SAFETY DATA SHEET

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

Revision date: 16 December 2022 **Date of previous issue:** 23 April 2021 **SDS No.** 240B-16

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

1.1. Product identifier

ARC 988 (Part B)

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

Relevant identified uses: When mixed with other 988 constituents, the resulting blend can be used to resurface and protect concrete against attack by chemical exposure and mechanical abuse.

Uses advised against: No data available

Reason why uses advised against: Not applicable

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): 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

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 29 CFR 1910.1200 / WHMIS 2015 / GHS

Acute toxicity, Category 4, H302
Skin corrosion, Category 1B, H314
Serious eye damage, Category 1, H318
Skin sensitization, Category 1, H317

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	Harmful if swallowed.
	H314	Causes severe skin burns and eye damage.
	H317	May cause an allergic skin reaction.
Precautionary statements:	P261	Avoid breathing vapours.
	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.
	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.
	P333/313	If skin irritation or rash occurs: 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 and Part B.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Hazardous Ingredients[1]	% Wt.	CAS No.	GHS Classification
Benzyl alcohol	15 - 40	100-51-6	Acute Tox. 4, H302/332 Eye Irrit. 2, H319
3-Aminomethyl-3,5,5-trimethylcyclohexylamine (Synonym: Isophoronediamine)	15 - 40	2855-13-2	Acute Tox. 4, H302 Skin Corr. 1B, H314 Skin Sens. 1, H317
Triethylenetetramine	3 - 7	112-24-3	Acute Tox. 4, H302/H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412

For full text of H-statements: see SECTIONS 2.2 and 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. Wash clothing before reuse. Consult physician.

Eye contact: Flush eyes for at least 30 minutes with large amounts of water. Remove contact lenses after the first 5 minutes and continue washing. Contact physician.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. If conscious, dilute stomach contents with one glass of water or milk. Prevent aspiration of vomit. Turn victim's head to the side. 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. May cause allergic skin sensitization. Vapor in high concentrations may irritate the respiratory tract and cause drowsiness, unconsciousness, headache, dizziness and other central nervous system effects.

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

Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. Attempt seizure control with diazepam 5-10 mg (adults) intravenous over 2-3 minutes. Repeat every 5-10 minutes as needed. Monitor for hypotension, respiratory depression, and need for intubation. Consider second agent if seizures persist after 30 mg. If seizures persist or recur administer phenobarbital 600-1200 mg (adults) intravenous diluted in 60 ml 0.9% saline given at 25-50 mg/minute. Evaluate for hypoxia, dysrhythmia, electro-lyte disturbance, hypoglycemia (treat adults with dextrose 100 mg intravenous). Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomit may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. No specific antidote available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media

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

Unsuitable extinguishing media: High volume water jet

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products: Carbon and Nitrogen oxides and other toxic fumes.

Other hazards: Container may rupture from gas generation when exposed to intense heat. Do not allow runoff from firefighting to enter drains or water courses.

5.3. Advice for firefighters

A face shield should be worn. Use personal protective equipment. 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

Contain spill to a small area. Pick up with absorbent material (sand, sawdust, clay, etc.) and place in 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

Avoid all direct contact. Wash thoroughly after handling. Avoid breathing 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. Contaminated work clothing must not be allowed out of the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Keep container closed when not in use. Store in cool, dry area. Avoid contact with: Brass, Bronze, Copper, Copper alloys.

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/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
Triethylenetetramine**	N/A	N/A	N/A	N/A	N/A	N/A

* American Industrial Hygiene Association (AIHA) recommended limit: 10 ppm (8-hr TWA)
** American Industrial Hygiene Association (AIHA) recommended limit: 1 ppm (8-hr TWA; skin)
[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

Biological limit values

No biological exposure limits noted for the ingredient(s).

8.2. Exposure controls

8.2.1. Engineering measures

Provide adequate ventilation. If necessary, provide local exhaust. Provide readily accessible eye wash stations and safety showers.

8.2.2. Individual protection measures

Respiratory protection: Not normally needed. In case of insufficient ventilation, utilize an approved (amine) organic vapor respirator.

