ARC 5 Emergency Metal To Metal Repair Epoxy (Part B)

SAFETY DATA SHEET

In Accordance with REACH (1907/2006/EC, as amended by 2015/830/EU) 29 CFR 1910. 1200 and WHMIS 2015.

Date of Revision: 26.09.2018 **SDS No:** 227B-15 **Initial Date of Issue:** 06.07.2007 **Product Identifier: ARC 5 (Part B)**

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

1.1. Product identifier

ARC 5 (Part B)

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

ARC Polymer Composite. Repair damage caused by impact, abrasion, erosion or corrosion; rebuild worn areas; fill holes and cracks; provide abrasion resistant surfaces.

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, Onta rio 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)
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]

Skin corrosion, Category 1B, H314
Serious eye damage, Category 1, H318
Skin sensitization, Category 1, H317
Hazardous to the aquatic environm ent, Acute, Category 1, H400
Hazardous to the aquatic environm ent, Chronic, Category 1, H410

Additional non-CLP classification: Fl ammable liquid, Category 4, H227

2.1.2. Classification according to 29 CFR 1910.1200 / WHMIS 2015

Flammable liquid, Category 4, H227
Skin corrosion, Category 1B, H314
Serious eye damage, Category 1, H318
Skin sensitization, Category 1, H317
Hazardous to the aquatic environm ent, Acute, Category 1, H400
Hazardous to the aquatic environment,Chronic, Category 1, H410

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-statement s: 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:

H227	Combustible liquid.*
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H410	Very toxic to aquatic life with long lasting effects.

*Additional non-CLP labelling.

Precautionary statements:

P210	Keep away from flames and hot surfaces. – No smoking.
P273	Avoid release to the environment.
P280	Wear protective gloves, protective clothing and eye/face protection.
P301/330/331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303/361/353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305/351/338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P333/313	If skin irritation or rash occurs: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.

Supplemental information: None

2.2.2. Labelling 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.

Precautionary statements:

P210 Keep away from flames and hot surfaces. – No smoking.
P273 Avoid release to the environment.
P280 Wear protective gloves/clothing and eye/face protection.
P301/330/331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303/361/353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305/351/338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.
P333/313 If skin irritation or rash occurs: Get medical advice/attention.
P363 Wash contaminated clothing before reuse.
P391 Collect spillage.
P403/235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/container to an approved waste disposal plant.

Supplemental information: None

2.3. Other hazards

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

SAFETY DATA SHEET

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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Hazardous Ingredients[1]	% Wt.	CAS No./ EC No.	REACH Reg. No.	CLP/GHS Classification
Formaldehyde polymer with 1,3-benzenedimethanamine and phenol	25-40	57214-10-5 500-137-0	NA	Aquatic Acute 1, H400 Aquatic Chronic 1, H410 (M-factor acute/chronic: 1)
m-Phenylenebis(methylamine) (Synonym: m-Xylene-alpha, alpha'-Diamine)	20-30	1477-55-0 216-032-5	NA	Acute Tox. 4, H332 Acute Tox. 4, H302 Skin Corr. 1B, H314 Skin Sens. 1B, H317 Aquatic Chronic 3, H412 EUH071
Nitric acid, ammonium calcium salt	5-10	15245-12-2 239-289-5	NA	Acute Tox. 4, H302 Eye Dam. 1, H318
Ethanol	1-5	64-17-5 200-578-6	NA	Flam. Liq. 2, H225
Iron oxide	1-5	1317-61-9 215-277-5	NA	Self-Heat. 2, H252
N-(3-(trimethoxysilyl)propyl)ethylenediamine	0.1-0.2	1760-24-3 217-164-6	01-211997 0215-39	Acute Tox. 4, H332 Eye Dam. 1, H318 Skin Sens. 1, H317
Other ingredients:				
Silicon carbide	5-10	409-21-2 206-991-8	NA	Not classified*

*Substance with a workplace exposure limit.
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)
- 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: Flood area with water while removing contaminated clothing. Wash clothing before reuse. Wash skin with soap and water. Contact physician.

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

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

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 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. May cause an allergic skin reaction. Excessive inhalation of vapors or mists can cause coughing, chest tightness and difficulty breathing.

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

Treat symptoms.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media: Carbon dioxide, dry chemical, alcohol-resistant foam, water spray.

