of Issue: 25 April 2017
Date of First Issue: 02 November 2012

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ACCORDING TO OSHA HCS (29 CFR 1910.1200)

SECTION 1: IDENTIFICATION

Product identifier used on the label PC-11C

Other means of identification Not applicable

Recommended use of the chemical and restrictions on use

Recommended use	Photostress® measurements.
Restrictions on use	Anything other than the above.

Details of the supplier of the safety data sheet

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)	mm.us@vishaypg.com

Emergency telephone number 1-800-424-9300 CHEMTREC (24 hours)

SECTION 2: HAZARD(S) IDENTIFICATION

Classification of the substance or mixture in accordance with paragraph (d) of 29 CFR 1910.1200

Physical hazards	Flammable Liquid, Category 4
Health hazards	Skin corrosion/irritation, Category 2 Skin Sensitisation, Category 1 Eye Irritation, Category 2 Germ cell mutagenicity, Category 2 Carcinogen, Category 2
Environmental hazards	Hazardous to the aquatic environment, Chronic , Category 2

Hazard Symbol

Signal Word(s) WARNING

Hazard Statement(s)

Combustible liquid
Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
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.
Do not handle until all safety precautions have been read and understood.
Keep away from flames and hot surfaces. - No smoking
Avoid breathing vapours.
Wash hands and exposed skin thoroughly after handling.
Wear protective gloves/eye protection/face protection.
IF ON SKIN: Wash with plenty of water.

If skin irritation occurs, get medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists, get medical advice/attention.
IF exposed or concerned: Call a POISON CENTER/doctor.
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 (SCL: ≥ 5%) Skin Sensitisation, Category 1 Eye Irritation, Category 2 (SCL: ≥ 5%) Hazardous to the aquatic environment, Chronic , Category 2
N-Butyl Glycidyl Ether	4 - 7	2426-08-6	219-376-4	Flammable Liquid, Category 3 Acute toxicity, Category 4 – Oral Skin Sensitisation, Category 1 Acute toxicity, Category 4 – Inhalation Specific target organ toxicity — single exposure, Category 3 – Respiratory irritation Germ cell mutagenicity, Category 2 Carcinogen, Category 2 Hazardous to the aquatic environment, Chronic , Category 3
Tert-butylphenyl 1-(2,3-epoxy)propyl ether	1 – 5	3101-60-8	221-453-2	Skin corrosion/irritation, Category 2 Skin Sensitisation, Category 1 Hazardous to the aquatic environment, Chronic , Category 2

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Self-protection of the first aider: Avoid breathing vapours. 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 vomiting occurs spontaneously, keep head below hips to prevent aspiration into the lungs. If symptoms develop, obtain medical attention.
Most important symptoms and effects, both acute and delayed	Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. 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 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.
Special hazards arising from the substance or mixture	Combustible liquid. May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide, Phenolics, Acids 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. Avoid breathing vapours. Avoid all contact.
Methods and material for containment and cleaning up	Ensure suitable personal protection during removal of spillages. Contain 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. Dispose of this material and its container as hazardous waste.

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 breathing vapours. Avoid all contact. 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	Store in a well-ventilated place. Keep container tightly closed. Keep away from heat, sources of ignition and direct sunlight.
Storage temperature	Ambient.
Storage life	Stable under normal conditions.
Incompatible materials	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/m³)	STEL (ppm)	STEL (mg/m³)	Note
N-Butyl Glycidyl Ether	2426-08-6	-	-	5.6(1)	30(1)	NIOSH
		50	270	-	-	OSHA
		3	-	-	-	ACGIH, Sk, Sen

Note: OSHA PELs 1910.1000 TABLE Z-1/ NIOSH RELs / ACGIH TLVs
Sk - Can be absorbed through skin.
Sen: Capable of causing respiratory sensitisation

(1) Ceiling limit value (15 min)

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. Guarantee that the eye flushing systems and safety showers are located close to the working place.

Individual protection measures, such as personal protective equipment (PPE) — General hygiene measures for the handling of chemicals are applicable. Avoid breathing vapours. Avoid all contact. 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.

