



## SAFETY DATA SHEET

in accordance with 1907/2006/EC (REACH, as amended by 830/2015/EU) 29 CFR 1910.1200 and WHMIS 2015

**Revision date:** 26 April 2018

**Initial date of issue:** 21 January 2014

**SDS No.** 464A-1a

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

#### 1.1. Product identifier

ARC I BX1 RC (Part A)

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

Mixed with ARC I BX1 RC Part B, for a fast cure coating to protect metal surfaces from damage caused by abrasion, erosion and impact forces.

#### 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](http://www.chesterton.com)  
E-mail (SDS questions): [ProductMSDSs@chesterton.com](mailto:ProductMSDSs@chesterton.com)  
E-mail: [customer.service@chesterton.com](mailto: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)

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1. Classification of the substance or mixture

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

Skin Irrit. 2, H315  
Eye Irrit. 2, H319  
Skin Sens. 1, H317  
Aquatic Chronic 3, H412

##### 2.1.2. Classification according to 29 CFR 1910.1200 / WHMIS 2015

Repr. 2, H361fd  
Skin Irrit. 2, H315  
Eye Irrit. 2, H315  
Skin Sens. 1, H317  
Aquatic Chronic 3, H412

##### 2.1.3. Classification according to WHMIS 1988

D2A: Very toxic materials causing other effects; D2B: Toxic materials causing other effects

##### 2.1.4. Australian statement of hazardous nature

Hazardous according to criteria of Safe Work Australia.

##### 2.1.5. 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]****Hazard pictograms:****Signal word:** Warning

**Hazard statements:**

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H412	Harmful to aquatic life with long lasting effects.

**Precautionary statements:**

P273	Avoid release to the environment.
P280	Wear protective gloves and eye/face protection.
P333/313	If skin irritation or rash occurs: Get medical advice/attention.
P337/313	If eye irritation persists: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P362/364	Take off contaminated clothing and wash it before reuse.

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

**Hazard statements:**

H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H412	Harmful to aquatic life with long lasting effects.

**Precautionary statements:**

P201	Obtain special instructions before use.
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.
P337/313	If eye irritation persists: 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.

**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 and Part B.

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

Hazardous Ingredients <sup>1</sup>	% Wt.	CAS No./ EC No.	REACH Reg. No.	CLP/GHS Classification
Epoxy resin (number average molecular weight <= 700)	8-17	25068-38-6 500-033-5	NA	Eye Irrit. 2, H319 Skin Irrit. 2, H315 Skin Sens. 1, H317 Aquatic Chronic 2, H411
Butanedioldiglycidyl ether	0.1-0.9	2425-79-8 219-371-7	01-211949 4060-45	Acute Tox. 4, H302/312/332 Eye Dam. 1, H318 Skin Irrit. 2, H315 Skin Sens. 1, H317 Aquatic Chronic 3, H412

4-Nonylphenol, branched	0.1-0.2	84852-15-3 284-325-5	NA	Repr. 2, H361fd Acute Tox. 4, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M-factor = 10) Aquatic Chronic 1, H410 (M-factor = 10)
Other ingredients:				
Bauxite (Al <sub>2</sub> O <sub>3</sub> .xH <sub>2</sub> O), calcined	35-50	92797-42-7 296-578-9	NA	Not classified*
Alkyl phenol blocked polyisocyanate	1-5	Unknown	NA	Not classified
Silica (Quartz)	0.1-0.9	14808-60-7 238-878-4	NA	Not classified
Substances of Very High Concern (SVHC) per Regulation (EC) No 1907/2006 (REACH) Art. 57: 4-Nonylphenol, branched *Substance with a workplace exposure limit. For full text of H-statements: see SECTION 16.				
<sup>1</sup> Classified according to: * 29 CFR 1910.1200, 1915, 1916, 1917, Mass. Right-to-Know Law (ch. 40, M.G.L..O. 111F), California Proposition 65 * 1272/2008/EC, REACH * WHMIS 2015 * Safe Work Australia [NOHSC: 1008 (2004)]				

**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.

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

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**

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.

