

SAFETY DATA SHEET

in accordance with 29 CFR 1910.1200, WHMIS 2015 and Safe Work Australia

Revision date: 11 July 2023 Date of previous issue: 28 May 2020 SDS No. 269B-23

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

1.1. Product identifier

ARC S2 (Part B) (GN, GY)

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

Relevant identified uses: ARC Polymer Composite. Repair damage caused by impact, abrasion, erosion or corrosion;

rebuild worn areas; fill holes and cracks; provide abrasion resistant surfaces.

Uses advised against: No information available
Reason why uses advised against: Not applicable
1.3. Details of the supplier of the safety data sheet

Company: Supplier:

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: <u>www.chesterton.com</u>

E-mail (SDS questions): ProductSDSs@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

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 29 CFR 1910.1200 / WHMIS 2015 / Safe Work Australia / GHS

Acute toxicity, Category 4, H302 [Acute toxicity, Category 5, H313] Skin corrosion, Category 1B, H314 Serious eye damage, Category 1, H318 Skin sensitization, Category 1, H317 Reproductive toxicity, Category 1B, H360D

Hazardous to the aquatic environment, Chronic, Category 3, H412

2.1.2. Additional information

For full text of H-statements: see SECTIONS 2.2 and 16. Any classification in brackets is a GHS building block that was not adopted by the EU, the US, Canada and Australia in their national implementations of GHS.

2.2. Label elements

Labeling according to 29 CFR 1910.1200 / WHMIS 2015 / Safe Work Australia / GHS

Hazard pictograms:





Signal word: Danger

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Hazard statements:	H302 H313 H314 H317 H360D H412	Harmful if swallowed. May be harmful in contact with skin. Causes severe skin burns and eye damage. May cause an allergic skin reaction. May damage the unborn child. Harmful to aquatic life with long lasting effects.
Precautionary statements:	P201 P202 P260 P264 P270 P272 P273 P280 P303/361/353 P304/340 P305/351/338 P301/330/331 P310 P308/313 P363 P405 P501	with water or shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental information:	None None	

2.3. Other hazards

The safety and health hazards are detailed separately for Part A and Part B. 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 ¹	% Wt.	CAS No.	GHS Classification
Benzyl alcohol	17-35	100-51-6	Acute Tox. 4, H302/332 Eye Irrit. 2, H319
3-Aminomethyl-3,5,5-trimethylcyclohexylamine	17-35	2855-13-2	Acute Tox. 4, H302/312 Skin Corr. 1B, H314 Skin Sens. 1, H317 Aquatic Chronic 3, H412
3-Aminomethyl-3,5,5-trimethylcyclohexylamine, reaction products with bisphenol A diglycidyl ether homopolymer	8-24	68609-08-5	[Acute Tox. 5, H303] Skin Corr. 1B, H314 Skin Sens. 1, H317 Eye Dam. 1, H318 Aquatic Chronic 3, H412
N-methyl-2-pyrrolidone*	0.1-0.5	872-50-4	Flam. Liq. 4, H227 Repr. 1B, H360D Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335
Fatty acids, C18, unsatd., dimers, reaction products with N,N-dimethyl-1,3-propanediamine and 1,3-propanediamine	0.1-0.3	162627-17-0	Skin Sens. 1A, H317
N-(3-(trimethoxysilyl)propyl)ethylenediamine	0.09-0.14	1760-24-3	Acute Tox. 4, H332 Eye Dam. 1, H318 Skin Sens. 1, H317
Other ingredients:			
Silicon carbide	15-25	409-21-2	Not classified**
Silica (Quartz)	1-3	14808-60-7	Not classified**
Diiron trioxide	0-1.1	1309-37-1	Not classified**

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Any classification in brackets is a GHS building block that was not adopted by the EU, the US, Canada and Australia in their national implementations of GHS.

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

*Included on the EU Candidate List of substances of very high concern for Authorisation.

**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), WHMIS 2015, Safe Work

Australia, GHS

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: Do not induce vomiting. Contact physician immediately.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. Avoid contact with

the product while providing aid to the victim. See section 8.2.2 for recommendations on personal

protective equipment.