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	Clear - Light coloured liquid
Odor	Faint Odour
Odor Threshold	Not available.
pH	Not established.
Melting Point/Freezing Point	-16 °C (CAS No. 25068-38-6)

Initial boiling point and boiling range	~320°C (CAS No. 25068-38-6)
Flash Point	73.3°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	1.13 (H2O = 1)
Solubility(ies)	Insoluble in water.
Partition coefficient: n-octanol/water	≥ 2.64 ≤ 3.78 log Pow (25 °C) (CAS No. 25068-38-6)
Auto-ignition temperature	Not applicable.
Decomposition Temperature	>350°C (CAS No. 25068-38-6)
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.
Conditions to avoid	Keep away from heat, sources of ignition and direct sunlight.
Incompatible materials	Keep away from: Acids, strong bases, Amines and mercaptans.
Hazardous decomposition product(s)	May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide, Phenolics, Acids and Aldehydes.

SECTION 11: TOXICOLOGICAL INFORMATION

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.
Acute toxicity - Inhalation	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 20.0 mg/l.
Acute toxicity - 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 corrosion/irritation, Category 2; Causes skin irritation.
Serious eye damage/irritation	Eye Irritation, Category 2; Causes serious eye irritation.
Respiratory or skin sensitization	Skin Sensitisation, Category 1; May cause an allergic skin reaction.
Germ cell mutagenicity	Germ cell mutagenicity, Category 2; Suspected of causing genetic defects.
Carcinogenicity	Carcinogen, Category 2; Suspected of causing 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.

Information on likely routes of exposure

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

Early onset symptoms related to exposure	Causes irritation to eyes and skin.
Delayed health effects from exposure	May cause an allergic skin reaction. Suspected of causing genetic defects. Suspected of causing cancer.

Other information	
NTP Report on Carcinogens	Not listed
IARC Monographs	Not listed
OSHA Designated Carcinogen	Not listed

SECTION 12: ECOLOGICAL INFORMATION

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

SECTION 13: DISPOSAL CONSIDERATIONS

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.
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 ≤ 700) and Tert-butylphenyl 1-(2,3-epoxy)propyl ether)	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)	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)
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)	N-Butyl Glycidyl Ether: Subject to 2,500 lb reporting threshold Tert-butylphenyl 1-(2,3-epoxy)propyl ether: Subject to 2,500 lb reporting threshold
EPCRA/SARA Section 302 Extremely Hazardous Substances	All chemicals are not listed
EPCRA Section 313 Toxics Release Inventory (TRI) Program	All chemicals are not listed
NIOSH Occupational Carcinogen List	All chemicals are not listed
OSHA List of highly hazardous chemicals, toxics and reactives	All chemicals are not listed
NTP Report on Carcinogens (RoC) List	All chemicals are not listed

Poison Prevention Packaging Act	All chemicals are not listed
US State Regulations	
California State, Proposition 65 List	All chemicals are not listed
California State, Safer Consumer Products Regulations	All chemicals are not listed
Maine State, Toxic Chemicals in Children's Products Act	All chemicals are not listed
New Jersey State Worker and Community RTK Act	N-Butyl Glycidyl Ether: RTKHSL
Pennsylvania State, Worker and Community RTK Act	N-Butyl Glycidyl Ether: Hazardous Substance List
Rhode Island State, Hazardous Substances RTK Act	N-Butyl Glycidyl Ether: Hazardous Substance List
Non-Regional	
IARC Monographs, List of Classificationsonal	All chemicals are not listed

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	2.0
Revision Date	25 April 2017
Date of First Issue	02 November 2012

References:
Existing Safety Data Sheet (SDS), EU Data: Harmonised Classification(s) for Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700) (CAS# 25068-38-6) 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 ≤ 700) (CAS# 25068-38-6) and P-Tertbutylphenyl Glycidyl Ether (CAS# 3101-60-8).

GHS Classification of the substance or mixture	Classification Procedure
Flammable Liquid, Category 4	Flash Point Test Result [Closed cup]
Skin corrosion/irritation, Category 2	Threshold Calculation
Skin Sensitisation, Category 1	Threshold Calculation
Eye Irritation, Category 2	Threshold Calculation
Germ cell mutagenicity, Category 2	Threshold Calculation
Carcinogen, Category 2	Threshold Calculation
Hazardous to the aquatic environment, Chronic , Category 2	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": 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.

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