Protective gloves: Chemical resistant gloves (e.g., chlorinated polyethylene, polyethylene, ethyl vinyl alcohol laminate ("EVAL"), nitrile rubber, butyl rubber, neoprene, PVC)

3-Aminomethyl-3,5,5-trimethylcyclohexylamine:

Contact type	Glove material	Layer thickness	Breakthrough time*
Full	nitrile rubber	0.40 mm	480 min.
Splash	neoprene	0.65 mm	30 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	**pH**	not applicable
Colour	colorless	**Kinematic viscosity**	1628 - 2442 cSt @ 25°C
Odour	amine	**Solubility in water**	partially soluble
Odour threshold	not determined	**Partition coefficient n-octanol/water (log value)**	no data available
Boiling point or range	205°C (401°F)	**Vapour pressure @ 20°C**	0.02 mmHg @ 20°C (68°F)
Melting point/freezing point	not applicable	**Density and/or relative density**	0.86 kg/l
% Volatile (by volume)	not determined	**Weight per volume**	7.15 lbs/gal.
Flammability	no data available	**Vapour density (air=1)**	> 1
Lower/upper flammability or explosion limits	not applicable	**Rate of evaporation (ether=1)**	< 1
Flash point	105.5°C (222°F)	**% Aromatics by weight**	0%
Method	PM Closed Cup	**Particle characteristics**	not applicable
Autoignition temperature	not determined	**Explosive properties**	not applicable
Decomposition temperature	not determined	**Oxidising properties**	not applicable

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

Polymerization will not occur.

10.4. Conditions to avoid

Open flames and red hot surfaces. Exposure to elevated temperatures can cause product to decompose. Product absorbs carbon dioxide from the air. Reaction with carbon dioxide may form an amine carbamate.

10.5. Incompatible materials

Oxidizers, acids, acrylates, alcohols, aldehydes, halogenated hydrocarbons, ketones, nitrites. Avoid contact with metals such as: Brass. Bronze. Copper. Copper alloys.

10.6. Hazardous decomposition products

Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: aromatic compounds, ammonia, volatile amines, hydrocarbons, phenolics.

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 and lung disorders are generally aggravated by exposure.

Acute toxicity -

Oral: Harmful if swallowed. ATE-mix > 1,000 mg/kg. Swallowing may result in burns of the mouth and throat and gastrointestinal irritation or ulceration.

Substance	Test	Result
Benzyl alcohol	LD50, rat	1,620 mg/kg
3-Aminomethyl-3,5,5-trimethylcyclohexylamine	LD50, rat	1,030 mg/kg
Triethylenetetramine	LD50, rat	1,716 mg/kg

Dermal: ATE-mix > 5,000 mg/kg. Prolonged contact with skin is unlikely to result in absorption of harmful amounts.

Substance	Test	Result
Benzyl alcohol	LD50, rat	> 2,000 mg/kg
3-Aminomethyl-3,5,5-trimethylcyclohexylamine	LD50, rabbit	> 2,000 mg/kg
Triethylenetetramine	LD50, rat	1,465 mg/kg

Inhalation: Vapor in high concentrations may irritate the respiratory tract and cause drowsiness, unconsciousness, headache, dizziness and other central nervous system effects. ATE-mix > 20 mg/l (vapour). ATE-mix > 6.27 mg/l (mist).

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

Skin corrosion/irritation: Causes burns.

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

Serious eye damage/ irritation: Causes serious eye damage.

Substance	Test	Result
Benzyl alcohol	Eye irritation, rabbit, OECD 405	Irritating
3-Aminomethyl-3,5,5-trimethylcyclohexylamine	Eye irritation, rabbit, OECD 405	Corrosive

Respiratory or skin sensitisation: May cause allergic skin sensitization.

Substance	Test	Result
3-Aminomethyl-3,5,5-trimethylcyclohexylamine	Skin sensitization, guinea pig, OECD 406	Sensitizing
Triethylenetetramine	Skin sensitization, guinea pig, human experience	Sensitizing

Germ cell mutagenicity: 3-Aminomethyl-3,5,5-trimethylcyclohexylamine, Benzyl alcohol: based on available data, the classification criteria are not met. Triethylenetetramine: in vitro genetic toxicity studies were negative in some cases and positive in other cases; animal genetic toxicity studies were negative.

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 the European Chemicals Agency (ECHA). Benzyl alcohol, Triethylenetetramine: did not cause cancer in laboratory animals.

