



SAFETY DATA SHEET

in accordance with 2020/878/EU (REACH, Annex II) 29 CFR 1910.1200, WHMIS 2015 and Safe Work Australia

Revision date: 18 July 2023

Date of previous issue: 25 June 2020

SDS No. 293A-11

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

1.1. Product identifier

ARC MX1 (Part A)

Unique Formula Identifier (UFI): Not available

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: ARC Polymer Composite to be mixed with ARC MX1 (Part B) and ARC MX (Part C) to provide an abrasion and impact resistant coating.

Uses advised against: No information available

Reason why uses advised against: Not applicable

1.3. Details of the supplier of the safety data sheet

Company:

A.W. CHESTERTON COMPANY

860 Salem Street

Groveland, MA 01834-1507, USA

Tel. +1 978-469-6446 Fax: +1 978-469-6785

(Mon. - Fri. 8:30 - 5:00 PM EST)

SDS requests: www.chesterton.com

E-mail (SDS questions): ProductSDSs@chesterton.com

E-mail: customer.service@chesterton.com

Supplier:

Canada: A.W. Chesterton Company Ltd., 889 Fraser Drive,

Unit 105, Burlington, Ontario L7L 4X8 – Tel. 905-335-5055

EU: Chesterton International GmbH, Am Lenzenfleck 23,

D85737 Ismaning, Germany – Tel. +49-89-996-5460

1.4. Emergency telephone number

24 hours per day, 7 days per week

Call Infotrac: 1-800-535-5053

Outside N. America: +1 352-323-3500 (collect)

NSW Poisons Information Centre (Australia): 13 11 26

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

2.1.1. Classification according to Regulation (EC) No 1272/2008 [CLP] / Safe Work Australia

Serious eye damage, Category 1, H318

Skin irritation, Category 2, H315

Skin sensitization, Category 1, H317

Hazardous to the aquatic environment, Chronic, Category 2, H411

2.1.2. Classification according to 29 CFR 1910.1200 / WHMIS 2015

Serious eye damage, Category 1, H318

Skin irritation, Category 2, H315

Skin sensitization, Category 1, H317

Reproductive toxicity, Category 2, H361fd

Hazardous to the aquatic environment, Chronic, Category 2, H411

2.1.3. Additional information

For full text of H-statements: see SECTIONS 2.2 and 16.

2.2. Label elements**2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP] / Safe Work Australia****Hazard pictograms:****Signal word:** Danger

Hazard statements: H318 Causes serious eye damage.
 H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H411 Toxic to aquatic life with long lasting effects.

Precautionary statements: P264 Wash skin thoroughly after handling.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/clothing and eye/face protection.
 P302/352 IF ON SKIN: Wash with plenty of soap and water.
 P333/313 If skin irritation or rash occurs: Get medical advice/attention.
 P305/351/338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P310 Immediately call a POISON CENTER or doctor.
 P362/364 Take off contaminated clothing and wash it before reuse.
 P391 Collect spillage.

Supplemental information: None**2.2.2. Labelling according to 29 CFR 1910.1200 / WHMIS 2015****Hazard pictograms:****Signal word:** Danger

Hazard statements: H318 Causes serious eye damage.
 H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.
 H411 Toxic to aquatic life with long lasting effects.

Precautionary statements: P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P264 Wash skin thoroughly after handling.
 P272 Contaminated work clothing must not be allowed out of the workplace.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/clothing and eye/face protection.
 P305/351/338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P310 Immediately call a POISON CENTER or doctor.
 P302/352 IF ON SKIN: Wash with plenty of soap and water.
 P333/313 If skin irritation or rash occurs: Get medical advice/attention.
 P308/313 IF exposed or concerned: Get medical advice/attention.
 P362/364 Take off contaminated clothing and wash it before reuse.
 P391 Collect spillage.
 P501 Dispose of contents/container to an approved waste disposal plant.