**5.3. Advice for firefighters**

Cool exposed containers with water. Recommend Firefighters wear self-contained breathing apparatus.

Flammability Classification: –

HAZCHEM Emergency Action Code: 2 **Z****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**

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 skin 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 leather including shoes cannot be decontaminated and should be discarded. Avoid creating and breathing dust during removal, drilling, grinding, sawing or sanding.

Health risks with handling these ARC Composites are further reduced as Part A:

- contains a mixture of 100% blocked isocyanate, with a blend of polymers such as epoxy resin.
- is a gritty paste that cannot be inhaled.
- should never see exposures to temperatures of 120°C (248°F) under normal storage and use-conditions, thereby minimizing risk of unblocking.
- when mixed with Part B components, cannot generate an exothermic reaction temperature anywhere near the 120° (248°F) blocking limit.

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 <sup>1</sup>		ACGIH TLV <sup>2</sup>		UK WEL <sup>3</sup>		AUSTRALIA ES <sup>4</sup>	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Epoxy resin (number average molecular weight <= 700)	–	–	–	–	–	–	–	–
Butanedioldiglycidyl ether	–	–	–	–	–	–	–	–
4-Nonylphenol, branched	–	–	–	–	–	–	–	–
Bauxite (Al <sub>2</sub> O <sub>3</sub> .xH <sub>2</sub> O), calcined	(total) (resp)	15 5	(resp)	1	–	10 (inhal) 4 (resp)	–	10 (insp)
Alkyl phenol blocked polyisocyanate	–	–	–	–	–	–	–	–
Silica (Quartz)	–	0.1 (resp)	–	0.025 (resp)	–	0.1	–	0.1

<sup>1</sup> United States Occupational Health & Safety Administration permissible exposure limits.

<sup>2</sup> American Conference of Governmental Industrial Hygienists threshold limit values.

<sup>3</sup> EH40 Workplace exposure limits, Health & Safety Executive

<sup>4</sup> Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003].

## 8.2. Exposure controls

### 8.2.1. Engineering measures

Use adequate ventilation to keep airborne isocyanate levels below the exposure limits. Exhaust air (including curing oven offgases) may need to be cleaned by scrubbers or filters to reduce environmental contamination. If it is necessary to alter the final cured product such that dust may be generated, use adequate dust extraction or damp down.

### 8.2.2. Individual protection measures

**Respiratory protection:** If exposure limits are exceeded, use a self-contained breathing apparatus (SCBA), supplied air respirator (SAR) or air-purifying respirator (APR) with a suitable filter. 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

Refer to sections 6 and 12.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

<b>Physical state</b>	paste	<b>Odour</b>	sweet
<b>Colour</b>	blue	<b>Odour threshold</b>	not determined
<b>Initial boiling point</b>	not determined	<b>Vapour pressure @ 20°C</b>	not determined
<b>Melting point</b>	not determined	<b>% Aromatics by weight</b>	0%
<b>% Volatile (by volume)</b>	0%	<b>pH</b>	not applicable
<b>Flash point</b>	192°C (378°F)	<b>Relative density</b>	2.39 kg/l
<b>Method</b>	PM Closed Cup	<b>Weight per volume</b>	19.9 lbs/gal.
<b>Viscosity</b>	4 million cps @25°C	<b>Coefficient (water/oil)</b>	< 1
<b>Autoignition temperature</b>	not determined	<b>Vapour density (air=1)</b>	> 1
<b>Decomposition temperature</b>	not determined	<b>Rate of evaporation (ether=1)</b>	< 1
<b>Upper/lower flammability or explosive limits</b>	not determined	<b>Solubility in water</b>	insoluble
<b>Flammability (solid, gas)</b>	not applicable	<b>Oxidising properties</b>	not determined
<b>Explosive properties</b>	not determined		

### 9.2. Other information

Unblocking temperature: 120°C (248°F). VOC (EPA 24): 0.11 lbs/gal.

## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

Refer to sections 10.3 and 10.5.

### 10.2. Chemical stability

Stable

### 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 mineral acids and bases and strong oxidizers like liquid Chlorine and concentrated Oxygen.

### 10.6. Hazardous decomposition products

Carbon Monoxide, Carbon Dioxide, aldehydes, acids, Hydrogen Cyanide and other toxic fumes (by combustion).

**SECTION 11: TOXICOLOGICAL INFORMATION****11.1. Information on toxicological effects**

**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:** If ingested, may cause gastrointestinal disturbances such as nausea, vomiting and diarrhea.

Substance	Test	Result
Bauxite (Al <sub>2</sub> O <sub>3</sub> .xH <sub>2</sub> O), calcined	LD50, rat	> 5000 mg/kg
Epoxy resin	LD50, rat	> 5000 mg/kg
4-Nonylphenol, branched & Alkyl phenol blocked polyisocyanate	LD50, rat	> 5000 mg/kg
4-Nonylphenol, branched	LD50, rat	1412 mg/kg
Butanedioldiglycidyl ether	LD50, rat	1163 mg/kg

**Dermal:** 4-Nonylphenol, branched & Alkyl phenol blocked polyisocyanate: ATE-mix, dermal = 2118 mg/kg (Calculation method).

Substance	Test	Result
Epoxy resin	LD50, rabbit	> 3000
4-Nonylphenol, branched	LD50, rabbit	2031 mg/kg
Butanedioldiglycidyl ether	LD50, rabbit	> 2150 mg/kg

**Inhalation:** 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.

Substance	Test	Result
Epoxy resin	LC0, rat, 5-8 h	No mortality at vapor saturation level
Butanedioldiglycidyl ether	ATE	1.5 mg/l (mist)

**Skin corrosion/irritation:** Causes skin irritation.

Substance	Test	Result
Epoxy resin	Skin irritation, rabbit	Moderate irritation
4-Nonylphenol, branched & Alkyl phenol blocked polyisocyanate	Skin irritation, rabbit (OECD 404)	No skin irritation
4-Nonylphenol, branched	Skin irritation, Skin irritation, rabbit (OECD 404)	C - Corrosive

**Serious eye damage/irritation:** Causes serious eye irritation.

Substance	Test	Result
Epoxy resin	Eye irritation, rabbit	Moderate irritation
4-Nonylphenol, branched & Alkyl phenol blocked polyisocyanate	Eye irritation, rabbit (OECD 405)	Slightly irritating
4-Nonylphenol, branched	Eye irritation, rabbit (OECD 405)	C - Corrosive

**Respiratory or skin sensitisation:**

May cause skin sensitization as evidenced by rashes or hives.

Substance	Test	Result
Epoxy resin	Skin sensitization, guinea pig	Sensitizing
4-Nonyl phenol & Alkyl phenol blocked polyisocyanate	Skin sensitization, mouse (OECD 429)	Not sensitizing
4-Nonyl phenol	Skin sensitization, guinea pig	Not sensitizing
Butanedioldiglycidyl ether	Skin sensitization, guinea pig	Sensitizing

**Germ cell mutagenicity:**

Epoxy resin, 4-Nonylphenol, branched, Butanedioldiglycidyl ether: based on available data, the classification criteria are not met. Alkyl phenol blocked polyisocyanate, Ames test: negative.

**Carcinogenicity:**

The International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) have classified inhaled silica as a human carcinogen. The silica in this product does not separate from the mixture or in of itself become air-borne, therefore it does not present a hazard in normal use. Epoxy resin: based on available data, the classification criteria are not met. Butanedioldiglycidyl ether: data lacking.

**Reproductive toxicity:**

Epoxy resin: based on available data, the classification criteria are not met. Butanedioldiglycidyl ether: data lacking. 4-Nonylphenol, branched: Suspected of damaging fertility. Suspected of damaging the unborn child.

**STOT-single exposure:**

Epoxy resin, Butanedioldiglycidyl ether: based on available data, the classification criteria are not met.