Unsuitable extinguishing media: No data available

5.2. Special hazards arising from the substance or mixture

May generate: ammonia gas, toxic nitrogen oxide gases. Incomplete combustion may form carbon monoxide. Use of water may result in the formation of very toxic aqueous solutions. Do not allow runoff from firefighting to enter drains or water courses.

5.3. Advice for firefighters

Recommend Firefighters wear self-contained breathing apparatus.

Flammability Classification: –

HAZCHEM Emergency Action Code: 3 Z

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate area. Provide adequate ventilation. Utilize exposure controls and personal protection as specified in Section 8. Keep away from sources of ignition - No smoking. If removal of ignition sources is not possible, then flush material away with water.

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.

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 [1]		ACGIH TLV [2]		UK WEL [3]		AUSTRALIA ES [4]	
	ppm	mg/m³	ppm	mg/m³	ppm	mg/m³	ppm	mg/m³
Formaldehyde polymer with 1,3-benzenedimethanamine and phenol	–	–	–	–	–	–	–	–
m-Phenylenebis(methylamine)	–	–	(skin)	0.1 (Ceiling)	–	–	(Peak)	0.1
Nitric acid, ammonium calcium salt	–	–	–	–	–	–	–	–
Ethanol	1000	1900	STEL: 1000	–	1000	1920	1000	1880
Iron oxide	(total) (resp.)	15 5	(total) (resp.)	10 3	–	–	–	–
N-(3-(trimethoxysilyl)propyl)ethylene diamine		–	–	–	–	–	–	–
Silicon carbide	(total) (resp.)	15 5	(total) (resp.)	10 3	(total) (resp.)	10 4	–	10

[1] United States Occupational Health & Safety Administration permissible exposure limits

[2] American Conference of Gove rnmental 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]

Derived No Effect Level (DNEL) according to Regulation (EC) No 1907/2006:

Workers

Substance	Route of exposure	Potential health effects	DNEL
Nitric acid, ammonium calcium salt	Inhalation	Chronic effects, systemic	98 mg/m^3
	Dermal	Chronic effects, systemic	13.9 mg/kg bw/day
N-(3-(trimethoxysilyl)propyl)ethylenediamine	Inhalation	Chronic effects, systemic	35.3 mg/m^3
		Chronic effects, local /Acute effects, local	No hazard identified
	Dermal	Chronic effects, systemic	5 mg/kg bw/day
		Acute effects, systemic	5 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No 1907/2006:

Substance	Environmental protection target	PNEC
Nitric acid, ammonium calcium salt	Fresh water	0.45 mg/l
	Marine water	0.045 mg/l
	Water, intermittent release	4.5 mg/l
	Microorganisms in sewage treatment	18 mg/l
N-(3-(trimethoxysilyl)propyl)ethylenediamine	Fresh water	0.062 mg/l
	Freshwater sediments	0.048 mg/kg
	Water, intermittent release	0.62 mg/l
	Marine water	0.0062 mg/l
	Marine sediments	0.0048 mg/kg
	Microorganisms in sewage treatment	25 mg/l
	Soil (agricultural)	0.0075 mg/kg

8.2. Exposure controls

8.2.1. Engineering measures

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

8.2.2. Individual protection measures

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

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

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.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	paste	**Odour**	ammonia/alcohol
Colour	black	**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)	6.05%	**pH**	not applicable
Flash point	70°C (170°F)	**Relative density**	1.478 kg/l
Method	PM Closed Cup	**Weight per volume**	12.3 lbs/gal.
Viscosity	not determined	**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

None

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Refer to sections 10.3 and 10.5.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

No dangerous reactions known under conditions of normal use.

10.4. Conditions to avoid

None

10.5. Incompatible materials

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

10.6. Hazardous decomposition products

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

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

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

Acute toxicity -

Oral: ATE-mix > 3243 mg/kg

Substance	Test	Result
Formaldehyde polymer with 1,3-benzenedimethanamine and phenol	LD50, rat	> 2000 mg/kg
m-Phenylenebis(methylamine)	LD50, rat	930 mg/kg
Nitric acid, ammonium calcium salt	cATpE	500 mg/kg
Ethanol	LD50, rat	6200 mg/kg
N-(3-(trimethoxysilyl)propyl)ethylenediamine	LD50, rat	2413 mg/kg
Silicon carbide	NOAEL, rat	2000 mg/kg

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

Substance	Test	Result
Formaldehyde polymer with 1,3-benzenedimethanamine and phenol	LD50, rabbit	2020 mg/kg
m-Phenylenebis(methylamine)	LD50, rabbit	≈2000 mg/kg
Nitric acid, ammonium calcium salt	LD50, rat	> 2000 mg/kg
Ethanol	LDLo, rabbit	20000 mg/kg
N-(3-(trimethoxysilyl)propyl)ethylenediamine	LD50, rabbit	2009 mg/kg
Silicon carbide	NOAEL, rat	2000 mg/kg

Inhalation: Excessive inhalation of vapors or mists can cause coughing, chest tightness and difficulty breathing.