Supplemental information: None**2.3. Other hazards**

This products contains a blocked polyisocyanate which is considered essentially unreactive at room temperature. Generation of free diisocyanate and blocking agent vapors is expected during any heating of this product above its unblocking temperature (120°C [248°F]). The safety and health hazards are detailed separately for Part A and Part B. During the curing process, alkylphenol will be split off. No isocyanate could be traced within the coating during curing. The final cured material is considered nonhazardous. Upon machining, refer to the precautions in the safety data sheets for Part A, Part B and Part C.
 4-Nonylphenol, branched: substance identified as having endocrine disrupting properties according to Regulation (EU) 2017/2100.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**3.2. Mixtures**

Hazardous Ingredients ¹	% Wt.	CAS No./ EC No.	REACH Reg. No.	CLP/GHS Classification	SCL, M-factor, ATE
Epoxy resin (number average molecular weight <= 700)	35-45	9003-36-5* 500-006-8	NA	Skin Irrit. 2, H315 Skin Sens. 1, H317 Aquatic Chronic 2, H411	ATE (oral): 5,000 mg/kg ATE (dermal): > 2,000 mg/kg
Epoxy resin (number average molecular weight <= 700)	20-30	1675-54-3** 216-823-5	NA	Eye Irrit. 2, H319 Skin Irrit. 2, H315 Skin Sens. 1, H317 Aquatic Chronic 2, H411	Eye Irrit. 2A, H319: C ≥ 5 % Skin Irrit. 2, H315: C ≥ 5 % ATE (oral): > 5,000 mg/kg ATE (dermal): > 2,000 mg/kg
Butanedioldiglycidyl ether	1-5	2425-79-8 219-371-7	NA	Acute Tox. 4, H302/312/332 Eye Dam. 1, H318 Skin Irrit. 2, H315 Skin Sens. 1, H317 Aquatic Chronic 3, H412	ATE (oral): 1,163 mg/kg ATE (dermal): 1,130 mg/kg ATE (inhalation, vapour): > 11.3 mg/l
4-Nonylphenol, branched	0.1-0.7	84852-15-3 284-325-5	NA	Acute Tox. 4, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Repr. 2, H361fd Aquatic Acute 1, H400 Aquatic Chronic 1, H410	ATE (oral): 1,300 mg/kg M-factor acute/chronic: 10
Other ingredients:					
Alkyl phenol blocked polyisocyanate	15-30	Unknown	NA	Not classified	ATE (oral): > 5,000 mg/kg

*Alternative CAS No: 28064-14-4. **Alternative CAS No: 25068-38-6, EC No. 500-033-5.
For full text of H-statements: see SECTION 16.

¹ Classified according to: • 29 CFR 1910.1200, 1915, 1916, 1917, Mass. Right-to-Know Law (ch. 40, M.G.L..O. 111F)
• 1272/2008/EC, GHS, REACH
• WHMIS 2015
• Safe Work Australia

SECTION 4: FIRST AID MEASURES**4.1. Description of first aid measures**

Inhalation:	Remove to fresh air. If not breathing, administer artificial respiration. Contact physician immediately. Asthmatic symptoms may develop and may be immediate or delayed up to several hours. Extreme asthmatic reactions can be life threatening.
Skin contact:	Remove contaminated clothing. Wash clothing before reuse. Wash skin with soap and water. Consult physician.
Eye contact:	Flush eyes for at least 15 minutes with large amounts of water. Contact physician if irritation persists.
Ingestion:	Do not induce vomiting. Contact physician immediately.
Protection of first-aiders:	No action shall be taken involving any personal risk or without suitable training. Avoid contact with the product while providing aid to the victim. See section 8.2.2 for recommendations on personal protective equipment.

4.2. Most important symptoms and effects, both acute and delayed

Severe eye irritant; may cause burns. Moderate skin irritant. May cause skin sensitization as evidenced by rashes or hives. Generation of free diisocyanate and blocking agent vapors is expected during any heating of this product above its unblocking temperature. The inhalation hazards in this section apply to the free diisocyanate and blocking agent vapors thus produced. Vapors or mist can irritate the respiratory tract causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a pre-existing, nonspecific bronchial hyperreactivity can respond to lower concentrations with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure to higher concentrations may lead to bronchitis, bronchial spasm and pulmonary oedema. Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible. Repeated overexposure or a single large dose by inhalation (including breathing offgases generated during heat curing) can cause respiratory sensitization as evidenced by chest tightness, wheezing, shortness of breath or asthmatic attack. These symptoms can be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Once sensitized, symptoms can occur upon exposure to dust, cold air or other irritants. Sensitization can be permanent. Chronic overexposure to diisocyanates has been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptoms.