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

Direct contact will cause burns to skin, eyes and mucous membranes. Harmful if swallowed. May be harmful in contact with skin. May cause allergic skin sensitization. High vapor concentrations may cause respiratory tract irritation.

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

Treat symptoms.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media

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

Unsuitable extinguishing media: No data available

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products: Carbon Monoxide, Carbon Dioxide, NOx, aldehydes and other toxic fumes.

Other hazards: None 5.3. Advice for firefighters

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

Australian HAZCHEM Emergency Action Code: 2 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. Flush floor with dilute (5%) Acetic Acid. Collect rinsate for proper 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

Do not breathe mist/spray. 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. Keep container closed when not in use. Avoid creating and breathing dust during removal, drilling, grinding, sawing or sanding.

7.2. Conditions for safe storage, including any incompatibilities

Store in cool, dry area.

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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	N PEL ¹	ACGIF		AUSTRA	ALIA ES ³
	ppm	mg/m³	ppm	mg/m³	ppm	mg/m³
Benzyl alcohol	N/A	N/A	N/A	N/A	N/A	N/A
3-Aminomethyl-3,5,5- trimethylcyclohexylamine	N/A	N/A	N/A	N/A	N/A	N/A
3-Aminomethyl-3,5,5- trimethylcyclohexylamine, reaction products with bisphenol A diglycidyl ether homopolymer	N/A	N/A	N/A	N/A	N/A	N/A
N-methyl-2-pyrrolidone*	N/A	N/A	N/A	N/A	25 (skin) STEL: 75	103 STEL: 309
Fatty acids, C18, unsatd., dimers, reaction products with N,N-dimethyl-1,3-propanediamine and 1,3-propanediamine	N/A	N/A	N/A	N/A	N/A	N/A
N-(3- (trimethoxysilyl)propyl)ethylenediam ine	N/A	N/A	N/A	N/A	N/A	N/A
Silicon carbide	(total) (resp.)	15 5	(total) (resp.)	10 3	N/A	10 (insp.)
Silica (Quartz)	(resp.)	0.05	(resp.)	0.025	(resp.)	0.05
Diiron trioxide	(total) (resp.) (fume)	15 5 10	(resp.)	5	N/A	5 (fume, as Fe) 10

^{*} American Industrial Hygiene Association (AIHA) recommended limit: 10 ppm (skin, 8-hr TWA)

Biological limit values

N-methyl-2-pyrrolidone:

Control parameter	Biological specimen	Sampling Time	Limit value	Basis	Notes
5-Hydroxy-N-methyl-2- pyrrolidone	Urine	End of shift	100 mg/l	ACGIH	_

8.2. Exposure controls

8.2.1. Engineering measures

Good general mechanical 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: If exposure limits are exceeded or product is sprayed, utilize 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.

¹ United States Occupational Health & Safety Administration permissible exposure limits

² American Conference of Governmental Industrial Hygienists threshold limit values

³ Safe Work Australia, Workplace Exposure Standards for Airborne Contaminants

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state gritty paste not applicable Colour red or yellow Kinematic viscosity 5800 cps @ 25°C Odour Solubility in water amine not determined **Odour threshold** not determined Partition coefficient not applicable

n-octanol/water (log value)

> 1

< 1

> 200°C (392°F) **Boiling point or range** Vapour pressure @ 20°C not determined Melting point/freezing point not determined Density and/or relative density 1.4 kg/l % Volatile (by volume) < 1% Weight per volume 11.3 lbs/gal.

not determined Vapour density (air=1) **Flammability** Lower/upper flammability or not applicable Rate of evaporation (ether=1)

explosion limits

Flash point > 100°C (> 212°F)

% Aromatics by weight Method PM Closed Cup Particle characteristics no data available **Autoignition temperature** not determined **Explosive properties** not applicable **Decomposition temperature** not determined **Oxidising 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 high temperatures.

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:

Acute toxicity -

Oral:

Inhalation, skin and eye contact. Personnel with pre-existing allergies, eczema or skin conditions may be aggravated by exposure.

