

Material Safety Data Sheet

EPOCAST® 1610-A1 US

1 . Product and company identification

Product name : EPOCAST® 1610-A1 US
Material uses : Epoxy resin
(M)SDS # : 00056839
Validation date : 10/2/2013.
Supplier/Manufacturer : Huntsman Advanced Materials Americas LLC
P.O. Box 4980
The Woodlands, TX 77387

Non-Emergency phone: (800) 257-5547

E-Mail: MSDS@huntsman.com

In case of emergency : Chemtrec: (800) 424-9300 or (703) 527-3887

2 . Hazards identification

Physical state : Liquid. [Paste.]
Odor : Slight
Color : Off-white.
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview : DANGER!
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN OR IF SWALLOWED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. POSSIBLE BIRTH DEFECT HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS, BASED ON ANIMAL DATA.
Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

See toxicological information (Section 11)

GENERAL INFORMATION : Read the entire MSDS for a more thorough evaluation of the hazards.

3 . Composition/information on ingredients

Name	CAS number	%
Bisphenol A epoxy resin	25068-38-6	30 - 60
Ammonium polyphosphate	68333-79-9	7 - 13
Butanedioldiglycidyl ether	2425-79-8	3 - 7
Nonylphenol	84852-15-3	1 - 3
Aluminium oxide	1344-28-1	1 - 3
hexaboron-dizinc-undecaoxide-	12767-90-7	1 - 3
Diuron	330-54-1	0.1 - 1

4 . First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Notes to physician** : Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for at least 48 hours.

5 . Fire-fighting measures

- Flash point** : Closed cup: 94 to 94°C (201.2 to 201.2°F)
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
halogenated compounds
metal oxide/oxides
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6 . Accidental release measures

- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

7 . Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Diuron	ACGIH TLV (United States, 3/2012). TWA: 10 mg/m ³ 8 hours.

Consult local authorities for acceptable exposure limits.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Respiratory** : In case of inadequate ventilation wear respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

8 . Exposure controls/personal protection

- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. > 8 hours (breakthrough time): Ethyl Vinyl Alcohol Laminate (EVAL), butyl rubber
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Appearance

- Physical state** : Liquid. [Paste.]
- Color** : Off-white.
- Odor** : Slight
- pH** : Not available.
- Boiling/condensation point** : Not available.
- Melting/freezing point** : Not available.
- Flash point** : Closed cup: 94 to 94°C (201.2 to 201.2°F)
- Flammable limits** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : >200°C (>392°F)
- Vapor pressure** : <0.13 kPa (<1 mm Hg) [room temperature]
- Specific gravity** : Not available.
- Water solubility** : Insoluble
- Partition coefficient: n-octanol/water (log Kow)** : Not available.
- Density** : Not available.
- Vapor density** : >1 [Air = 1]
- Evaporation rate (butyl acetate = 1)** : Not available.

10 . Stability and reactivity

- Chemical stability** : The product is stable.
Hazardous reactions or instability may occur under certain conditions of storage or use.
- Hazardous polymerization** : Hazardous polymerization may occur under certain conditions of storage or use.
- Conditions to avoid** : No specific data.
- Materials to avoid** : strong acids, strong bases, strong oxidising agents
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Test	Endpoint	Species	Result
Butanedioldiglycidyl ether	No official guidelines	LD50 Dermal	Rat - Male, Female	2150 mg/kg
	OECD 401 Acute Oral Toxicity	LD50 Oral	Rat - Male, Female	1163 mg/kg
Nonylphenol	-	LD50 Dermal	Rabbit - Male	2031 mg/kg
	Unknown guidelines	LD50 Oral	Rat - Male, Female	1412 mg/kg
Bisphenol A epoxy resin	-	LC0 Inhalation Vapor	Rat - Male	0.00001 ppm
	OECD 402 Acute Dermal Toxicity	LD50 Dermal	Rat - Male, Female	>2000 mg/kg
	OECD 420 Acute Oral Toxicity - Fixed Dose Method	LD50 Oral	Rat - Female	>2000 mg/kg
Ammonium polyphosphate	-	LC50 Inhalation Dusts and mists	Rat - Male, Female	>5.09 mg/l
	OECD 402 Acute Dermal Toxicity	LD50 Dermal	Rat	>5000 mg/kg
	-	LD50 Dermal	Rat	>2000 mg/kg
	-	LD50 Oral	Rat	1450 mg/kg
Diuron	-	LD50 Oral	Rat - Male, Female	>2000 mg/kg
	OECD 403 Acute Inhalation Toxicity	LC50 Inhalation Dusts and mists	Rat - Male, Female	>5.05 mg/l
	EPA OPPTS OPPTS 870.1300 Acute Inhalation Toxicity	LC50 Inhalation Dusts and mists	Rat	>7.1 mg/l
	EPA OPPTS OPPTS 870.1200 Acute Dermal Toxicity	LD50 Dermal	Rat - Male, Female	>2000 mg/kg
	OECD 402 Acute Dermal Toxicity	LD50 Dermal	Rat - Male, Female	>5000 mg/kg
	EPA OPPTS OPPTS 870.1100 Acute Oral Toxicity	LD50 Oral	Rat	5000 mg/kg