SECTION 5: FIREFIGHTING MEASURES**5.1. Extinguishing media**

Suitable extinguishing media: Carbon dioxide, dry chemical, foam or water fog

Unsuitable extinguishing media: High volume water jet

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products: At temperatures greater than 177°C (350°F), carbon dioxide is released which can cause pressure build-up in closed containers which may forcibly rupture under extreme heat or when contents are mixed with water. During a fire, isocyanate vapours and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.

Other hazards: None noted

5.3. Advice for firefighters

Cool exposed containers with water. Recommend Firefighters wear self-contained breathing apparatus and complete fire service protective equipment.

Australian HAZCHEM Emergency Action Code: 2 X

SECTION 6: ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures**

Avoid skin contact. Utilize exposure controls and personal protection as specified in Section 8.

6.2. Environmental Precautions

Keep out of sewers, streams and waterways.

6.3. Methods and material for containment and cleaning up

Contain spill to a small area. Cover spill with absorbent material (e.g., sand, sawdust, etc.) and scoop up and transfer to a suitable container for disposal.

6.4. Reference to other sections

Refer to section 13 for disposal advice.

SECTION 7: HANDLING AND STORAGE**7.1. Precautions for safe handling**

Avoid all direct contact. Avoid breathing vapors. Utilize exposure controls and personal protection as specified in Section 8. Warning properties (irritation of eyes, nose and throat or odor) are not adequate to prevent overexposure from inhalation. Keep container tightly closed when not in use. Remove contaminated clothing immediately. Wash clothing before reuse. Contaminated work clothing must not be allowed out of the workplace. Contaminated leather including shoes cannot be decontaminated and should be discarded.

Medical Surveillance: While health risks are reduced when using a blocked isocyanate, it is best practice to implement a proper protective equipment program supported by a medical surveillance program for workers using isocyanates (blocked or unblocked). All applicants who are assigned to an isocyanate work area should undergo a pre-placement medical evaluation. A history of eczema or respiratory allergies such as hay fever, are possible reasons for medical exclusion from isocyanate areas. Applicants who have a history of adult asthma should be restricted from work with isocyanates. Applicants with a history of prior isocyanate sensitization should be excluded from further work with isocyanates. A comprehensive annual medical surveillance program should be instituted for all employees who are potentially exposed to diisocyanates. Once a worker has been diagnosed as sensitized to any isocyanate, no further exposure can be permitted.

7.2. Conditions for safe storage, including any incompatibilities

Store in a cool, dry area (10°C to 32°C (50°F to 90°F), out of direct sunlight).

7.3. Specific end use(s)

No special precautions.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control parameters****Occupational exposure limit values**

Ingredients	OSHA PEL ¹		ACGIH TLV ²		UK WEL ³		AUSTRALIA ES ⁴	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Epoxy resin (number average molecular weight <= 700)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Epoxy resin (number average molecular weight <= 700)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Butanedioldiglycidyl ether	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4-Nonylphenol, branched	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alkyl phenol blocked polyisocyanate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

¹ United States Occupational Health & Safety Administration permissible exposure limits

² American Conference of Governmental Industrial Hygienists threshold limit values

³ EH40 Workplace exposure limits, Health & Safety Executive

⁴ Safe Work Australia, Workplace Exposure Standards for Airborne Contaminants

Biological limit values

Not available

Derived No Effect Level (DNEL) according to Regulation (EC) No 1907/2006:**Workers**

Substance	Route of exposure	Potential health effects	DNEL
Epoxy resin (CAS no. 9003-36-5)	Inhalation	Acute effects, local / Acute effects, systemic	no data available
		Chronic effects, local	no data available
	Dermal	Chronic effects, systemic	29.39 mg/m ³
		Acute effects, local	0.0083 mg/cm ²
Butanedioldiglycidyl ether	Inhalation	Acute effects, systemic	no data available
		Chronic effects, local	104.15 mg/kg bw/day
	Dermal	Chronic effects, systemic	4.7 mg/m ³ (GESTIS)
		Acute effects, systemic	1 mg/m ³
4-Nonylphenol, branched	Inhalation	Chronic effects, systemic	0.5 mg/m ³
		Acute effects, systemic	1 mg/m ³
	Dermal	Chronic effects, systemic	7.5 mg/kg bw/day
		Acute effects, systemic	15 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No 1907/2006:

Substance	Environmental protection target	PNEC
Epoxy resin (CAS no. 9003-36-5)	Fresh water	0.003 mg/l
	Marine water	0.0003 mg/l
	Water, intermittent release	0.0254 mg/l
	Freshwater sediments	0.294 mg/kg
	Marine sediments	0.0294 mg/kg
	Microorganisms in sewage treatment	10 mg/l
	Soil (agricultural)	0.237 mg/kg
4-Nonylphenol, branched	Fresh water	0.000614 mg/l
	Marine water	0.000527 mg/l
	Water, intermittent release	0.00017 mg/l
	Freshwater sediments	4.62 mg/kg
	Marine sediments	1.23 mg/kg
	Microorganisms in sewage treatment	9.5 mg/l
	Soil (agricultural)	2.3 mg/kg

8.2. Exposure controls**8.2.1. Engineering measures**

Use adequate ventilation to keep airborne isocyanate and blocking agent levels below the exposure limits. Exhaust air (including curing oven offgases) may need to be cleaned by scrubbers or filters to reduce environmental contamination.

8.2.2. Individual protection measures

Respiratory protection: If isocyanate or blocking agent exposure limits are exceeded, use a self-contained breathing apparatus (SCBA), supplied air respirator (SAR) or air-purifying respirator (APR) with end-of-service-life indicator (only if exposure is no more than 10 times the exposure limit). If a fire or a process upset results in heating above 120°C (248°F), workers must wear positive pressure, air-supplied respirators since airborne TDI may be generated under these conditions.

Protective gloves: Chemical resistant gloves (e.g., nitrile rubber, butyl rubber, neoprene, PVC)

Eye and face protection: Safety glasses

Other: Impervious clothing as necessary to prevent skin contact.

8.2.3. Environmental exposure controls

Avoid release to the environment. Collect spillage. Refer to sections 6 and 12.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties**

Physical state	paste	pH	not applicable
Colour	blue	Kinematic viscosity	1 million cps @ 25°C
Odour	epoxy odor	Solubility in water	insoluble
Odour threshold	not determined	Partition coefficient n-octanol/water (log value)	not applicable
Boiling point or range	not determined	Vapour pressure @ 20°C	not determined
Melting point/freezing point	not determined	Density and/or relative density	1.18 kg/l
% Volatile (by volume)	none	Weight per volume	9.82 lbs/gal
Flammability	not determined	Vapour density (air=1)	> 1
Lower/upper flammability or explosion limits	not determined	Rate of evaporation (ether=1)	< 1
Flash point	192°C (378°F)	% Aromatics by weight	none
Method	PM Closed Cup	Particle characteristics	not determined
Autoignition temperature	not determined	Explosive properties	not determined
Decomposition temperature	not determined	Oxidising properties	not determined

9.2. Other information

Unblocking temperature: 120°C (248°F). VOC (EPA 24): 0.12 lbs/gal (0.014 kg/l).

SECTION 10: STABILITY AND REACTIVITY**10.1. Reactivity**

Refer to sections 10.3, 10.4 and 10.5.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under conditions of normal use.

10.4. Conditions to avoid

Blocking agent and toluene diisocyanate are released at temperatures above 120°C (248°F).

10.5. Incompatible materials

Strong acids or bases in bulk, strong oxidizers like liquid Chlorine and concentrated Oxygen.

10.6. Hazardous decomposition products

Thermal decomposition may produce Carbon Monoxide, Carbon Dioxide, aldehydes, acids, Hydrogen Cyanide and other toxic fumes. During the curing process, alkylphenol will be split off. No isocyanate could be traced within the coating during curing.

SECTION 11: TOXICOLOGICAL INFORMATION**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008 / GHS**

Primary route of exposure under normal use: Inhalation, skin and eye contact. Personnel with pre-existing eye, skin and respiratory disorders may be aggravated by exposure.

Acute toxicity -**Oral:**

Based on available data on components, the classification criteria are not met. ATE-mix = 33,420 mg/kg. If ingested, may cause gastrointestinal disturbances such as nausea, vomiting and diarrhea.

Substance	Test	Result
Alkyl phenol blocked polyisocyanate	LD50, rat	> 5,000 mg/kg
Epoxy resin	LD50, rat	> 5,000 mg/kg
Butanedioldiglycidyl ether	LD50, rat (OECD 401)	1,163 mg/kg
4-Nonylphenol, branched	LD50, rat	1,300 mg/kg

Dermal:

Based on available data on components, the classification criteria are not met. ATE-mix = 32,471 mg/kg.