**STOT-repeated exposure:**

Epoxy resin, Butanedioldiglycidyl ether: 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. Repeated inhalation of respirable free silica may cause scarring of the lungs with cough and shortness of breath. Silicosis, a delayed lung injury that is a disabling, progressive and sometimes fatal pulmonary fibrosis, may result. The silica in this product does not separate from the mixture or in of itself become air-borne, therefore it does not present a hazard in normal use.

**Aspiration hazard:**

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

**Other information:**

None known

**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**

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Epoxy resin: material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species). 4-Nonylphenol, branched & Alkyl phenol blocked polyisocyanate: LC50/EC50/ErC50 > 100 mg/L in the most sensitive species.

**12.2. Persistence and degradability**

Unreacted components (Parts A and B), improperly released to the environment, can cause ground and water pollution. Epoxy resin, Butanedioldiglycidyl ether, Alkyl phenol blocked polyisocyanate, 4-Nonylphenol, branched: not readily biodegradable.

**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; BCF, Fathead minnow, 20 days = 271).

**12.4. Mobility in soil**

Paste. Insoluble in water. Epoxy resin: if product enters soil, it will be mobile and may contaminate groundwater (log Kow < = 3.65). 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. 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**

**ADR/RID/ADN/IMDG/ICAO:** NOT APPLICABLE  
**TDG:** NOT APPLICABLE  
**US DOT:** NOT APPLICABLE

**14.2. UN proper shipping name**

**ADR/RID/ADN/IMDG/ICAO:** NON-HAZARDOUS, NON REGULATED  
**TDG:** NON-HAZARDOUS, NON REGULATED  
**US DOT:** NON-HAZARDOUS, NON REGULATED

**14.3. Transport hazard class(es)**

**ADR/RID/ADN/IMDG/ICAO:** NOT APPLICABLE  
**TDG:** NOT APPLICABLE  
**US DOT:** NOT APPLICABLE

**14.4. Packing group**

**ADR/RID/ADN/IMDG/ICAO:** NOT APPLICABLE  
**TDG:** NOT APPLICABLE  
**US DOT:** NOT APPLICABLE

**14.5. Environmental hazards**

NOT APPLICABLE

**14.6. Special precautions for user**

NOT APPLICABLE

**14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

NOT APPLICABLE

**14.8. Other information**

NOT APPLICABLE

**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:** Directive 94/33/EC on the protection of young people at work.

**15.1.2. National regulations****US EPA SARA TITLE III****312 Hazards:**

Immediate  
 Delayed  
 Reactive

**313 Chemicals:**

None

**Other national regulations:** National implementation of the EC Directive 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:** 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  
 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  
 NOAEL: No Observed Adverse Effect Level  
 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)  
 RID: Regulations concerning the International Carriage of Dangerous Goods by Rail  
 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)  
 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](http://www.wikipedia.org).

**Key literature references and sources for data:** Commission de la santé et de la sécurité du travail (CSST)  
 Chemical Classification and Information Database (CCID)  
 European Chemicals Agency (ECHA) - Information on Chemicals  
 Hazardous Substances Information System (HSIS)  
 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:**

Classification	Classification procedure
Eye Irrit. 2, H319	Calculation method
Skin Irrit. 2, H315	Calculation method
Skin Sens. 1, H317	Bridging principle "Dilution"
Aquatic Chronic 3, H412	Calculation method

**Relevant H-statements:** H315: Causes skin irritation.  
 H317: May cause an allergic skin reaction.  
 H318: Causes serious eye damage.  
 H319: Causes serious eye irritation.  
 H302/312/332: Harmful if swallowed, in contact with skin or if inhaled.  
 H314: Causes severe skin burns and eye damage.  
 H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.  
 H400: Very toxic to aquatic life.  
 H410: Very toxic to aquatic life with long lasting effects.  
 H411: Toxic to aquatic life with long lasting effects.  
 H412: Harmful to aquatic life with long lasting effects.