Reproductive toxicity: 3-Aminomethyl-3,5,5-trimethylcyclohexylamine: developmental NOAEL > 250 mg/kg/day; maternal NOEL 50 mg/kg/day; not expected to be a reproductive toxicant. Benzyl alcohol: not expected to be a reproductive toxicant. Triethylenetetramine: Laboratory animals that were fed exaggerated doses of Triethylenetetraamine showed adverse fetal effects that were believed to be associated with an observed copper deficiency. Exposures having no effect on the mother should have no effect on the fetus.

STOT – single exposure: 3-Aminomethyl-3,5,5-trimethylcyclohexylamine, Benzyl alcohol: based on available data, the classification criteria are not met.

STOT – repeated exposure: Triethylenetetramine: in animals, effects have been reported on the following organs: lungs.

Substance	Test	Result
Benzyl alcohol	90-day oral subchronic study	NOAEL: 400 mg/kg/day
3-Aminomethyl-3,5,5-trimethylcyclohexylamine	90-day oral subchronic study, 3756OECD 408	NOAEL: 59 mg/kg/day (male), 62 mg/kg/day (female)

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

Benzyl alcohol: practically non-toxic to aquatic organisms on an acute basis; chronic NOEC (Daphnia magna, 21 days) 51 mg/l; toxicity to microorganisms, EC50 (activated sludge, 49 h, OECD 209) 2,100 mg/l. 3-Aminomethyl-3,5,5-trimethylcyclohexylamine: 48 h EC50 (for daphnia) 23 mg/l (OECD 202); 72 h ErC50 (for algae) > 50 mg/l (EC 88/302); chronic NOEC (Daphnia magna, 21 days) 3 mg/l; toxicity to microorganisms, EC10 (bacteria, 18 h) 1,120 mg/l. Triethylenetetramine: may increase pH of aquatic systems to > pH 10 which may be toxic to aquatic organisms; 48 h EC50 (for daphnia) 31.1 mg/l; 72 h ErC50 (for algae) 20 mg/l; chronic NOEC (Daphnia magna, 21 days) 1.9 mg/l; toxicity to microorganisms, EC50 (bacteria, 16 h) 680 mg/l.

12.2. Persistence and degradability

3-Aminomethyl-3,5,5-trimethylcyclohexylamine: may biodegrade, not readily biodegradable. Benzyl alcohol: readily biodegradable. Triethylenetetramine: partial degradation through co-metabolic processes may occur.

12.3. Bioaccumulative potential

3-Aminomethyl-3,5,5-trimethylcyclohexylamine: low potential for bioaccumulation (log Kow: 0.79, measured; BCF [QSAR]: 3.16). Benzyl alcohol: low potential for bioaccumulation (log Kow: 1.1, measured). Triethylenetetramine: low potential for bioaccumulation (log Kow: -2.65, estimated).

12.4. Mobility in soil

Liquid. Partially soluble in water. In determining environmental mobility, consider the product's physical and chemical properties (see Section 9). 3-Aminomethyl-3,5,5-trimethylcyclohexylamine: Koc 340, expected to have moderate mobility in soil. Benzyl alcohol: Koc 16, expected to have very high mobility in soils. Triethylenetetramine: Koc 4.1 - 310, expected to have very high mobility in soils.

12.5. Other adverse effects

None known

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Unreacted components are a special waste. May be incinerated at an appropriate facility. 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.

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. (ISOPHORONEDIAMINE / TRIETHYLENETETRAMINE)
TDG: AMINES, LIQUID, CORROSIVE, N.O.S. (ISOPHORONEDIAMINE / TRIETHYLENETETRAMINE)
US DOT: AMINES, LIQUID, CORROSIVE, N.O.S. (ISOPHORONEDIAMINE / TRIETHYLENETETRAMINE)

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: II
TDG: II
US DOT: II

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

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 Skin sensitization	None

TSCA: All chemical components are listed in the TSCA inventory.

Other national regulations: None

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms:

ADG: Australian Dangerous Goods Code
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
Acute Tox. 4, H302	Calculation method
Skin Corr. 1B, H314	Calculation method
Eye Dam. 1, H318	Calculation method
Skin Sens. 1, H317	Calculation method

Relevant H-statements:

H302: Harmful if swallowed.
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.
H332: Harmful if inhaled.
H412: Harmful to aquatic life with long lasting effects.

Hazard pictogram names: Corrosion, exclamation mark

Further information: None

Date of last revision: 16 December 2022

Changes to the SDS in this revision: Complete change to represent new formulation.

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.