

## SAFETY DATA SHEET

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

**Revision date:** 20 April 2018      **Initial date of issue:** 7 October 2011      **SDS No.** 449A-5

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

#### 1.1. Product identifier

ARC HT-S (Part A) (BLU, GY)

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

ARC Polymer Composite to be mixed with ARC HT-S (Part B) to provide a corrosion resistant coating for hot water/steam environment.

#### 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)  
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]

Serious eye damage, Category 1, H318  
Skin irritation, Category 2, H315  
Skin sensitization, Category 1, H317  
Hazardous to the aquatic environment, Chronic, Category 3, H412

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

Same as section 2.1.1.

##### 2.1.3. Australian statement of hazardous nature

Hazardous according to criteria of Safe Work Australia.

##### 2.1.4. 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

<b>Hazard statements:</b>	H318	Causes serious eye damage.
	H315	Causes skin irritation.
	H317	May cause an allergic skin reaction.
	H412	Harmful to aquatic life with long lasting effects.
<b>Precautionary statements:</b>	P260	Do not breathe mist/spray.
	P273	Avoid release to the environment.
	P280	Wear protective gloves 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/physician.
	P302/352	IF ON SKIN: Wash with plenty of soap and water.
	P333/313	If skin irritation or rash occurs: Get medical advice/attention.
	P362/364	Take off contaminated clothing and wash it before reuse.

**Supplemental information:** None

### 2.2.2. Labeling according to 29 CFR 1910.1200 / WHMIS 2015

**Hazard pictograms:** Same as section 2.2.1.

**Signal word:** Same as section 2.2.1.

**Hazard statements:** Same as section 2.2.1.

<b>Precautionary statements:</b>	P260	Do not breathe mist/spray.
	P264	Wash hands 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/protective clothing/eye protection/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/physician.
	P302/352	IF ON SKIN: Wash with plenty of soap and water.
	P333/313	If skin irritation or rash occurs: Get medical advice/attention.
	P362/364	Take off contaminated clothing and wash it before reuse.
	P501	Dispose of contents/container to an approved waste disposal plant.

**Supplemental information:**

### 2.3. Other hazards

The safety and health hazards are detailed separately by part. 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)	15-24	28064-14-4 9003-36-5/ 500-006-8	01-211945 4392-40	Skin Irrit. 2, H315 Skin Sens. 1, H317 Aquatic Chronic 2, H411
1,4-bis(2,3-epoxypropoxy)butane	5-10	2425-79-8 219-371-7	NA	Acute Tox. 4, H302, H332, H312 Eye Dam. 1, H318 Skin Irrit. 2, H315 Skin Sens. 1, H317 Aquatic Chronic 3, H412
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	5-9	2530-83-8 219-784-2	01-211951 3212-58	Eye Dam. 1, H318
Other ingredients:				
Aluminum oxide	10-20	1344-28-1 215-691-6	NA	Not classified*
Silica (Quartz)	1-5	14808-60-7 238-878-4	NA	Not classified*
Titanium dioxide	1-5	13463-67-7 236-675-5	01-211948 9379-17	Not classified*

For full text of H-statements: see SECTION 16.

\*Substance with a workplace exposure limit.

<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, 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.

**Skin contact:** Remove contaminated clothing. Wash skin with soap and water. Contact physician if irritation persists.

**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. Avoid breathing mist. See section 8 for recommendations on personal protective equipment.

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

Causes serious eye damage. May cause skin sensitization as evidenced by rashes or hives: High vapor concentrations resulting from heating or spraying can cause eye and respiratory tract irritation, headache, dizziness, nausea and other central nervous system effects.

##### 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:** None known

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

Hazardous combustion products: Carbon Monoxide, aldehydes and other toxic fumes. See section 10.6 for additional information.

##### 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

Utilize exposure controls and personal protection as specified in Section 8. Wash hands thoroughly after handling. 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. Avoid creating and breathing dust during removal, drilling, grinding, sawing or sanding.

##### 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>
Epoxy resin (number average molecular weight <= 700)	–	–	–	–	–	–	–	–
1,4-bis(2,3-epoxypropoxy)butane	–	–	–	–	–	–	–	–
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane*	–	–	–	–	–	–	–	–
Aluminum oxide	–	15	(resp.)	1	(inhal.) (resp.)	10 4	(insp.)	10
Silica (Quartz)	(resp.) (total)	0.05 0.3	(resp.)	0.025	–	0.1	(resp.)	0.1
Titanium dioxide	–	15	–	10	(inhal.) (resp.)	10 4	–	10

\*Recommended exposure limit: 5 ppm (8-hr TWA), 10 ppm (STEL).