Substance	Test	Result
Epoxy resin	LD50, rabbit	> 2,000 mg/kg
Butanedioldiglycidyl ether	LD50, rabbit	1,130 mg/kg
4-Nonylphenol, branched	LDLo, rabbit	3,160 mg/kg

Inhalation:

Based on available data on components, the classification criteria are not met. ATE-mix = 324.7 mg/l (vapour). Vapors or mist can irritate the respiratory tract causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a pre-existing, nonspecific bronchial hyperreactivity can respond to lower concentrations with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure to higher concentrations may lead to bronchitis, bronchial spasm and pulmonary oedema. Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible (Note: Generation of free diisocyanate and blocking agent vapors is expected during any heating of this product above its unblocking temperature. The inhalation hazards in this section apply to the free diisocyanate and blocking agent vapors thus produced.)

Substance	Test	Result
Epoxy resin (CAS no. 1675-54-3)	LC50, rat, 5 h	No mortality at vapor saturation level
Butanedioldiglycidyl ether	LC50, rat, 4 h	> 11.3 mg/l

Skin corrosion/irritation:

Causes skin irritation.

Substance	Test	Result
Epoxy resin (CAS No. 9003-36-5)	Skin irritation, rabbit	Irritant
Epoxy resin (CAS no. 1675-54-3)	Skin irritation, rabbit	Moderate irritation
Butanedioldiglycidyl ether	Human experience	Irritating
Alkyl phenol blocked polyisocyanate	Skin irritation, rabbit, 4 h	No skin irritation

Serious eye damage/irritation:

Severe eye irritant; may cause burns.

Substance	Test	Result
Epoxy resin (CAS No. 9003-36-5)	Eye irritation, rabbit (OECD 405)	Not irritating
Epoxy resin (CAS no. 1675-54-3)	Eye irritation, rabbit	Moderate irritation
Butanedioldiglycidyl ether	Eye irritation, rabbit (OECD 405)	Severe irritation
Alkyl phenol blocked polyisocyanate	Eye irritation, rabbit	Slightly irritating

Respiratory or skin sensitisation:

May cause skin sensitization as evidenced by rashes or hives. Repeated overexposure or a single large dose by inhalation (including breathing offgases generated during heat curing) can cause respiratory sensitization as evidenced by chest tightness, wheezing, shortness of breath or asthmatic attack. These symptoms can be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Once sensitized, symptoms can occur upon exposure to dust, cold air or other irritants. Sensitization can be permanent (Note: Generation of free diisocyanate and blocking agent vapors is expected during any heating of this product above its unblocking temperature. The inhalation hazards in this section apply to the free diisocyanate and blocking agent vapors thus produced).

Substance	Test	Result
Epoxy resin	Skin sensitization, guinea pig	Sensitizing
Butanedioldiglycidyl ether	Skin sensitization, guinea pig	Sensitizing

Germ cell mutagenicity:

Alkyl phenol blocked polyisocyanate, Ames test: negative (salmonella typhimurium). Epoxy resin, Butanedioldiglycidyl ether: based on available data, the classification criteria are not met.

Carcinogenicity:

This product contains no carcinogens as listed by the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), the Occupational Safety and Health Administration (OSHA) or the European Chemicals Agency (ECHA).

Reproductive toxicity:

4-Nonylphenol, branched: has been shown to cause reproductive/teratogenic effects in laboratory animals. Epoxy resin: based on available data, the classification criteria are not met. Butanedioldiglycidyl ether: not classified due to lack of data.

STOT – single exposure:

Hazardous ingredients: based on available data, the classification criteria are not met.

STOT – repeated exposure: Hazardous ingredients: based on available data, the classification criteria are not met. Chronic overexposure to diisocyanates has been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

Substance	Test	Result
Epoxy resin (CAS no. 9003-36-5)	Sub-chronic NOAEL, oral, 90 days, rat, male / female (OECD 408)	250 mg/kg bw/day
Epoxy resin (CAS no. 1675-54-3)	Sub-chronic NOAEL, oral, 90 days, rat, male / female (OECD 408)	50 mg/kg bw/day
Epoxy resin (CAS no. 1675-54-3)	Sub-chronic NOAEL, dermal, 90 days, rat, male / female (OECD 411)	10 mg/kg bw/day
Epoxy resin (CAS no. 1675-54-3)	Sub-chronic NOAEL, dermal, 90 days, mouse, male (OECD 411)	100 mg/kg bw/day

Aspiration hazard: Based on available data, the classification criteria are not met.

