



SAFETY DATA SHEET

in accordance with 1907/2006/EC (REACH, as amended by 453/2010/EC) 29 CFR 1910.1200 and WHMIS 2015

Revision date: 26 April 2018

Initial date of issue: 4 May 2007

SDS No. 398B-6a

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

1.1. Product identifier

ARC S4+ (Part B) (GY and RD) (Daycode K8350 and higher)

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

ARC Polymer Composite. To be mixed with ARC S4+ (Part A) (GY and RD) to provide protection in corrosive environments.

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

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] / 29 CFR 1910.1200 / WHMIS 2015 / GHS

Eye Dam. 1, H318
Acute Tox. 4, H302/332
Skin Irrit. 2, H315
Skin Sens. 1, H317

2.1.2. Classification according to Directives 1999/45/EC and 1975/324/EEC

Irritant; Xi; R38 – R41
Harmful; Xn; R20/R22
R43

2.1.3. Classification according to WHMIS 1988

D2B: Toxic materials causing other effects; D2A: Very 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 and R-phrases: see SECTIONS 2.2 and 16.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP] / 29 CFR 1910.1200 / WHMIS 2015 / GHS

Hazard pictograms:



Signal word:

Danger

Hazard statements:

H318 Causes serious eye damage.
 H302/332 Harmful if swallowed or if inhaled.
 H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.

Precautionary statements:

P261 Avoid breathing vapours/spray.
 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

2.3. Other hazards

The safety and health hazards are detailed separately for Part A and Part B. The final cured material is considered nonhazardous.

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

Hazardous Ingredients ¹	% Wt.	CAS No./ EC No.	REACH Reg. No.	Classification (CLP/GHS)	Classification (67/548/EEC)
Benzyl Alcohol	10-20	100-51-6 202-859-9	NA	Acute Tox. 4, H332/H302 Eye Irrit. 2, H319	Xn; R20/22 Xi; R36
1,2-Cyclohexanediamine	5-10	694-83-7 211-776-7	NA	Flam. Liq. 4, H227* Acute Tox. 4, H332 Skin Corr. 1A, H314 Eye Dam. 1, H318 STOT SE 3, H335	Xn; R20/21/22 C; R35 Xi; R37
2-Hydroxybenzoic Acid	1-2	69-72-7 200-712-3	NA	Acute Tox. 4, H302 Eye Dam. 1, H318	Xn; R22 Xi; R41
Fatty acids, C18, unsatd., dimers, reaction products with N,N-dimethyl- 1,3-propanediamine and 1,3- propanediamine	0.1-0.9	162627-17-0 605-296-0	01- 2119970 0640-38	Skin Sens. 1A, H317	Xi; R43
N-(3-(trimethoxysilyl)propyl)ethylenediamine	0.1-0.9	1760-24-3 217-164-6	01-211997 0215-39	Acute Tox. 4, H332 Eye Dam. 1, H318 Skin Sens. 1, H317	Xn; R20 (mist) Xi; R41 R43
Other ingredients:					
Silica (Quartz)	1-5	14808-60-7 238-878-4	NA	Not classified**	Not classified
Titanium dioxide	5-10	13463-67-7 236-675-5	01-211948 9379-17	Not classified**	Not classified

Indications of danger acc. to 67/548/EEC: C: Corrosive; Xn: Harmful; Xi: Irritant
 For full text of H-statements and R-phrases: see SECTION 16.

*Non-CLP classification. **Substance with a workplace exposure limit.

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, 67/548/EEC, 99/45/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. Consult physician.
- Eye contact:** Flush eyes for at least 30 minutes with large amounts of water. Consult physician.
- Ingestion:** If conscious, drink large quantities of water. Do not induce vomiting. Contact physician immediately.

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

Direct contact can cause severe eye irritation, possibly burns and skin irritation. High vapor concentrations can cause severe eye and respiratory tract irritation, headache, dizziness, nausea and possibly shortness of breath. Harmful if swallowed or if inhaled. Prolonged or repeated contact may cause asthma, skin sensitization and other allergic responses.

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

Treat symptoms.

SECTION 5: FIRE-FIGHTING MEASURES**5.1. Extinguishing media**

Carbon Dioxide, dry chemical, foam or water spray

5.2. Special hazards arising from the substance or mixture

None

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**

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

6.2. Environmental Precautions

No special precautions.

6.3. Methods and material for containment and cleaning up

Evacuate area. Provide adequate ventilation. Contain spill to a small area. 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 contact with skin and eyes. Avoid breathing mist or vapor. 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. After handling, wash before eating, drinking or smoking. Avoid creating and breathing dust during removal, drilling, grinding, sawing or sanding.

7.2. Conditions for safe storage, including any incompatibilities

Keep container closed when not in use. 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 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
Benzyl Alcohol	–	–	–	–	–	–	–	–
1,2-Cyclohexanediamine	–	–	–	–	–	–	–	–
2-Hydroxybenzoic Acid	–	–	–	–	–	–	–	–
Fatty acids, C18, unsatd., dimers, reaction products with N,N-dimethyl-1,3-propanediamine and 1,3-propanediamine	–	–	–	–	–	–	–	–
N-(3-(trimethoxysilyl)propyl)ethylene diamine	–	–	–	–	–	–	–	–
Silica (Quartz)	(resp) (total)	0.1 0.3	(resp)	0.025	–	0.1	(resp)	0.1
Titanium dioxide	–	15	–	10	(inhal) (resp)	10 4	–	10

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**

Provide sufficient ventilation to keep the concentrations below the exposure limits. If necessary, provide local ventilation. 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, wear suitable respiratory equipment.

