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 March 2007 **SDS No.** 293A-9a

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

1.1. Product identifier

ARC MX1 (Part A)

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

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

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): ProductMSDSs@chesterton.com
E-mail: customer.service@chesterton.com

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

Supplier:

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]

Eye Dam. 1, H318
Skin Irrit. 2, H315
Skin Sens. 1, H317
Aquatic Chronic 2, H411

2.1.2. Classification according to 29 CFR 1910.1200 / WHMIS 2015

Eye Dam. 1, H318
Skin Irrit. 2, H315
Repr. 2, H361f
Skin Sens. 1, H317
Aquatic Chronic 2, H411

2.1.3. Classification according to WHMIS 1988

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:

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:

P273	Avoid release to the environment.
P280	Wear protective gloves/clothing and eye/face protection.
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.
P305/351/338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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: Danger

Hazard statements:

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

Precautionary statements:

P201	Obtain special instructions before use.
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/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.
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, Part B and Part C.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Hazardous Ingredients[1]	% Wt.	CAS No./ EC No.	REACH Reg. No.	CLP/GHS Classification
Epoxy resin (number average molecular weight <= 700)	35-45	9003-36-5/ 500-006-8 28064-14-4	01-211945 4392-40	Skin Irrit. 2, H315 Skin Sens. 1, H317 Aquatic Chronic 2, H411
Epoxy resin (number average molecular weight <= 700)	20-30	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	1-5	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	0.5-0.7	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:				
Alkyl phenol blocked polyisocyanate	15-30	Unknown	NA	Not classified

Substances of Very High Concern (SVHC): 4-Nonylphenol, branched
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), 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

Severe eye irritant; may cause burns. Moderate skin irritant. May cause skin sensitization as evidenced by rashes or hives. 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. (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.)

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 and complete fire service protective equipment.

Flammability Classification: –

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 should 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)	–	–	–	–	–	–	–	–
Epoxy resin (number average molecular weight <= 700)	–	–	–	–	–	–	–	–
Butanedioldiglycidyl ether	–	–	–	–	–	–	–	–
4-Nonylphenol, branched	–	–	–	–	–	–	–	–
Alkyl phenol blocked polyisocyanate	–	–	–	–	–	–	–	–

[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] 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 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 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

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	**Odour**	epoxy odor
Colour	blue	**Odour threshold**	not determined
Initial boiling point	not determined	**Vapour pressure @ 20°C**	not determined
Melting point	not determined	**% Aromatics by weight**	None
% Volatile (by volume)	none	**pH**	not applicable
Flash point	192°C (378°F)	**Relative density**	1.18 kg/l
Method	PM Closed Cup	**Weight per volume**	9.82 lbs/gal
Viscosity	1 million cps @ 25°C	**Coefficient (water/oil)**	< 1
Autoignition temperature	not determined	**Vapour density (air=1)**	> 1
Decomposition temperature	not determined	**Rate of evaporation (ether=1)**	< 1
Upper/lower flammability or explosive limits	not determined	**Solubility in water**	insoluble
Flammability (solid, gas)	not applicable	**Oxidising properties**	not determined
Explosive properties	not determined		

9.2. Other information

Unblocking temperature: 120°C (248°F). VOC (EPA 24), Part A: 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

Carbon Monoxide, Carbon Dioxide, aldehydes, acids, Hydrogen Cyanide and other toxic fumes (by combustion). 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 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: Based on available data on components, the classification criteria are not met. ATE-mix = 33420 mg/kg. If ingested, may cause gastrointestinal disturbances such as nausea, vomiting and diarrhea.

Substance	Test	Result
Alkyl phenol blocked polyisocyanate	LD50, rat	> 5000 mg/kg
Epoxy resin	LD50, rat	> 5000 mg/kg
Butanedioldiglycidyl ether	LD50, rat	1163 mg/kg

Dermal: Based on available data on components, the classification criteria are not met. ATE-mix = 316092 mg/kg.

Substance	Test	Result
Epoxy resin	LD50, rabbit	> 2000 mg/kg
Butanedioldiglycidyl ether	LD50, rabbit	2150 mg/kg

Inhalation: Based on available data on components, the classification criteria are not met. ATE-mix = 43.1 mg/l (mist). 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
Butanedioldiglycidyl ether	ATE	> 1.5 (mist)
Epoxy resin (CAS no. 25068-38-6)	LC50, rat, 5 h	No mortality at vapor saturation level

Skin corrosion/irritation: Causes skin irritation.

Substance	Test	Result
Alkyl phenol blocked polyisocyanate	Skin irritation, rabbit, 4 h	No skin irritation
Epoxy resin (CAS no. 25068-38-6)	Skin irritation, rabbit	Moderate irritation

Serious eye damage/ irritation: Severe eye irritant; may cause burns.

Substance	Test	Result
Alkyl phenol blocked polyisocyanate	Eye irritation, rabbit	Slightly irritating
Epoxy resin (CAS no. 25068-38-6)	Eye irritation, rabbit	Moderate irritation
Epoxy resin (CAS No. 9003-36-5)	Eye irritation, rabbit	Not irritating
Butanedioldiglycidyl ether	Eye irritation, rabbit (OECD 405)	Severe irritation

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:	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:	Epoxy resin: based on available data, the classification criteria are not met. Butanedioldiglycidyl ether: not classified due to lack of data. 4-Nonylphenol, branched: Suspected of damaging fertility. Suspected of damaging the unborn child.
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.
Aspiration hazard:	Based on available data, the classification criteria are not met.
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

Epoxy resin (number average molecular weight <= 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).

12.2. Persistence and degradability

Epoxy resin, Butanedioldiglycidyl ether, Alkyl phenol blocked polyisocyanate: 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.

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 < = 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:	UN3082
TDG:	UN3082
US DOT:	UN3082

14.2. UN proper shipping name

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)

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

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: 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)

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:	**313 Chemicals:**
Immediate	None
Delayed	
Reactive	

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:

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.

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 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: 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.