Irritation/Corrosion

11 . Toxicological information

Product/ingredient name	Test	Species	Result
Butanedioldiglycidyl ether	OECD 404 Acute Dermal Irritation/ Corrosion	Rabbit	Skin - Non-irritant.
	OECD 405 Acute Eye Irritation/ Corrosion	Rabbit	Eyes - Severe irritant
Bisphenol A epoxy resin	OECD 404 Acute Dermal Irritation/ Corrosion	Rabbit	Skin - Mild irritant
	OECD 405 Acute Eye Irritation/ Corrosion	Rabbit	Eyes - Mild irritant
Ammonium polyphosphate	-	Human	Skin - Non-irritant.
	OECD 405 Acute Eye Irritation/ Corrosion	Rabbit	Eyes - Non-irritant.
Diuron	OECD 404 Acute Dermal Irritation/ Corrosion	Rabbit	Skin - Non-irritant.
	OECD 405 Acute Eye Irritation/ Corrosion	Rabbit	Eyes - Non-irritant.
	EPA OPPTS OPPTS 870.2500 Acute Dermal Irritation	Rabbit	Skin - Mild irritant
	EPA OPPTS	Rabbit	Eyes - Mild irritant

Conclusion/ Summary

Skin	: Bisphenol A epoxy resin	Irritating to skin.
	Ammonium polyphosphate	Non-irritating to the skin.
Eyes	Butanedioldiglycidyl ether	Based on the human occupational exposure data, this substance is considered as irritating to skin.
	Nonylphenol	No additional information.
	Diuron	Non-irritating to the skin.
	Bisphenol A epoxy resin	Irritating to eyes.
Respiratory	Ammonium polyphosphate	Non-irritating to the eyes.
	Butanedioldiglycidyl ether	Severely irritating to eyes.
	Nonylphenol	No additional information.
	Diuron	Slightly irritating to the eyes.
	Bisphenol A epoxy resin	No additional information.
Ammonium polyphosphate	No additional information.	
Butanedioldiglycidyl ether	No additional information.	
Nonylphenol	No additional information.	
Diuron	No additional information.	

Sensitizer

Product/ingredient name	Test	Route of exposure	Species	Result
Butanedioldiglycidyl ether	OECD 406 Skin Sensitization	skin	Guinea pig	Sensitizing
Nonylphenol	OECD 406 Skin Sensitization	skin	Guinea pig	Not sensitizing
Bisphenol A epoxy resin	OECD 429 Skin Sensitization: Local Lymph Node Assay	skin	Mouse	Sensitizing
Ammonium polyphosphate	-	skin	Guinea pig	Not sensitizing
Diuron	OECD 406 Skin Sensitization EPA OPPTS	skin	Guinea pig	Not sensitizing
		skin	Guinea pig	Not sensitizing

11 . Toxicological information

Mutagenicity

Product/ingredient name	Test	Result
Butanedioldiglycidyl ether	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Positive
	Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: +/-	Positive
	Experiment: In vivo Subject: Mammalian-Animal Cell: Somatic	Negative
Bisphenol A epoxy resin	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Positive
	Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic Metabolic activation: +/-	Positive
	Experiment: In vivo Subject: Mammalian-Animal Cell: Germ	Negative
	Experiment: In vivo Subject: Mammalian-Animal Cell: Somatic	Negative
Diuron	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Negative
	Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: +/-	Negative
	Experiment: In vitro Subject: Mammalian-Animal	Negative
	Experiment: In vivo Subject: Mammalian-Animal	Negative
	Experiment: In vivo Subject: Mammalian-Animal	Negative
	Experiment: In vivo Subject: Mammalian-Animal	Negative

Conclusion/ Summary : Nonylphenol The weight of the scientific evidence indicates that this material is non-genotoxic.
Diuron The weight of the scientific evidence indicates that this material is non-genotoxic.