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

Benzyl Alcohol:

Contact type	Glove material	Layer thickness	Breakthrough time *
Full	butyl rubber	0.7 mm	> 480 min.
Splash	Viton	0.7 mm	> 120 min.

*Determined according to EN374 standard.

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**

Physical state	viscous liquid	Odour	amine
Colour	yellow	Odour threshold	not determined
Initial boiling point	not determined	Vapour pressure @ 20°C	not determined
Melting point	not determined	% Aromatics by weight	0%
% Volatile (by volume)	0%	pH	not applicable
Flash point	> 93°C (>200°F)	Relative density	1.34 kg/l
Method	PM Closed Cup	Weight per volume	11.12 lbs/gal.
Viscosity	130K 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	slightly soluble
Flammability (solid, gas)	not applicable	Oxidising properties	not determined
Explosive properties	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

Open flames and red hot surfaces.

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, aldehydes and other toxic fumes.

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, eczema or skin conditions may be aggravated by exposure.

Acute effects: Direct contact can cause severe eye irritation, possibly burns and skin irritation. High vapor concentrations can cause severe eye and respiratory tract irritation, headache, dizziness, nausea and possibly shortness of breath.

Substance	Test	Result
Product	Corrositex®, OECD 435	Non-corrosive
Product	ATE dermal	19907 mg/kg
Product	ATE oral	1544-1852 mg/kg
Product	ATE inhalation	4.85 mg/l (aerosol)
Benzyl Alcohol	LC50 inhalation, rat	> 4.178 mg/l (mist) ≈ 8.8 mg/l (vapor)
Benzyl Alcohol	LD50 oral, rat	1230 mg/kg
1,2-Cyclohexanediamine	LD50 oral, rat	1170 mg/kg
1,2-Cyclohexanediamine	LD50 dermal, rabbit	1870 mg/kg
2-Hydroxybenzoic Acid	LC50 dermal, rabbit	> 2000 mg/kg
2-Hydroxybenzoic Acid	LD50 oral, rat	891 mg/kg
Titanium dioxide	LC50 inhalation, rat	> 6.820 mg/l (dust)
Titanium dioxide	LD50 oral, rat	> 10000 mg/kg
Titanium dioxide	LD50 dermal, rabbit	> 10000 mg/m ³
N-(3-(trimethoxysilyl)propyl)ethylenediamine	LD50 oral, rat	2413 mg/kg
N-(3-(trimethoxysilyl)propyl)ethylenediamine	LD50 dermal, rabbit	2009 mg/kg
N-(3-(trimethoxysilyl)propyl)ethylenediamine	LD50 inhalation, rat	> 1.49 mg/l (mist)

Chronic effects: Prolonged or repeated contact may cause asthma, skin sensitization and other allergic responses.

Carcinogenicity: The International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) have classified inhaled silica as a human carcinogen. The International Agency for Research on Cancer (IARC) has designated inhaled titanium dioxide as possibly carcinogenic to humans (group 2B).

Aspiration hazard: Not classified as an aspiration toxicant.

Other information: 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 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

Benzyl Alcohol, 1,2-Cyclohexanediamine, 2-Hydroxybenzoic Acid: Not expected to be harmful to aquatic organisms.

12.2. Persistence and degradability

Benzyl Alcohol, 1,2-Cyclohexanediamine, 2-Hydroxybenzoic Acid: readily biodegradable.

12.3. Bioaccumulative potential

Benzyl Alcohol, 1,2-Cyclohexanediamine, 1,2-Cyclohexanediamine, 2-Hydroxybenzoic Acid: bioconcentration in aquatic organisms is not expected to be significant.

12.4. Mobility in soil

Liquid. Slightly soluble in water. negligible. Unreacted components (Parts A and B), improperly released to the environment, can cause ground and water pollution. 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. Combine resin and curative. The final cured material is considered nonhazardous. Landfill sealed containers with a properly licensed facility. Check local, state and national/federal regulations and comply with the most stringent requirement.

European List of Wastes code: 08 04 09

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
313 Chemicals: None

Hazardous Materials Identification System (HMIS)

4 = Severe Hazard
 3 = Serious Hazard
 2 = Moderate Hazard
 1 = Slight Hazard
 0 = Minimal Hazard
 * = See Section 8

HEALTH	3
FLAMMABILITY	1
PHYSICAL HAZARD	1
Personal Protection	*

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: Specific Target Organ Toxicity
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 Dam. 1, H318	Calculation method
Acute Tox. 4, H302/332	Calculation method
Skin Irrit. 2, H315	On basis of test data
Skin Sens. 1, H317	Bridging principle "Dilution"

Relevant H-statements: H302: Harmful if swallowed.
H314: Causes severe skin burns and eye damage.
H317: May cause an allergic skin reaction.
H318: Causes serious eye damage.
H319: Causes serious eye irritation.
H227: Combustible liquid.
H332: Harmful if inhaled.
H335: May cause respiratory irritation.

Relevant R-phrases: R20: Harmful by inhalation.
R21: Harmful in contact with skin.
R22: Harmful if swallowed.
R34: Causes burns.
R35: Causes severe burns.
R36: Irritating to eyes.
R37: Irritating to respiratory system.
R38: Irritating to skin.
R41: Risk of serious damage to eyes.
R43: May cause sensitisation by skin contact.

Hazard pictogram names: Corrosion, exclamation mark

Changes to the SDS in this revision: Section 1.3, 16.

Date of last revision: 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.