Substance	Test	Result
m-Phenylenebis(methylamine)	LC50, rat, 4 h	95.6 mg/l
Ethanol	LC50, rat, 4 h	95.6 mg/l
N-(3-(trimethoxysilyl)propyl)ethylenediamine	LC50 rat, mist	> 1.49 mg/l

Skin corrosion/irritation: May cause burns.

Substance	Test	Result
ARC 5 (Part B)	OECD 435	Non-corrosive

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

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

Germ cell mutagenicity: Hazardous ingredients: based on available data, the classification criteria are not met.

Carcinogenicity: 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. None known

Reproductive toxicity: Ethanol: based on available data, the classification criteria are not met. Other ingredients: data lacking.

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

STOT – repeated exposure: Ethanol, Silicon carbide, Nitric acid, ammonium calcium salt: based on available data, the classification criteria are not met. m-Phenylenebis(methylamine): data lacking.

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

Other information: None known

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. The information given below is based on a knowledge of the components and the ecotoxicology of similar substances.

12.1. Toxicity

Very toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

Unreacted components (Parts A and B), if properly released to the environment, can cause ground and water pollution. m-Phenylenebis(methylamine): biodegradation, OECD 301B (28 days) = 49%, not readily biodegradable. Ethanol: readily biodegradable; oxidizes rapidly by photochemical reactions in air.

12.3. Bioaccumulative potential

m-Phenylenebis(methylamine): low potential for bioaccumulation (BCF < 100). Ethanol: low potential for bioaccumulation (log Kow = –0.31).

12.4. Mobility in soil

Paste. Insoluble in water. In determining environmental mobility, consider the product's physical and chemical properties (see Section 9). Nitric acid, ammonium calcium salt: expected to be highly mobile in soil. Ethanol: expected to have very high mobility in soils (Koc = 2.75).

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 specia l waste (classified as hazardous according to 2008/98/EC). Combine resin and curative. The final cured material is considered nonhazardous. Landfill sealed c ontainers with a properly licensed facility. May be incinerat ed at an appropriate facility. Check local, state and national/federal regulations and comply with the most stringent requirement.

SECTION 14: TRANSPORT INFORMATION

14.1. UN number

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

14.2. UN proper shipping name

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

14.3. Transport hazard class(es)

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

14.4. Packing group

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

14.5. Environmental hazards

NOT APPLICABLE

14.6. Special precautions for user

NOT APPLICABLE

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

NOT APPLICABLE

14.8. Other information

NOT APPLICABLE

SECTION 15: REGULATORY INFORMATION

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

15.1.1. EU regulations

Authorisations under Title VII:	Not applicable
Restrictions under Title VIII:	None
Other EU regulations:	Directive 94/33/EC on the protection of young people at work.

15.1.2. National regulations

US EPA SARA TITLE III

312 Hazards:
See section 2.1.2

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 D epartment 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 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 To xicology Data Network (TOXNET)

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Procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008 [CLP]:

Classification	Classification procedure
Skin Corr. 1B, H314	Calculation method
Eye Dam, H318	Calculation method
Skin Sens. 1, H317	Calculation method
Aquatic Acute 1, H400	Calculation method
Aquatic Chronic 1, H410	Calculation method

Relevant H-statements:

EUH071: Corrosive to the respiratory tract.
H225: Highly flammable liquid and vapour.
H252: Self-heating in large quantities; may catch fire.
H302: Harmful if swallowed.
H314: Causes severe skin burns and eye damage.
H317: May cause an allergic skin reaction.
H318: Causes serious eye damage.
H332: Harmful if inhaled.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.
H412: Harmful to aquatic life with long lasting effects.

Hazard pictogram names: Corrosion, exclamation mark, environment

Changes to the SDS in this revision: Sections 2.1, 2.2, 3, 4.1, 5.1, 5.2, 6.1, 7.1, 8.1, 8.2.2, 11, 12.4, 15.1.2, 16.

Date of last revision: 26 September 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.