

SAFETY DATA SHEET

in accordance with 29 CFR 1910.1200 / WHMIS 2015 / GHS

Revision date: 30 August 2018

Initial date of issue: 30 May 2007

SDS No. 471B

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

1.1. Product identifier

ARC EG-1 (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.

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

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 / GHS

Acute toxicity, Category 4, H302/312/332
Skin corrosion, Category 1B, H314
Skin sensitization, Category 1, H317
Serious eye damage, Category 1, H318
Reproductive toxicity, Category 2, 1B, H360F
Hazardous to the aquatic environment, Chronic, Category 3, H412

2.1.2. Australian statement of hazardous nature

Hazardous according to criteria of Safe Work Australia.

2.1.3. Additional information

For full text of H-statements: see SECTIONS 2.2 and 16.

2.2. Label elements

Labeling according to 29 CFR 1910.1200 / WHMIS 2015 / GHS

Hazard pictograms:



Signal word:

Danger

Hazard statements:	H302/312/332	Harmful if swallowed, in contact with skin or if inhaled.
	H314	Causes severe skin burns and eye damage.
	H317	May cause an allergic skin reaction.
	H360F	May damage fertility.
	H412	Harmful to aquatic life with long lasting effects.
Precautionary statements:	P201	Obtain special instructions before use.
	P202	Do not handle until all safety precautions have been read and understood.
	P260	Do not breathe mist.
	P264	Wash skin thoroughly after handling.
	P270	Do not eat, drink or smoke when using this product.
	P272	Contaminated work clothing must not be allowed out of the workplace.
	P273	Avoid release to the environment.
	P280	Wear protective gloves/clothing and eye/face protection.
	P303/361/353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
	P304/340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
	P305/351/338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P301/330/331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
	P310	Immediately call a POISON CENTER or doctor/physician.
	P308/313	IF exposed or concerned: Get medical advice/attention.
	P363	Wash contaminated clothing before reuse.
	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, Part B and Part C.

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

Hazardous Ingredients¹	% Wt.	CAS No./	GHS Classification
Benzyl alcohol	35-55	100-51-6 202-859-9	Acute Tox. 4, H332, H302 Eye Irrit. 2, H319
3-Aminomethyl-3,5,5-trimethylcyclohexylamine	25-35	2855-13-2 220-666-8	Acute Tox. 4, H302, H312 Skin Corr. 1B, H314 Skin Sens. 1, H317
Bisphenol A*	1-5	80-05-7 201-245-8	Aquatic Chronic 3, H412 Repr. 1B, H360F STOT SE 3, H335 Eye Dam. 1, H318 Skin Sens. 1, H317
Diethylenetriamine**	1-4	111-40-0 203-865-4	Acute Tox. 2, H330 Acute Tox. 4, H312, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 Skin Sens. 1, H317
2-Piperazin-1-ylethylamine	1-2	140-31-8 205-411-0	Acute Tox. 4, H302 Acute Tox. 3, H311 Skin Corr. 1B, H314 Skin Sens. 1, H317 Aquatic Chronic 3, H412
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine	1-2	31326-29-1 500-072-8	Acute Tox. 4, H302 Skin Corr. 1B, H314 STOT SE 3, H335

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

**This component is toxic by inhalation if sprayed or if aerosol/mist is created. Refer to section 11 for additional toxicity information. 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)
• 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. Contact physician immediately.

Eye contact: Flush eyes for at least 15-20 minutes with large amounts of water. Remove contact lenses, if present and easy to do. Continue rinsing. Contact physician immediately.

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. Do not breathe mist. See section 8 for recommendations on personal protective equipment.

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

Corrosive to eyes, skin and mucous membranes, which can result in strong irritation, burning and tissue damage. May cause skin sensitization as evidenced by rashes or hives. Mists/vapors can be severely irritating to the eyes and respiratory tract and cause dizziness, headache, nausea and other central nervous system effects.

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

Treat symptoms. Application of corticosteroid cream has been effective in treating skin irritation.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media: Alcohol-resistant foam, carbon dioxide, dry chemical, dry sand, limestone powder

Unsuitable extinguishing media: Water jets

5.2. Special hazards arising from the substance or mixture

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

5.3. Advice for firefighters

Cool exposed containers with water. A face shield should be worn. 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

Evacuate area. Use self-contained breathing apparatus and chemically protective clothing.

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 non-combustible absorbent material (e.g., sand, clay, 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

Do not handle until all safety precautions have been read and understood. Avoid all direct contact. Do not breathe mist/spray. Avoid breathing vapors. Utilize exposure controls and personal protection as specified in Section 8. 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. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Keep container closed when not in use.

