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: 17 August 2018 **Initial date of issue:** 26 March 2007 **SDS No.** 348B-11

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

1.1. Product identifier

ARC BX5 (MX5) (Part B)

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

ARC Polymer Composite. When mixed with ARC BX5 (MX5) (Part A), forms a hard abrasion resistant surface. Cures in 15 minutes for fast repairs.

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)
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] / 29 CFR 1910.1200 / WHMIS 2015 / GHS

Flammable liquid, Category 4, H227*
Serious eye damage, Category 1, H318
Skin irritation, Category 2, H315
Skin sensitization, Category 1, H317
Hazardous to the aquatic environment, Chronic, Category 2, H411

2.1.2. Australian statement of hazardous nature

Hazardous according to criteria of Safe Work Australia.

2.1.3. Additional information

*Non-CLP classification.
For full text of H-statements: 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:	H227	Combustible liquid.
	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:	P210	Keep away from flames and hot surfaces. – No smoking.
	P264	Wash hands thoroughly after handling.
	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.
	P333/313	If skin irritation or rash occurs: Get medical advice/attention.
	P362/364	Take off contaminated clothing and wash it before reuse.
	P370/378	In case of fire: Use CO2, dry chemical, foam or water fog to extinguish.
	P391	Collect spillage.
	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, it can only be categorized as a nuisance dust.

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	10-20	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)	7-13	1477-55-0 216-032-5	01-211948 0150-50	Acute Tox. 4, H302, H332 Skin Corr. 1B, H314 EUH071 Skin Sens. 1B, H317 Aquatic Chronic 3, H412
Nitric Acid, Ammonium Calcium Salt	1-5	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
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
Other ingredients[1]:				
Aluminum oxide	15-40	1302-74-5 215-691-6	NA	Not classified*
Silicon carbide	7-13	409-21-2 206-991-8	NA	Not classified*

For full text of H-statements: see SECTION 16.
*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)
- 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: Wash skin with soap and water. Remove contaminated clothing and wash before reuse. Consult physician.

Eye contact: Flush eyes for at least 30 minutes with large amounts of water. Consult physician.

Ingestion: If conscious, do not induce vomiting; drink milk, water or vinegar. Contact physician immediately.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. Avoid contact with skin and eyes. See section 8 for recommendations on personal protective equipment.

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

Direct contact will cause severe irritation to skin, eyes and mucous membranes. May cause burns to eyes. High vapor concentrations may irritate eyes, respiratory tract and possibly cause dizziness and drowsiness. 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: FIREFIGHTING MEASURES

5.1. Extinguishing media

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

Unsuitable extinguishing media: No information available

5.2. Special hazards arising from the substance or mixture

May generate: ammonia gas, toxic nitrogen oxide gases, Carbon monoxide. Use of water may result in the formation of very toxic aqueous solutions.

5.3. Advice for firefighters

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

Flammability Classification: –

HAZCHEM Emergency Action Code: 2 X

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. Avoid skin contact.

6.2. Environmental Precautions

No special requirements.

6.3. Methods and material for containment and cleaning up

Evacuate area. Provide adequate ventilation. Keep away from sources of ignition - No smoking. If removal of ignition sources is not possible, then flush material away with water. Cover minor spills with Sodium Bisulfite to neutralize and reduce vapors. 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

Remove contaminated clothing and wash before reuse. Contaminated leather including shoes cannot be decontaminated and should be discarded. Utilize exposure controls and personal protection as specified in Section 8.

7.2. Conditions for safe storage, including any incompatibilities

Store in a cool, dry and well-ventilated 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
Formaldehyde polymer with 1,3-benzenedimethanamine and phenol	–	–	–	–	–	–	–	–
m-Phenylenebis(methylamine)	–	–	(Ceiling)	0.1 (skin)	–	–	(Peak)	0.1
Nitric Acid, Ammonium Calcium Salt	–	–	–	–	–	–	–	–
Ethanol	1000	1900	1000	(STEL)	1000	1920	1000	1880
N-(3-(trimethoxysilyl)propyl)ethylene diamine	–	–	–	–	–	–	–	–
Aluminum oxide	(total) (resp.)	15 5	(resp.)	1	(inhal.) (resp.)	10 4	–	10
Silicon carbide	(total) (resp.)	15 5	(inhal.) (resp.)	10 3	(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]

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
	Dermal	Acute effects, systemic	5 mg/kg bw/day
		Chronic 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
	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. If necessary, provide local exhaust.

8.2.2. Individual protection measures

Respiratory protection: Not normally needed. 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 (e.g., EN filter type A-P2).