<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]

**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
		Chronic effects, systemic	29.39 mg/m <sup>3</sup>
	Dermal	Acute effects, local	0.0083 mg/cm <sup>2</sup>
		Acute effects, systemic Chronic effects, local	no data available
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Inhalation	Chronic effects, systemic	104.15 mg/kg bw/day
		Acute effects, systemic	147 mg/m <sup>3</sup>
	Dermal	Chronic effects, systemic	147 mg/m <sup>3</sup>
		Acute effects, systemic	21 mg/kg bw/day
		Chronic effects, systemic	21 mg/kg bw/day
Titanium dioxide	Inhalation	Chronic effects	10 mg/m <sup>3</sup>

**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
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Fresh water	1 mg/l
	Marine water	0.1 mg/l
	Freshwater sediments	0.79 mg/kg
	Marine sediments	0.079 mg/kg
	Microorganisms in sewage treatment	> 10 mg/l
	Soil (agricultural)	0.13 mg/kg
Titanium dioxide	Fresh water	0.184 mg/l
	Marine water	0.0184 mg/l
	Water	0.193 mg/l
	Freshwater sediments	1000 mg/kg
	Marine sediments	100 mg/kg
	Microorganisms in sewage treatment	100 mg/l
	Soil (agricultural)	100 mg/kg

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

Provide sufficient ventilation to keep the vapor concentrations below the exposure limits. If necessary, provide local exhaust. 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:** Not normally needed. In case of insufficient ventilation, utilize an approved organic vapor respirator (e.g., EN filter type A/P). During spraying, wear suitable respiratory equipment.

**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>	liquid	<b>Odour</b>	mild
<b>Colour</b>	gray	<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>	None
<b>% Volatile (by volume)</b>	< 1%	<b>pH</b>	not applicable
<b>Flash point</b>	113°C (> 236°F)	<b>Relative density</b>	1.8 kg/l
<b>Method</b>	PM Closed Cup	<b>Weight per volume</b>	14.96 lbs/gal.
<b>Viscosity</b>	7000 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>	no data available	<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 applicable
<b>Explosive properties</b>	not applicable		

**9.2. Other information**

None

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

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane: hydrolyzes in water or moist air, releasing methanol and organosilicons.

**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**

Open flames and high temperatures.

**10.5. Incompatible materials**

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

**10.6. Hazardous decomposition products**

Carbon Monoxide, aldehydes and other toxic fumes. May generate Formaldehyde at temperatures greater than 150°C (300°F). Hydrolyzes in water or moist air, releasing methanol and organosilicons.

**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 skin or lung allergies may be aggravated by exposure.

**Acute toxicity -**

**Oral:** ATE-mix = 13141 mg/kg. Based on available data on components, the classification criteria are not met.

Substance	Test	Result
Epoxy resin	LD50, rat	> 5000 mg/kg
Aluminum oxide	LD50, rat	> 5000 mg/kg
1,4-bis(2,3-epoxypropoxy)butane	LD50, rat	1163 mg/kg
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	LD50, rat	8025 mg/kg
Titanium dioxide	LD50, rat	> 10000 mg/kg

**Dermal:** ATE-mix = 12768 mg/kg. Based on available data on components, the classification criteria are not met.

Substance	Test	Result
Epoxy resin	LC50, rabbit	> 3000 mg/kg
1,4-bis(2,3-epoxypropoxy)butane	LD50, rabbit	1130 mg/kg
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	LD50, rabbit	4248 mg/kg
Titanium dioxide	LC50, rabbit	> 10000 mg/kg

**Inhalation:** High vapor concentrations resulting from heating or spraying can cause eye and respiratory tract irritation, headache, dizziness, nausea and other central nervous system effects. ATE-mix = 124.3 mg/l (vapor), 16.95 mg/l (mist). Based on available data on components, the classification criteria are not met.