**Hazard pictogram names:** Health hazard (non-CLP classification), exclamation mark

**Changes to the SDS in this revision:** Section 1.3.

**Revision date:** 26 April 2018

**Further information:** None

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.



## SAFETY DATA SHEET

in accordance with 1907/2006/EC (REACH, as amended by 830/2015/EU) 29 CFR 1910.1200 and WHMIS 2015

**Revision date:** 26 April 2018      **Initial date of issue:** 29 February 2016      **SDS No.** 464B-2a

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

#### 1.1. Product identifier

ARC I BX1 RC (Part B)

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

Mixed with ARC I BX1 RC Part A, for a fast cure coating to protect metal surfaces from damage caused by abrasion, erosion and impact forces.

#### 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](http://www.chesterton.com)  
E-mail (SDS questions): [ProductMSDSs@chesterton.com](mailto:ProductMSDSs@chesterton.com)  
E-mail: [customer.service@chesterton.com](mailto: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)

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1. Classification of the substance or mixture

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

Skin Corr. 1A, H314  
Skin Sens. 1, H317  
Aquatic Chronic 2, H411

##### 2.1.2. Classification according to 29 CFR 1910.1200 / WHMIS 2015

Flam. Liq. 4, H227  
Skin Corr. 1A, H314  
Skin Sens. 1, H317  
Aquatic Chronic 2, H411

##### 2.1.3. Classification according to WHMIS 1988

B3: Combustible liquids; E: Corrosive materials; D2B: Toxic materials causing other effects

##### 2.1.4. Australian statement of hazardous nature

Hazardous according to criteria of Safe Work Australia.

##### 2.1.5. 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]****Hazard pictograms:****Signal word:** Danger

**Hazard statements:** H314 Causes severe skin burns and eye damage.  
 H317 May cause an allergic skin reaction.  
 H411 Toxic to aquatic life with long lasting effects.

**Precautionary statements:** P273 Avoid release to the environment.  
 P280 Wear protective gloves, protective clothing and eye/face protection.  
 P301/330/331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
 P303/361/353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 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/physician.  
 P363 Wash contaminated clothing before reuse.

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

**Hazard statements:** H227 Combustible liquid.  
 H314 Causes severe skin burns and eye damage.  
 H317 May cause an allergic skin reaction.  
 H411 Toxic to aquatic life with long lasting effects.

**Precautionary statements:** P210 Keep away from flames and hot surfaces. – No smoking.  
 P273 Avoid release to the environment.  
 P280 Wear protective gloves/clothing and eye/face protection.  
 P301/330/331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
 P303/361/353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 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/physician.  
 P363 Wash contaminated clothing before reuse.

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

The safety and health hazards are detailed separately for Part A and Part B. The final cured material is considered nonhazardous. Upon machining, refer to the precautions in the safety data sheets for Part A and Part B.

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

Hazardous Ingredients <sup>1</sup>	% Wt.	CAS No./ EC No.	REACH Reg. No.	CLP/GHS Classification
Formaldehyde polymer with 1,3-benzenedimethanamine and phenol	10-20	57214-10-5 500-137-0	NA	Aquatic Acute 1, H400 Aquatic Chronic 1, H410 (M-factor = 1)
m-Phenylenebis(methylamine) (Synonym: m-Xylene-alpha, alpha'-Diamine)	7-13	1477-55-0 216-032-5	01-211948 0150-50	Acute Tox. 4, H332 Acute Tox. 4, H302 Skin Corr. 1A, H314 Skin Sens. 1, H317 Aquatic Chronic 3, H412 [Flam. Liq. 4, H227]**