Carcinogenicity

Product/ingredient name	Test	Species	Dose	Exposure	Result/Result type
Bisphenol A epoxy resin	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Rat - Male, Female	15 mg/kg	2 years; 7 days per week	Negative - Oral - NOAEL
	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Rat - Female	1 mg/kg	2 years; 5 days per week	Negative - Dermal - NOEL
	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Mouse - Male	0.1 mg/kg	2 years; 3 days per week	Negative - Dermal - NOEL

11 . Toxicological information

Diuron	Carcinogenicity Studies Unknown guidelines OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Rat - Male, Female Rat - Male, Female	<600 mg/kg 1 to 17 mg/kg	- 24 months; 7 days per week	Positive - Oral - NOEL Positive - Oral - NOAEL
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Carcinogenic class

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Diuron	A4	-	-	-	-	-

Reproductive toxicity

Product/ingredient name	Test	Species	Maternal toxicity	Fertility	Developmental effects
Bisphenol A epoxy resin	OECD 416 Two-Generation Reproduction Toxicity Study	Rat - Male, Female	Negative	Negative	Negative
Diuron	OECD 416 Two-Generation Reproduction Toxicity Study	Rat - Male, Female	Negative	Negative	Negative
	Unknown guidelines	Rat - Male, Female	Negative	-	-

Conclusion/ Summary : Aluminium oxide No known significant effects or critical hazards.

Teratogenicity

Product/ingredient name	Test	Species	Result/Result type
Nonylphenol	OECD 414 Prenatal Developmental Toxicity Study	Rat - Female	Negative - Oral
Bisphenol A epoxy resin	OECD 414 Prenatal Developmental Toxicity Study	Rat - Female	Negative - Oral
	EPA CFR	Rabbit - Female	Negative - Dermal
	OECD 414 Prenatal Developmental Toxicity Study	Rabbit - Female	Negative - Oral
Diuron	Unknown guidelines	Rat - Female	Positive - Oral
	OECD 414 Prenatal Developmental Toxicity Study	Rat - Female	Negative - Oral
	OECD 414 Prenatal Developmental Toxicity Study	Rabbit - Female	Negative - Oral

Potential acute health effects

Inhalation : Irritating to respiratory system.

11 . Toxicological information

- Ingestion** : Harmful if swallowed.
- Skin contact** : Harmful in contact with skin. Irritating to skin. May cause sensitization by skin contact.
- Eye contact** : Severely irritating to eyes. Risk of serious damage to eyes.

Potential chronic health effects

Product/ingredient name	Test	Endpoint	Species	Result
Butanedioldiglycidyl ether	OECD 407 Repeated Dose 28-day Oral Toxicity Study in Rodents	Sub-chronic NOAEL Oral	Rat - Male, Female	200 mg/kg
Nonylphenol	OECD 407 Repeated Dose 28-day Oral Toxicity Study in Rodents	Sub-acute NOAEL Oral	Rat - Male, Female	100 mg/kg
Bisphenol A epoxy resin	EPA OPPTS	Sub-chronic NOAEL Oral	Rat - Male, Female	50 mg/kg
	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Sub-chronic NOAEL Oral	Rat - Male, Female	50 mg/kg
Diuron	OECD 411 Subchronic Dermal Toxicity: 90-day Study	Sub-chronic NOEL Dermal	Rat - Male, Female	10 mg/kg
	OECD 411 Subchronic Dermal Toxicity: 90-day Study	Sub-chronic NOAEL Dermal	Mouse - Male	100 mg/kg
	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Sub-chronic NOAEL Oral	Rat - Male, Female	6.7 to 8.7 mg/kg
	OECD 452 Chronic Toxicity Studies	Chronic NOAEL Oral	Dog - Male, Female	1.8 mg/kg/d
	OECD 410 Repeated Dose Dermal Toxicity: 21/28-day Study	Sub-acute NOAEL Dermal	Rabbit - Male, Female	250 mg/kg/d
	OECD 412 Repeated Dose Inhalation Toxicity: 28-day or 14-day Study	Sub-acute NOEC Inhalation Dusts and mists	Rat - Male, Female	4.1 to 37.4 mg/m ³

- General** : Contains material that may cause target organ damage, based on animal data. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Target organs** : Contains material which may cause damage to the following organs: kidneys.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : Contains material which may cause birth defects, based on animal data.