Substance	Test	Result
Epoxy resin	LC50 inhalation, rat	> 1.7 mg/l/4 h
1,4-bis(2,3-epoxypropoxy)butane	LC50 inhalation, rat, 6 h	> 250 ppm
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	LC50 inhalation, rat, 4 h, Aerosol	5.3 mg/l

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

Substance	Test	Result
Epoxy resin	Skin irritation, rabbit	Moderate irritation
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Skin irritation, rabbit	Mild irritation

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

Substance	Test	Result
Epoxy resin	Eye irritation, rabbit	Slightly irritating
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Eye irritation, rabbit	Corrosive

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

Substance	Test	Result
Epoxy resin	Skin sensitization, guinea pig	Sensitizing
1,4-bis(2,3-epoxypropoxy)butane	Skin sensitization, guinea pig	Sensitizing
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Skin sensitization, human, guinea pig	Not sensitizing

**Germ cell mutagenicity:** Epoxy resin, [3-(2,3-epoxypropoxy)propyl]trimethoxysilane: based on available data, the classification criteria are not met.

**Carcinogenicity:** The International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) have classified inhaled silica as a human carcinogen. IARC has designated inhaled titanium dioxide as possibly carcinogenic to humans (group 2B). Epoxy resin, [3-(2,3-epoxypropoxy)propyl]trimethoxysilane: based on available data, the classification criteria are not met.

**Reproductive toxicity:** Epoxy resin, [3-(2,3-epoxypropoxy)propyl]trimethoxysilane: based on available data, the classification criteria are not met.

**STOT – single exposure:** Epoxy resin, [3-(2,3-epoxypropoxy)propyl]trimethoxysilane: based on available data, the classification criteria are not met.

**STOT – repeated exposure:** Epoxy resin, [3-(2,3-epoxypropoxy)propyl]trimethoxysilane: based on available data, the classification criteria are not met. 1,4-bis(2,3-epoxypropoxy)butane: 28-day oral subchronic study (4 weeks) rat male / female, NOAEL = 200 mg/kg. 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.

Substance	Test	Result
Epoxy resin (number average molecular weight <= 700)	Sub-chronic NOAEL, oral, 90 days, rat, male / female (OECD 408)	250 mg/kg

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

**Other information:** The silica and titanium dioxide in this product do not separate from the mixture or in of themselves become airborne, therefore, do not present a hazard in normal use.

## 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.

### 12.2. Persistence and degradability

Unreacted components (Parts A and B), improperly released to the environment, can cause ground and water pollution. Epoxy resin, 1,4-bis(2,3-epoxypropoxy)butane: not readily biodegradable. [3-(2,3-epoxypropoxy)propyl]trimethoxysilane: hydrolyzes in water or moist air, releasing methanol and organosilicons.

### 12.3. Bioaccumulative potential

Epoxy resin, 1,4-bis(2,3-epoxypropoxy)butane: has the potential to bioaccumulate. [3-(2,3-epoxypropoxy)propyl]trimethoxysilane: low potential for bioaccumulation.

### 12.4. Mobility in soil

Viscous liquid. Insoluble in water. In determining environmental mobility, consider the product's physical and chemical properties (see Section 9). Epoxy resin: if product enters soil, it will be mobile and may contaminate groundwater.

### 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. Unreacted components are a special waste. Incinerate waste product when in liquid form with a properly licensed facility. Check local, state and national/federal regulations and comply with the most stringent requirement. This product is classified as a hazardous waste according to 2008/98/EC.

## SECTION 14: TRANSPORT INFORMATION

### 14.1. UN number

<b>ADR/RID/ADN/IMDG/ICAO:</b>	UN3082
<b>TDG:</b>	UN3082
<b>US DOT:</b>	UN3082

### 14.2. UN proper shipping name

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

### 14.3. Transport hazard class(es)

<b>ADR/RID/ADN/IMDG/ICAO:</b>	9
<b>TDG:</b>	9
<b>US DOT:</b>	9

### 14.4. Packing group

<b>ADR/RID/ADN/IMDG/ICAO:</b>	III
<b>TDG:</b>	III
<b>US DOT:</b>	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:** 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 56<sup>th</sup> 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)

**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:**

See section 2

**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  
 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  
 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](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 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]:**

Classification	Classification procedure
Eye Dam. 1, H318	Calculation method
Skin Irrit. 2, H315	Calculation method
Skin Sens. 1, H317	Bridging principle "Dilution"
Aquatic Chronic 3, H412	Calculation method

**Relevant H-statements:** H302: Harmful if swallowed.  
 H312: Harmful in contact with skin.  
 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.  
 H411: Toxic to aquatic life with long lasting effects.  
 H412: Harmful to aquatic life with long lasting effects.

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

**Changes to the SDS in this revision:** Sections 1.3, 1.4, 2.1, 2.2, 2.3, 3, 4.1, 5.2, 5.3, 7.1, 8.1, 8.2.2, 9.2, 10.6, 11, 12.2, 15.1.2, 16.

**Revision date:** 20 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.