N-(3-(trimethoxysilyl)propyl)ethylenediamine	0.1-0.7	1760-24-3 217-164-6	01-211997 0215-39	Acute Tox. 4, H332 Eye Dam. 1, H318 Skin Sens. 1, H317
Other ingredients:				
Bauxite (Al <sub>2</sub> O <sub>3</sub> .xH <sub>2</sub> O), calcined	50-60	92797-42-7 296-578-9	NA	Not classified*
Silicon carbide	7-13	409-21-2 206- 991-8	NA	Not classified*
*Substance with a workplace exposure limit. **Non-CLP classification. For full text of H-statements: see SECTION 16.				
<sup>1</sup> Classified according to: * 29 CFR 1910.1200, 1915, 1916, 1917, Mass. Right-to-Know Law (ch. 40, M.G.L..O. 111F), California Proposition 65 * 1272/2008/EC, REACH * WHMIS 2015 * Safe Work Australia [NOHSC: 1008 (2004)]				

**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.

**Skin contact:** Flood area with water while removing contaminated clothing. Wash clothing before reuse. Wash skin with soap and water. Contact physician.

**Eye contact:** Flush eyes for at least 15 minutes with large amounts of water. Contact physician.

**Ingestion:** Do not induce vomiting. If conscious, dilute stomach contents with large quantities of milk or water. Contact physician immediately.

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

Direct contact will cause burns to skin, eyes and mucous membranes. May cause an allergic skin reaction. Excessive inhalation of vapors or mists can cause coughing, chest tightness and difficulty breathing.

**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, water spray.

**Unsuitable extinguishing media:** No data available

**5.2. Special hazards arising from the substance or mixture**

None

**5.3. Advice for firefighters**

Recommend Firefighters wear self-contained breathing apparatus.

**Flammability Classification:** –

**HAZCHEM Emergency Action Code:** 3 **Z**

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

Evacuate area. Provide adequate ventilation. 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**

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**

Utilize exposure controls and personal protection as specified in Section 8. Remove contaminated clothing immediately. Wash clothing before reuse. Contaminated leather including shoes cannot be decontaminated and should be discarded.

**7.2. Conditions for safe storage, including any incompatibilities**

Store in a cool, dry area.

**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 <sup>1</sup>		ACGIH TLV <sup>2</sup>		UK WEL <sup>3</sup>		AUSTRALIA ES <sup>4</sup>	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Formaldehyde polymer with 1,3-benzenedimethanamine and phenol	–	–	–	–	–	–	–	–
m-Phenylenebis(methylamine)	–	–	(skin)	STEL: 0.1 (Ceiling)	–	–	–	–
N-(3-(trimethoxysilyl)propyl)ethylene diamine	–	–	–	–	–	–	–	–
Bauxite (Al <sub>2</sub> O <sub>3</sub> .xH <sub>2</sub> O), calcined	(total) (resp)	15 5	(resp)	1	(total) (resp)	10 4	–	10
Silicon carbide	(total) (resp)	15 5	(total) (resp)	10 3	(total) (resp)	10 4	–	10

<sup>1</sup> United States Occupational Health & Safety Administration permissible exposure limits.

<sup>2</sup> American Conference of Governmental Industrial Hygienists threshold limit values.

<sup>3</sup> EH40 Workplace exposure limits, Health & Safety Executive

<sup>4</sup> Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003].

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

Provide sufficient ventilation to keep the vapor concentrations below the exposure limits.

**8.2.2. Individual protection measures**

**Respiratory protection:** Not normally needed. If exposure limits are exceeded, use an approved organic vapor respirator (e.g., EN filter type A-P2).

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

**Eye and face protection:** Safety goggles.

**Other:** Impervious clothing as necessary to prevent skin contact.

**8.2.3. Environmental exposure controls**

Refer to sections 6 and 12.