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		AUSTRALIA ES ³	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Benzyl alcohol*	–	–	–	–	–	–
3-Aminomethyl-3,5,5-trimethylcyclohexylamine	–	–	–	–	–	–
Bisphenol A**	–	–	–	–	–	–
Diethylenetriamine	–	–	1 (skin)	4.2	1 (skin)	4.2
2-Piperazin-1-ylethylamine	–	–	–	–	–	–
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine	–	–	–	–	–	–

*American Industrial Hygiene Association (AIHA) recommended limit: 10 ppm, 44.2 mg/m³, 8-hr TWA**European Union Occupational Exposure Limit Value: 2 mg/m³ (inhalable aerosol)¹ United States Occupational Health & Safety Administration permissible exposure limits² American Conference of Governmental Industrial Hygienists threshold limit values³ 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 vapor concentrations below the exposure limits. Provide readily accessible eye wash stations and safety showers.

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. During spraying, wear suitable respiratory equipment.

Protective gloves: Chemical resistant gloves (e.g., natural rubber, neoprene or PVC)

Diethylenetriamine:

Contact type	Glove material	Layer thickness	Breakthrough time*
Full	neoprene	0.65 mm	> 480 min.
Splash	natural rubber	0.6 mm	> 60 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	liquid	Odour	amine
Colour	amber	Odour threshold	not determined
Initial boiling point	> 103°C (> 217°F)	Vapour pressure @ 20°C	not determined
Melting point	not determined	% Aromatics by weight	not determined
% Volatile (by volume)	not determined	pH	not applicable
Flash point	103°C (217°F)	Relative density	1.03 kg/l
Method	PM Closed Cup	Weight per volume	8.59 lbs/gal.
Viscosity	2500-4000 cps @ 25°C	Coefficient (water/oil)	< 1
Autoignition temperature	315°C (599°F)	Vapour density (air=1)	> 1
Decomposition temperature	not determined	Rate of evaporation (ether=1)	< 1
Upper/lower flammability or explosive limits	LEL: 1% UEL: 10.5%	Solubility in water	miscible
Flammability (solid, gas)	not applicable	Oxidising properties	can react violently with oxygen rich material
Explosive properties	danger of explosion		

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

Can react violently with oxygen rich (oxidizing) material. Contact with acids releases irritant gases. Reacts with hot water (> 80 °C) forming ammonia.

10.4. Conditions to avoid

No data available

10.5. Incompatible materials

Strong acids, reactive metals and strong oxidizers like liquid Chlorine and concentrated Oxygen. Materials reactive with hydroxyl compounds. Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion.

10.6. Hazardous decomposition products

Nitric acid, NOx, Ammonia, Carbon Monoxide, Carbon Dioxide, aldehydes, flammable hydrocarbon fragments 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 and skin and eye disorders may be aggravated by exposure.

Acute toxicity -**Oral:**

Harmful if swallowed. ATE-mix, 1192 mg/kg. If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach. May cause central nervous system effects, such as headache, nausea, vomiting, abdominal pain, dizziness, confusion, breathing difficulties.

Substance	Test	Result
Benzyl alcohol	LD50, rat	1230 mg/kg
3-Aminomethyl-3,5,5-trimethylcyclohexylamine	LD50, rat	1030 mg/kg
Bisphenol A	LD50, rat	3250 mg/kg
Diethylenetriamine	LD50, rat	1080 mg/kg
2-Piperazin-1-ylethylamine	LD50, rat	2097 mg/kg

Dermal: Harmful in contact with skin. ATE-mix, 1939 mg/kg. If absorbed through the skin, may cause central nervous system effects, such as headache, nausea, dizziness, confusion, breathing difficulties.

Substance	Test	Result
Benzyl alcohol	LD50, rabbit	2000 mg/kg
3-Aminomethyl-3,5,5-trimethylcyclohexylamine	LD50, rabbit	1840 mg/kg
Bisphenol A	LD50, rabbit	3600 mg/kg
Diethylenetriamine	LD50, rabbit	1045 mg/kg
2-Piperazin-1-ylethylamine	LD50, rabbit	866 mg/kg

Inhalation: Harmful if inhaled (mist). ATE-mix, 1.75 mg/l (mist). ATE-mix, 21.26 mg/l (vapor). May cause central nervous system effects, such as headache, nausea, dizziness, confusion, breathing difficulties.

Substance	Test	Result
Benzyl alcohol	LC50, rat, 4 hours	11 mg/l (cATpE)
Bisphenol A	LCLo Aerosol, rat, 6 hours	0.17 mg/l
Diethylenetriamine	LC50, rat, 4 hours	> 0.07-< 0.3 mg/l (mist) No mortality at vapor saturation level
2-Piperazin-1-ylethylamine	LC0, rat, 8 h	No mortality at vapor saturation level

Skin corrosion/irritation: Causes severe skin burns.