Harmful if swallowed. ATE-mix = 1440 - 2601 mg/kg.

Substance	Test	Result
Benzyl alcohol	LD50, rat	1230 mg/kg
3-Aminomethyl-3,5,5-	LD50, rat	1030 mg/kg
trimethylcyclohexylamine		
Silicon carbide	NOAEL, rat	2000 mg/kg
N-methyl-2-pyrrolidone	LD50, rat	3598 mg/kg
3-Aminomethyl-3,5,5- trimethylcyclohexylamine, reaction products with bisphenol A diglycidyl ether homopolymer	LD50, rat	3100 mg/kg

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Dermal: May be harmful in contact with skin. ATE-mix = 2759 - 5520 mg/kg

Substance	Test	Result
Benzyl alcohol	LD50, rabbit	2000 mg/kg
3-Aminomethyl-3,5,5- trimethylcyclohexylamine	LD50, rat	1840 mg/kg
Silicon carbide	NOAEL, rat	2000 mg/kg
N-methyl-2-pyrrolidone	LD50, rabbit	8000 mg/kg

Inhalation: Based on available data on components, the classification criteria are not met. ATE-mix = 12.03

mg/l (mist). ATE-mix = 31.6 mg/l (vapour). High vapor concentrations may cause respiratory

tract irritation.

Substance	Test	Result
Benzyl alcohol	LC50, rat, 4 h	11 mg/l (vapour)
Benzyl alcohol	LC50, rat, 4 h	> 4.178 mg/l (mist)
3-Aminomethyl-3,5,5-	LC50, rat, 4 h	> 5.01 mg/l (mist,
trimethylcyclohexylamine		analytical)
N-methyl-2-pyrrolidone	LC50, rat, 4 h	> 5.1 mg/l (mist)

Skin corrosion/irritation: Causes burns.

Substance	Test	Result
3-Aminomethyl-3,5,5-	Skin irritation, rabbit	Corrosive
trimethylcyclohexylamine		

Serious eye damage/ irritation: Causes serious eye damage.

Substance	Test	Result
3-Aminomethyl-3,5,5-	Eye irritation, rabbit,	Corrosive
trimethylcyclohexylamine	OFCD 405	

Respiratory or skin sensitisation:

May cause allergic skin sensitization.

Substance	Test	Result
3-Aminomethyl-3,5,5-	Skin sensitization,	Sensitizing
trimethylcyclohexylamine	guinea pig, OECD 406	
N-(3-	Skin sensitization,	Sensitizing
(trimethoxysilyl)propyl)ethylenediamine	guinea pig, OECD 406	_

Germ cell mutagenicity: Benzyl alcohol, 3-Aminomethyl-3,5,5-trimethylcyclohexylamine, Silicon carbide, N-methyl-2-

pyrrolidone, N-(3-(trimethoxysilyl)propyl)ethylenediamine: 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. 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. Benzyl alcohol, Silicon carbide, N-methyl-2-pyrrolidone: based on available data,

the classification criteria are not met.

Reproductive toxicity: N-methyl-2-pyrrolidone has produced reproductive/teratogenic effects in animal studies.

STOT – single exposure: 3-Aminomethyl-3,5,5-trimethylcyclohexylamine, Silicon carbide: based on available data, the

classification criteria are not met. N-methyl-2-pyrrolidone: May cause respiratory irritation.

STOT – repeated exposure: 3-Aminomethyl-3,5,5-trimethylcyclohexylamine, Silicon carbide, N-methyl-2-pyrrolidone: based

on available data, the classification criteria are not met. Benzyl alcohol: 90-day oral subchronic

study, NOAEL 400 mg/kg.

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

3-Aminomethyl-3,5,5-trimethylcyclohexylamine is harmful to aquatic organisms.

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12.2. Persistence and degradability

3-Aminomethyl-3,5,5-trimethylcyclohexylamine: may biodegrade, not readily biodegradable. Benzyl alcohol, N-methyl-2-pyrrolidone: readily biodegradable.