11.2. Information on other hazards

None

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. The information given below is based on a knowledge of the components and the ecotoxicology of similar substances.

12.1. Toxicity

Epoxy resin (number average molecular weight \leq 700) is toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment (LC50/EC50 between 1 and 10 mg/l in the most sensitive species.); chronic NOEC, 21 days, *Daphnia magna* (OECD 211) = 0.3 mg/l. Nonylphenol: 48 h EC50 (for daphnia) = 0.0848 mg/l. Butanedioldiglycidyl ether: 96 h LC50 (fish) = 19.8 mg/l (danio rerio).

12.2. Persistence and degradability

Epoxy resin, Butanedioldiglycidyl ether, Alkyl phenol blocked polyisocyanate: not readily biodegradable. Nonylphenol: inherently biodegradable. Unreacted components (Parts A and B), improperly released to the environment, can cause ground and water pollution.

12.3. Bioaccumulative potential

Epoxy resin: log Kow = 2.64 – 3.78; BCF = 31 (QSAR); low potential for bioaccumulation. 4-Nonylphenol, branched: may bioaccumulate in fish and aquatic organisms (log Kow = 3.28).

12.4. Mobility in soil

Paste. Insoluble in water. Epoxy resin: if product enters soil, it will be mobile and may contaminate groundwater (log Koc \leq 3.65) Nonylphenol: expected to be immobile in soil. In determining environmental mobility, consider the product's physical and chemical properties (see Section 9).

12.5. Results of PBT and vPvB assessment

Not available

12.6. Endocrine disrupting properties

4-Nonylphenol, branched: substance identified as having endocrine disrupting properties according to Regulation (EU) 2017/2100.

12.7. Other adverse effects

None known

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Combine resin and curative. The final cured material is considered nonhazardous. Landfill sealed containers with a properly licensed facility. Unreacted components are a special waste (classified as hazardous according to 2008/98/EC). May be incinerated at an appropriate facility. Check local, state and national/federal regulations and comply with the most stringent requirement.

SECTION 14: TRANSPORT INFORMATION

14.1. UN number or ID number

ADG/ADR/RID/ADN/IMDG/ICAO: UN3082

TDG: UN3082
US DOT: UN3082

14.2. UN proper shipping name

ADG/ADR/RID/ADN/IMDG/ICAO: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXY RESIN)
TDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXY RESIN)
US DOT: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXY RESIN)

14.3. Transport hazard class(es)

ADG/ADR/RID/ADN/IMDG/ICAO: 9
TDG: 9
US DOT: 9

14.4. Packing group

ADG/ADR/RID/ADN/IMDG/ICAO: III
TDG: III
US DOT: III

14.5. Environmental hazards

MARINE POLLUTANT

14.6. Special precautions for user

NO SPECIAL PRECAUTIONS FOR USER

14.7. Maritime transport in bulk according to IMO instruments

NOT APPLICABLE

14.8. Other information

US DOT: ERG NO.171,
MAY BE SHIPPED AS NON-RESTRICTED IN NON-BULK PACKAGINGS (119 GALLONS OR LESS) BY MOTOR VEHICLE, RAIL CAR OR AIRCRAFT.
(49 CFR 171.4(C))
IMDG: EMS. F-A, S-F
MAY BE SHIPPED AS NON-RESTRICTED IN SINGLE OR COMBINATION PACKAGINGS CONTAINING A NET QUANTITY PER SINGLE OR INNER PACKAGING OF 5 L OR LESS. (IMDG CODE AMENDMENT 37-14, 2.10.2.7)
ICAO/IATA: MAY BE SHIPPED AS NON-RESTRICTED IN SINGLE OR COMBINATION PACKAGINGS CONTAINING A NET QUANTITY PER SINGLE OR INNER PACKAGING OF 5 L OR LESS.(IATA DANGEROUS GOODS REGULATION 56TH EDITION, 4.4 SPECIAL PROVISIONS A197)
ADR: CLASSIFICATION CODE M6 TUNNEL RESTRICTION CODE (E)
MAY BE SHIPPED AS NON-RESTRICTED IN SINGLE OR COMBINATION PACKAGINGS CONTAINING A NET QUANTITY PER SINGLE OR INNER PACKAGING OF 5 L OR LESS. (ADR 2015 VOLUME 1, CHAPTER 3.3 SPECIAL PROVISIONS 375)
ADG HAZCHEM CODE: ●3Z **HIN:** 90