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

<b>Physical state</b>	paste	<b>Odour</b>	amine
<b>Colour</b>	reddish brown	<b>Odour threshold</b>	not determined
<b>Initial boiling point</b>	not determined	<b>Vapour pressure @ 20°C</b>	not determined
<b>Melting point</b>	not determined	<b>% Aromatics by weight</b>	0%
<b>% Volatile (by volume)</b>	0%	<b>pH</b>	not applicable
<b>Flash point</b>	77°C (170°F)	<b>Relative density</b>	2.22 kg/l
<b>Method</b>	PM Closed Cup	<b>Weight per volume</b>	18.49 lbs/gal.
<b>Viscosity</b>	50000 cps @ 25°C	<b>Coefficient (water/oil)</b>	< 1
<b>Autoignition temperature</b>	not determined	<b>Vapour density (air=1)</b>	> 1
<b>Decomposition temperature</b>	not determined	<b>Rate of evaporation (ether=1)</b>	< 1
<b>Upper/lower flammability or explosive limits</b>	not determined	<b>Solubility in water</b>	insoluble
<b>Flammability (solid, gas)</b>	not applicable	<b>Oxidising properties</b>	not determined
<b>Explosive properties</b>	not determined		

**9.2. Other information**

None

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

Refer to sections 10.3 and 10.5.

**10.2. Chemical stability**

Stable

**10.3. Possibility of hazardous reactions**

No dangerous reactions known under conditions of normal use.

**10.4. Conditions to avoid**

None

**10.5. Incompatible materials**

Strong acids and strong oxidizers like liquid Chlorine and concentrated Oxygen.

**10.6. Hazardous decomposition products**

Carbon Monoxide, Carbon Dioxide, NOx, Ammonia and other toxic fumes (by combustion).

**SECTION 11: TOXICOLOGICAL INFORMATION****11.1. Information on toxicological effects**

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

**Acute toxicity -****Oral:**

ATE-mix &gt; 9055 mg/kg

Substance	Test	Result
m-Phenylenebis(methylamine)	LD50, rat	930 mg/kg
Bauxite (Al <sub>2</sub> O <sub>3</sub> .xH <sub>2</sub> O), calcined	LD50, rat	> 5000 mg/kg, read-across
Silicon carbide	NOAEL, rat	2000 mg/kg
N-(3-(trimethoxysilyl)propyl)ethylenediamine	LD50, rat	2413 mg/kg

**Dermal:**

Substance	Test	Result
m-Phenylenebis(methylamine)	LD50, rabbit	≈ 2000 mg/kg
Silicon carbide	NOAEL, rat	2000 mg/kg
N-(3-(trimethoxysilyl)propyl)ethylenediamine	LD50, rabbit	2009 mg/kg

**Inhalation:** Excessive inhalation of vapors or mists can cause coughing, chest tightness and difficulty breathing. ATE-mix = 13.05 mg/l (mist).

Substance	Test	Result
m-Phenylenebis(methylamine)	LC50, rat, 4 h	1.3 mg/l (mist)

**Skin corrosion/irritation:** May cause burns.

Substance	Test	Result
ARC I BX1 RC (Part B)	Corrositex®	Corrosive
m-Phenylenebis(methylamine)	Skin irritation, guinea pig	Corrosive

**Serious eye damage/irritation:** Risk of serious damage to eyes.

**Respiratory or skin sensitisation:** May cause an allergic skin reaction.

**Germ cell mutagenicity:** m-Phenylenebis(methylamine), Silicon carbide, N-(3-(trimethoxysilyl)propyl)ethylenediamine: based on available data, the classification criteria are not met.

**Carcinogenicity:** As per 29 CFR 1910.1200 (Hazard Communication), 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 Regulation (EC) No 1272/2008.

**Reproductive toxicity:** Bauxite (Al<sub>2</sub>O<sub>3</sub>.xH<sub>2</sub>O), calcined, Silicon carbide: not expected to cause toxicity. Other ingredients: data lacking.

**STOT-single exposure:** Excessive inhalation of vapors or mists can cause coughing, chest tightness and difficulty breathing.

**STOT-repeated exposure:** Silicon carbide: based on available data, the classification criteria are not met. Other ingredients: data lacking.

**Aspiration hazard:** Not expected to be an aspiration toxicant based on viscosity.

**Other information:** 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

Toxic to aquatic life with long lasting effects. Formaldehyde polymer with 1,3-benzenedimethanamine and phenol: 96 hr EC<sub>50</sub>, Rainbow trout = 0.76 mg/l (read-across). m-Phenylenebis(methylamine) is harmful to aquatic organisms [72 h EC<sub>50</sub> (for algae): 12 mg/l].