12.3. Bioaccumulative potential

Benzyl alcohol: low potential for bioaccumulation (log Kow: 1.1). 3-Aminomethyl-3,5,5-trimethylcyclohexylamine: low potential for bioaccumulation (BCF (QSAR): 3.16). N-methyl-2-pyrrolidone: not expected to bioaccumulate (log Kow < 1).

12.4. Mobility in soil

Paste. Insoluble in water. In determining environmental mobility, consider the product's physical and chemical properties (see Section 9). Benzyl alcohol, N-methyl-2-pyrrolidone: expected to have very high mobility in soils. 3-Aminomethyl-3,5,5-trimethylcyclohexylamine: log Koc (QSAR) = 2.97.

12.5. 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. May be incinerated at an appropriate facility. Check local, state and national/federal regulations and comply with the most stringent requirement.

SECTION 14: TRANSPORT INFORMATION

14.1. UN number or ID number

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

14.2. UN proper shipping name

ADG/ADR/RID/ADN/IMDG/ICAO: AMINES, LIQUID, CORROSIVE, N.O.S.

(3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE/CYCLOALIPHATIC AMINE)

TDG: AMINES, LIQUID, CORROSIVE, N.O.S.

(3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE/CYCLOALIPHATIC AMINE)

US DOT: AMINES, LIQUID, CORROSIVE, N.O.S.

(3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE/CYCLOALIPHATIC AMINE)

14.3. Transport hazard class(es)

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

14.4. Packing group

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

14.5. Environmental hazards

NO

14.6. Special precautions for user

NO SPECIAL PRECAUTIONS FOR USER

14.7. Maritime transport in bulk according to IMO instruments

NOT APPLICABLE

14.8. Other information

US DOT: ERG NO. 153

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 1 LITER (49 CFR 173.154 (B),(1))

IMDG: EMS F-A, S-B, IMDG SEGREGATION GROUP 18-ALKALIS ADR: CLASSIFICATION CODE C7, TUNNEL RESTRICTION CODE (E)

ADG HAZCHEM CODE: 2X HIN: 88/80

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SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. National regulations

US EPA SARA TITLE III

312 Hazards:

Chemicals subject to reporting requirements of Section 313 of

EPCRA and of 40 CFR 372:

Acute toxicity
Skin corrosion
Serious eye damage

N-methyl-2-pyrrolidone

872-50-4

0.1 - 0.5%

Serious eye damage Skin sensitization Reproductive toxicity

TSCA: All components are listed or exempted.

Other national regulations: Non

SECTION 16: OTHER INFORMATION

Abbreviations ADG: Australian Dangerous Goods Code

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

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

(Q)SAR: Quantitative Structure-Activity Relationship

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)

TMA: Time a Mainlate of Account of

TWA: Time Weighted Average

US DOT: United States Department of Transportation WHMIS: Workplace Hazardous Materials Information System

Other abbreviations and acronyms can be looked up at www.wikipedia.org.

Key literature references

Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST)

and sources for data: 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)

U.S. National Library of Medicine Toxicology Data Network (TOXNET)

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Procedure used to derive the classification for mixtures according to GHS:

Classification	Classification procedure
Acute Tox. 4, H302	Calculation method
Acute Tox. 5, H313	Calculation method
Skin Corr. 1B, H314	Calculation method
Eye Dam. 1, H318	Calculation method
Skin Sens. 1, H317	Calculation method
Repr. 1B, H360D	Calculation method
Aquatic Chronic 3, H412	Calculation method

Relevant H-statements: H227: Combustible liquid.

H302: Harmful if swallowed.

H303: May be harmful if swallowed. H312: Harmful in contact with skin.

H313: May be 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.

H335: May cause respiratory irritation. H360D: May damage the unborn child.

H412: Harmful to aquatic life with long lasting effects.

Hazard pictogram names: Corrosion, health hazard, exclamation mark

Further information: None

Date of last revision: 11 July 2023

Changes to the SDS in this revision: Sections 1.2, 1.3, 2.1, 2.2, 3.2, 5.2, 5.3, 8.1, 9.1, 13.1, 14.1, 14.2, 14.4, 14.8, 15.1, 16.

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