SECTION 15: REGULATORY INFORMATION**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****15.1.1. EU regulations**

Authorisations under Title VII: Not applicable

Restrictions under Title VIII: None

Other EU regulations: Substances of very high concern (SVHC) per Regulation (EC) No 1907/2006 (REACH) Art. 57: 4-Nonylphenol, branched
Directive 94/33/EC on the protection of young people at work.
Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances (hazard category: E2, Hazardous to the Aquatic Environment in Category Chronic 2; qualifying quantities: 200 t, 500 t)

15.1.2. National regulations**US EPA SARA TITLE III****312 Hazards:****Chemicals subject to reporting requirements of Section 313 of EPCRA and of 40 CFR 372:**

Serious eye damage	Nonylphenol	84852-15-3	Below de
Skin irritation	minimis concentration		
Reproductive toxicity			
Skin sensitization			

TSCA: All chemical components are listed or exempted.

Other national regulations: National implementations of the EC Directives referred to in section 15.1.1.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms: ADG: Australian Dangerous Goods Code
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
 ATE: Acute Toxicity Estimate
 BCF: Bioconcentration Factor
 cATpE: Converted Acute Toxicity point Estimate
 CLP: Classification Labelling Packaging Regulation (1272/2008/EC)
 ES: Exposure Standard
 GHS: Globally Harmonized System
 ICAO: International Civil Aviation Organization
 IMDG: International Maritime Dangerous Goods
 LC50: Lethal Concentration to 50 % of a test population
 LD50: Lethal Dose to 50% of a test population
 LOEL: Lowest Observed Effect Level
 N/A: Not Applicable
 NA: Not Available
 NOEC: No Observed Effect Concentration
 NOEL: No Observed Effect Level
 OECD: Organization for Economic Co-operation and Development
 PBT: Persistent, Bioaccumulative and Toxic substance
 (Q)SAR: Quantitative Structure-Activity Relationship
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (1907/2006/EC)
 REL: Recommended Exposure Limit
 RID: Regulations concerning the International Carriage of Dangerous Goods by Rail
 SCL: Specific Concentration Limit
 SDS: Safety Data Sheet
 STEL: Short Term Exposure Limit
 STOT RE: Specific Target Organ Toxicity, Repeated Exposure
 STOT SE: Specific Target Organ Toxicity, Single Exposure
 TDG: Transportation of Dangerous Goods (Canada)
 TWA: Time Weighted Average
 US DOT: United States Department of Transportation
 vPvB: very Persistent and very Bioaccumulative substance
 WEL: Workplace Exposure Limit
 WHMIS: Workplace Hazardous Materials Information System
 Other abbreviations and acronyms can be looked up at www.wikipedia.org.

Key literature references and sources for data: Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST)
 Chemical Classification and Information Database (CCID)
 European Chemicals Agency (ECHA) - Information on Chemicals
 Hazardous Chemical Information System (HCIS)
 National Institute of Technology and Evaluation (NITE)
 Swedish Chemicals Agency (KEMI)
 U.S. National Library of Medicine Toxicology Data Network (TOXNET)

Procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008 [CLP] / GHS:

Classification	Classification procedure
Eye Dam. 1, H318	Calculation method
Skin Irrit. 2, H315	Calculation method
Skin Sens. 1, H317	Calculation method
Aquatic Chronic 2, H411	Calculation method

Relevant H-statements: H302: Harmful if swallowed.
 H312: Harmful in contact with skin.
 H314: Causes severe skin burns and eye damage.
 H315: Causes skin irritation.
 H317: May cause an allergic skin reaction.
 H318: Causes serious eye damage.
 H319: Causes serious eye irritation.
 H332: Harmful if inhaled.
 H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
 H411: Toxic to aquatic life with long lasting effects.
 H412: Harmful to aquatic life with long lasting effects.

Hazard pictogram names: Corrosion, health hazard (non-CLP) exclamation mark, environment.

Further information: None

Date of last revision: 18 July 2023

Changes to the SDS in this revision: Sections 1.1, 1.2, 2.2, 2.3, 5.2, 9.1, 12.6, 15.1, 16.

This information is based solely on data provided by suppliers of the materials used, not on the mixture itself. No warranty is expressed or implied regarding the suitability of the product for the user's particular purpose. The user must make their own determination as to suitability.