### 12.2. Persistence and degradability

Unreacted components (Parts A and B), improperly released to the environment, can cause ground and water pollution. m-Phenylenebis(methylamine): biodegradation, OECD 301B (28 days) = 49%, not readily biodegradable. N-(3-(trimethoxysilyl)propyl)ethylenediamine: hydrolyzes in water or moist air, releasing methanol and organosilicons; biodegradation = 50% (OECD 301A, 28 days).

### 12.3. Bioaccumulative potential

m-Phenylenebis(methylamine): low potential for bioaccumulation (BCF < 100). N-(3-(trimethoxysilyl)propyl)ethylenediamine: bioconcentration in aquatic organisms is not expected to be significant.

### 12.4. Mobility in soil

Paste. Insoluble in water. 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. Other adverse effects

None known



**SECTION 13: DISPOSAL CONSIDERATIONS****13.1. Waste treatment methods**

Unreacted components are a special waste (classified as hazardous according to 2008/98/EC). Combine resin and curative. The final cured material is considered nonhazardous. Landfill sealed containers with a properly licensed facility. 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**

**ADR/RID/ADN/IMDG/ICAO:** UN2735  
**TDG:** UN2735  
**US DOT:** UN2735

**14.2. UN proper shipping name**

**ADR/RID/ADN/IMDG/ICAO:** AMINES, LIQUID, CORROSIVE, N.O.S. (BENZENE-1,3-DIMETHANEAMINE (MXDA))  
**TDG:** AMINES, LIQUID, CORROSIVE, N.O.S. (BENZENE-1,3-DIMETHANEAMINE (MXDA))  
**US DOT:** AMINES, LIQUID, CORROSIVE, N.O.S. (BENZENE-1,3-DIMETHANEAMINE (MXDA))

**14.3. Transport hazard class(es)**

**ADR/RID/ADN/IMDG/ICAO:** 8  
**TDG:** 8  
**US DOT:** 8

**14.4. Packing group**

**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. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

NOT APPLICABLE

**14.8. Other information**

**US DOT:** May be shipped as Limited Quantities in packaging having a rated capacity gross weight of 66 lb. or less and in inner packages not over 5 Liters (49 CFR 173.154 (b,2) ERG NO. 153

**IMDG:** EmS F-A, S-B, IMDG segregation group 18-Alkalis

**ADR:** Classification code C7, Tunnel restriction code (E)

**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:** Directive 94/33/EC on the protection of young people at work.

**15.1.2. National regulations****US EPA SARA TITLE III****312 Hazards:**

Immediate  
 Fire  
 Delayed

**313 Chemicals:**

None

**Other national regulations:** National implementation of the EC Directive 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:** 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  
 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  
 NOAEL: No Observed Adverse Effect Level  
 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)  
 RID: Regulations concerning the International Carriage of Dangerous Goods by Rail  
 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)  
 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](http://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 Substances Information System (HSIS)  
 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:**

Classification	Classification procedure
Skin Corr. 1A, H314	Calculation method
Skin Sens. 1, H317	Bridging principle "Dilution"
Aquatic Chronic 2, H411	Calculation method

**Relevant H-statements:** H225: Highly flammable liquid and vapour.  
 H302: Harmful if swallowed.  
 H314: Causes severe skin burns and eye damage.  
 H317: May cause an allergic skin reaction.  
 H318: Causes serious eye damage.  
 H332: Harmful if inhaled.  
 H400: Very toxic to aquatic life.  
 H410: Very toxic to aquatic life with long lasting effects.  
 H411: Toxic to aquatic life with long lasting effects.  
 H412: Harmful to aquatic life with long lasting effects.

**Hazard pictogram names:** Corrosion, exclamation mark, environment

**Changes to the SDS in this revision:** Section 1.3.

**Revision date:** 26 April 2018

**Further information:** None

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.