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

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

Substance	Test	Result
3-Aminomethyl-3,5,5-trimethylcyclohexylamine	Eye irritation, rabbit (OECD 405)	Corrosive
Diethylenetriamine	Eye irritation, rabbit	Corrosive

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

Substance	Test	Result
3-Aminomethyl-3,5,5-trimethylcyclohexylamine	Skin sensitization, guinea pig (OECD 406)	Sensitizing
Diethylenetriamine	Skin sensitization, guinea pig	Sensitizing

Germ cell mutagenicity: Benzyl alcohol, 3-Aminomethyl-3,5,5-trimethylcyclohexylamine, Diethylenetriamine: 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: Bisphenol A has produced effects on fertility in animal ingestion studies. Diethylenetriamine, 3-Aminomethyl-3,5,5-trimethylcyclohexylamine: not expected to cause toxicity. Benzyl alcohol: data lacking.

STOT – single exposure: Bisphenol A, Diethylenetriamine, 4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine: may cause respiratory irritation. Benzyl alcohol, data lacking. 3-Aminomethyl-3,5,5-trimethylcyclohexylamine: based on available data, the classification criteria are not met.

STOT – repeated exposure: 3-Aminomethyl-3,5,5-trimethylcyclohexylamine, Diethylenetriamine, Bisphenol A, 2-Piperazin-1-ylethylamine: not expected to cause organ damage from prolonged or repeated exposure. Benzyl alcohol: data lacking.

Aspiration hazard: Based on available data, the classification criteria are not met.

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

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. 3-Aminomethyl-3,5,5-trimethylcyclohexylamine: 72 h ErC50 (for algae) > 50 mg/l. 2-Piperazin-1-ylethylamine: 48 h EC50 (for daphnia) = 58 mg/l.

12.2. Persistence and degradability

Unreacted components, improperly released to the environment, can cause ground and water pollution. 3-Aminomethyl-3,5,5-trimethylcyclohexylamine: may biodegrade, not readily biodegradable. Diethylenetriamine: expected to be resistant to biodegradation. Benzyl alcohol Bisphenol A: 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 = 3.16 – QSAR). Diethylenetriamine, Bisphenol A: bioconcentration in aquatic organisms is not expected to be significant.

12.4. Mobility in soil

Liquid. Slightly soluble in water. In determining environmental mobility, consider the product's physical and chemical properties (see Section 9). Benzyl alcohol: expected to have very high mobility in soils (Koc < 5-29). 3-Aminomethyl-3,5,5-trimethylcyclohexylamine: log Koc = 2.97 – QSAR. Diethylenetriamine, Bisphenol A: expected to have moderate to low mobility in soil.

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 stabilized and solidified liquids in a properly licensed facility. May be incinerated at an appropriate facility. Classified as hazardous according to 2008/98/EC. 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: UN2735

TDG: UN2735

US DOT: UN2735

14.2. UN proper shipping name

ADR/RID/ADN/IMDG/ICAO: AMINES, LIQUID, CORROSIVE, N.O.S.
(2,2'- IMINODIETHYLAMINE, 2-PIPERAZIN-1-YLETHYLAMINE/ ISOPHORONEDIAMINE)

TDG: AMINES, LIQUID, CORROSIVE, N.O.S.
(2,2'- IMINODIETHYLAMINE, 2-PIPERAZIN-1-YLETHYLAMINE/ ISOPHORONEDIAMINE)

US DOT: AMINES, LIQUID, CORROSIVE, N.O.S.
(2,2'- IMINODIETHYLAMINE, 2-PIPERAZIN-1-YLETHYLAMINE/ ISOPHORONEDIAMINE)

14.3. Transport hazard class(es)

ADR/RID/ADN/IMDG/ICAO: 8

TDG: 8

US DOT: 8

14.4. Packing group

ADR/RID/ADN/IMDG/ICAO: II

TDG: II

US DOT: II

14.5. Environmental hazards

NO ENVIRONMENTAL HAZARD

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: May be shipped as Limited Quantities in packaging having a rated capacity gross weight of 30kg(66 lbs.) or less and in inner packagings not over 1.0 L (0.3 gallon) net capacity each. (49 CFR 173.154 (b,1) ERG NO. 153

IMDG: EmS F-A, S-B, IMDG segregation group 18-Alkalis

ADR: Classification code C7, Tunnel restriction code (E)

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:**

See section 2.1

313 Chemicals:

Bisphenol A 80-05-7 1-5%

Other national regulations: National implementation of the EC Directives referred to in section 15.1.1.

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

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

Classification	Classification procedure
Skin Corr. 1B, H314	Calculation method
Eye Dam. 1, H318	Calculation method
Acute Tox. 4, H302/312/332	Calculation method
Repr. 1B, H360F	Calculation method
Skin Sens. 1, H317	Calculation method
Aquatic Chronic 3, H412	Calculation method

Relevant H-statements: H302: Harmful if swallowed.
H311: Toxic in contact with skin.
H312: Harmful in contact with skin.
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.
H330: Fatal if inhaled.
H332: Harmful if inhaled.
H335: May cause respiratory irritation.
H360F: May damage fertility.
H412: Harmful to aquatic life with long lasting effects.

Hazard pictogram names: Corrosion, exclamation mark, health hazard

Changes to the SDS in this revision: Original issue.

Date of last revision: 30 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.