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	viscous paste	**Odour**	amine
Colour	red brown	**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)	< 3%	**pH**	not applicable
Flash point	77°C (170°F)	**Relative density**	2.09 kg/l
Method	PM Closed Cup	**Weight per volume**	17.4 lbs/gal.
Viscosity	50,000 cps	**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**	no data available
Explosive properties	no data available		

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 under normal conditions.

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 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 skin or lung allergies may be aggravated by exposure.

Acute toxicity -

Oral: ATE-mix = 5,201 mg/kg.

Substance	Test	Result
m-Phenylenebis(methylamine)	LD50, rat	930 mg/kg
Ethanol	LD50, rat	6,200 mg/kg
Formaldehyde polymer with 1,3-benzenedimethanamine and phenol	LD50, rat	> 2,000 mg/kg
Nitric Acid, Ammonium Calcium Salt	cATpE	500 mg/kg
N-(3-(trimethoxysilyl)propyl)ethylenediamine	LD50, rat	2,413 mg/kg

Dermal: Direct contact will cause severe irritation to skin, eyes and mucous membranes.

Substance	Test	Result
m-Phenylenebis(methylamine)	LD50, rabbit	≈ 2,000 mg/kg
Ethanol	LDLo, rabbit	20,000 mg/kg
Formaldehyde polymer with 1,3-benzenedimethanamine and phenol	LD50, rabbit	2,020 mg/kg
Nitric Acid, Ammonium Calcium Salt	LD50, rat	> 2,000 mg/kg
N-(3-(trimethoxysilyl)propyl)ethylenediamine	LD50, rabbit	2,009 mg/kg

Inhalation: High vapor concentrations may irritate eyes, respiratory tract and possibly cause dizziness and drowsiness. ATE-mix, 11.55 mg/l (mist).

Substance	Test	Result
m-Phenylenebis(methylamine)	LC50, rat, 4 hours	1.34 mg/l (mist, analytical)
m-Phenylenebis(methylamine)	LC50, rat, 4 hours	95.6 mg/l
N-(3-(trimethoxysilyl)propyl)ethylenediamine	LC50, rat, 4 hours	> 1.49 mg/l (mist)

Skin corrosion/irritation: Causes skin irritation.

Substance	Test	Result
ARC MX5 (Part B)	Corrositex® (OECD 435)	Non-corrosive

Serious eye damage/ irritation: Causes serious eye damage.

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

Germ cell mutagenicity: m-Phenylenebis(methylamine), N-(3-(trimethoxysilyl)propyl)ethylenediamine: 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.

Reproductive toxicity: Aluminum oxide: not expected to be a reproductive toxicant. m-Phenylenebis(methylamine): No data available.

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

STOT – repeated exposure: No data available

Aspiration hazard: Not classified as an aspiration toxicant.

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

Toxic to aquatic life with long lasting effects. Formaldehyde polymer with 1,3-benzenedimethanamine and phenol: 96 hr EC50, Rainbow trout = 0.76 mg/l (read-across). m-Phenylenebis(methylamine) is harmful to aquatic organisms [72 h EC50 (for algae): 12 mg/l].

12.2. Persistence and degradability

Unreacted components (Parts A and B), improperly 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

Ethanol: log Kow = 0.31; not expected to bioaccumulate in aquatic organisms. m-Phenylenebis(methylamine): low potential for bioaccumulation (BCF < 100). N-(3-(trimethoxysilyl)propyl)ethylenediamine: bioconcentration in aquatic organisms is not expected to be significant.

12.4. Mobility in soil

Viscous paste. Insoluble in water. In determining environmental mobility, consider the product's physical and chemical properties (see Section 9). m-Phenylenebis(methylamine), log Kow (QSAR): 3.11.

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. (Formaldehyde polymer with 1,3-benzenedimethanamine and phenol)
TDG:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Formaldehyde polymer with 1,3-benzenedimethanamine and phenol)
US DOT:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Formaldehyde polymer with 1,3-benzenedimethanamine and phenol)

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:**
See section 2.1	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.

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] / GHS:

Classification	Classification procedure
Flam. Liq. 4, H227	On basis of test data
Eye Dam. 1, H318	Calculation method
Skin Irrit. 2, H315	Calculation method
Skin Sens. 1, H317	Bridging principle "Dilution"
Aquatic Chronic 2, H411	Calculation method

Relevant H-statements: EUH071: Corrosive to the respiratory tract.
H225: Highly flammable liquid and vapour.
H272: May intensify fire; oxidiser.
H302: Harmful if swallowed.
H314: Causes severe skin burns and eye damage.
H317: May cause an allergic skin reaction.
H318: Causes serious eye damage.
H331: Toxic if inhaled.
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, 3, 7.2, 8.1, 11, 15.1.2, 16.

Date of last revision: 16 August 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.