11 . Toxicological information

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure

Pre-existing skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

12 . Ecological information

Environmental effects : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Water polluting material. May be harmful to the environment if released in large quantities.

Aquatic ecotoxicity

Product/ingredient name	Test	Endpoint	Exposure	Species	Result	
Bisphenol A epoxy resin	-	Acute	EC50	72 hours Static	Algae	9.4 mg/l
	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute	EC50	48 hours Static	Daphnia	1.7 mg/l
	-	Acute	IC50	3 hours Static	Bacteria	>100 mg/l
	OECD 203 Fish, Acute Toxicity Test	Acute	LC50	96 hours Static	Fish	1.5 mg/l
	OECD 211 <i>Daphnia Magna</i> Reproduction Test	Chronic	NOEC	21 days Semi- static	Daphnia	0.3 mg/l
Butanedioldiglycidyl ether	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute	EC50	24 hours Static	Daphnia	75 mg/l
	OECD 201 Alga, Growth Inhibition Test	Acute	EL50	72 hours Static	Algae	>160 mg/l
	OECD 209 Activated Sludge, Respiration Inhibition Test	Acute	IC50	3 hours Static	Bacteria	>100 mg/l
	OECD 203 Fish, Acute Toxicity Test	Acute	LC50	96 hours Static	Fish	24 mg/l
Nonylphenol	OECD 209 Activated Sludge, Respiration Inhibition Test	Acute	EC50	3 hours Static	Bacteria	950 mg/l
	ASTM	Acute	EC50	48 hours Static	Daphnia	0.085 mg/l
	EU EC C.2 Acute Toxicity for Daphnia	Acute	EC50	48 hours	Daphnia	0.14 mg/l
	ASTM	Acute	EC50	96 hours Flow- through	Daphnia	0.596 mg/l
	ASTM	Acute	EC50	96 hours Flow- through	Daphnia	0.0207 mg/l
	Unknown guidelines	Acute	EbC50 (biomass)	72 hours Static	Algae	1.3 mg/l
	EPA CFR	Acute	ErC50 (growth rate)	96 hours Static	Algae	0.41 mg/l

12 . Ecological information

Diuron	ASTM	Acute	LC50	96 hours Static	Fish	0.05	mg/l
	ASTM	Acute	LC50	96 hours Flow-through	Fish	0.128	mg/l
	ASTM	Acute	LC50	96 hours Flow-through	Fish	0.209	mg/l
	ASTM	Acute	LC50	96 hours Flow-through	Fish	0.221	mg/l
	ASTM	Acute	LC50	96 hours Static	Fish	0.08	mg/l
	ASTM	Chronic	NOEC	91 days Flow-through	Fish	0.006	mg/l
	Unknown guidelines	Acute	EC50	96 hours	Algae	2.4	ppb
	OECD 201 Alga, Growth Inhibition Test	Acute	EC50	96 hours	Algae	22	ugl
	OECD 209 Activated Sludge, Respiration Inhibition Test	Acute	EC50	30 minutes	Bacteria	3080	mg/l
	OECD 202: Part I (Daphnia sp., Acute Immobilisation test)	Acute	EC50	48 hours	Daphnia	1.4	mg/l
	Unknown guidelines	Acute	LC50	96 hours	Fish	14	mg/l
	OECD 203 Fish, Acute Toxicity Test	Acute	LC50	96 hours	Fish	14.7	mg/l
	Unknown guidelines	Chronic	NOEC	21 days	Daphnia	>1	mg/l
	OECD OECD 204 - Fish, Prolonged Toxicity Test: 14-Day Study	Chronic	NOEC	28 days	Fish	0.41	mg/l
	OECD 201 Alga, Growth Inhibition Test	Chronic	NOECr	96 hours	Algae	3.2	mg/l
OECD 211 <i>Daphnia Magna</i> Reproduction Test	Chronic	NOECr	21 days	Daphnia	0.56	mg/l	

Persistence and degradability

Product/ingredient name	Test	Period	Result
Bisphenol A epoxy resin	OECD Derived from OECD 301F (Biodegradation Test)	28 days	5 %
Butanedioldiglycidyl ether	OECD 301F Ready Biodegradability - Manometric Respirometry Test	28 days	43 %
Nonylphenol	EPA OPPTS	63 days	100 %
	OECD	56 days	50 %
	OECD 301B Ready Biodegradability - CO ₂ Evolution Test	35 days	48.2 %
Diuron	OECD 301F Ready Biodegradability - Manometric Respirometry Test	28 days	0 %

Conclusion/Summary

: Bisphenol A epoxy resin Not readily biodegradable.
 Aluminium oxide In accordance with column 2 of Annex VII - X of Regulation (EC) No 1907/2006, the test for this property of the substance does not need to be conducted.

12 . Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Bisphenol A epoxy resin	Fresh water 4.83 days Fresh water 3.58 days Fresh water 7.1 days	-	Not readily
Butanedioldiglycidyl ether	-	-	Not readily
Diuron	-	-	Not readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Bisphenol A epoxy resin	3.242	31	low
Butanedioldiglycidyl ether	-0.269	-	low
Nonylphenol	5.4	740	high
Diuron	2.89	5.2	low

Other adverse effects : No known significant effects or critical hazards.

Other ecological information

BOD5 : Not Determined
COD : Not Determined
TOC : Not Determined

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.









Disposal should be in accordance with applicable regional, national and local laws and regulations.

14 . Transport information

Proper shipping name

DOT : Environmentally hazardous substance, liquid, n.o.s. (BISPHENOL A EPOXY RESIN). Marine pollutant
TDG : Environmentally hazardous substance, liquid, n.o.s. (BISPHENOL A EPOXY RESIN). Marine pollutant
IMDG : Environmentally hazardous substance, liquid, n.o.s. (BISPHENOL A EPOXY RESIN). Marine pollutant
IATA : Environmentally hazardous substance, liquid, n.o.s. (BISPHENOL A EPOXY RESIN)

14 . Transport information

Regulatory information	UN number	Classes	PG*	Label	Additional information
DOT Classification	UN3082	9	III	 	marine pollutant only regulated for bulk and vessel shipments, per 49CFR171.4 (c) Exceptions. Except when all or part of the transportation is by vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packagings transported by motor vehicle, rail car or aircraft.
TDG Classification	UN3082	9	III	 	-
IMDG Class	UN3082	9	III	 	Emergency schedules (EmS) F-A, S-F
IATA-DGR Class	UN3082	9	III	 	Passenger and Cargo Aircraft Quantity limitation: 450 L Packaging instructions: 964 Cargo Aircraft Only Quantity limitation: 450 L Packaging instructions: 964

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Irritating material
Sensitizing material
Target organ effects

U.S. Federal regulations

TSCA 8(b) inventory : **United States inventory (TSCA 8b)**: All components are listed or exempted.

TSCA 5(a)2 final significant new use rule (SNUR) : No ingredients listed.

TSCA 5(e) substance consent order : No ingredients listed.

TSCA 12(b) export notification : No ingredients listed.

SARA 311/312 : Immediate (acute) health hazard
Delayed (chronic) health hazard

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : No ingredients listed.

Clean Air Act - Ozone Depleting Substances (ODS) : This product does not contain nor is it manufactured with ozone depleting substances.

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration %</u>
SARA 313	: Aluminium oxide	1344-28-1	2.091
Form R - Reporting requirements	: hexaboron-dizinc-undecaoxide-	12767-90-7	1.6813
CERCLA Hazardous substances	:		

Components	Concentration %	Section 304 CERCLA Hazardous Substance	CERCLA Reportable Quantity (Lbs)	Product Reportable Quantity (Lbs)
hexaboron-dizinc-undecaoxide-	1.6813	Listed		
Diuron	0.91	Listed	100	10989

State regulations

PENNSYLVANIA - RTK : Not evaluated.

California Prop 65 : **WARNING:** This product contains a chemical known to the State of California to cause cancer.
WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

<u>Ingredient name</u>	<u>Cancer</u>	<u>Reproductive</u>
Diuron	Yes.	No.
Methanol	No.	Yes.
Benzene	Yes.	Yes.

International regulations

15 . Regulatory information

Canada

- WHMIS (Canada)** : Class D-2B: Material causing other toxic effects (Toxic).
CEPA DSL : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International lists

- Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): Not determined.

16 . Other information

- Label requirements** : CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN OR IF SWALLOWED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. POSSIBLE BIRTH DEFECT HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.) :

Health	2
Flammability	1
Physical hazards	0
Personal protection	

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



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☑ Indicates information that has changed from previously issued version.

Notice to reader

16 . Other information

While the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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