

1. Identification

Product identifier	BOILERMATE 3300C		
Other means of identification	Not available.		
Recommended use	Boiler Water Treatment		
Recommended restrictions	None known.		
Manufacturer/Importer/Supplier/Distributor information			
Manufacturer			
Company name	Miura America Co., Ltd.		
Address	2200 Steven B Smith Blvd Rockmart, GA 30153 United States		
Telephone	Phone	678-685-0929	
	Toll Free	1-888-309-5574	
	Fax	678-685-0930	
E-mail	Not available.		
Emergency phone number	CHEMTREC	1 800-424-9300	

2. Hazards Identification

Physical hazards	Flammable liquids	Category 3
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, dermal	Category 3
	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
	Reproductive toxicity (fertility)	Category 2
Environmental hazards	Not classified.	
OSHA defined hazards	Not classified.	
Label elements		



Signal word	Danger
Hazard statement	Flammable liquid and vapor. Harmful if swallowed. Toxic in contact with skin. Causes severe skin burns and eye damage. Suspected of damaging fertility.
Precautionary statement	
Prevention	Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe mist or vapor. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection.
Response	In case of fire: Use appropriate media to extinguish. If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/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. Take off immediately all contaminated clothing and wash it before reuse. Immediately call a poison center or doctor. Specific treatment (see information on this label).
Storage	Store in a well-ventilated place. Keep cool. Store locked up.
Disposal	Dispose of container in accordance with local, regional, national and international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/Information on Ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Cyclohexylamine		108-91-8	10-30
Morpholine		110-91-8	10-30

Composition comments US GHS: The exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of §1910.1200.

4. First Aid Measures

Inhalation	If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center or doctor.
Skin contact	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a poison center or doctor. Specific treatment (see information on this label).
Eye contact	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor.
Ingestion	If swallowed: Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Coughing.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Symptoms may be delayed.
General information	Immediate medical attention is required. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse. Avoid contact with eyes and skin. Keep out of reach of children.

5. Fire Fighting Measures

Suitable extinguishing media	Water fog. Dry chemical powder. Carbon dioxide.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. ALWAYS stay away from tanks engulfed in flame. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Flammable liquid and vapor.
Flammable properties	Flammable by OSHA criteria.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water. Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
Environmental precautions	Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground. Do not discharge into lakes, streams, ponds or public waters.

7. Handling and Storage

Precautions for safe handling	DANGER -- CORROSIVE Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Pregnant or breastfeeding women must not handle this product. Wear appropriate personal protective equipment. Wash thoroughly after handling. Wash contaminated clothing before reuse. Keep container tightly closed. Use good industrial hygiene practices in handling this material. When using do not eat or drink.
Conditions for safe storage, including any incompatibilities	Keep away from heat and sources of ignition. Store locked up. Store in a cool, dry place out of direct sunlight. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS). Keep out of reach of children.

8. Exposure Controls/Personal Protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Morpholine (CAS 110-91-8)	PEL	70 mg/m3 20 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Cyclohexylamine (CAS 108-91-8)	TWA	10 ppm
Morpholine (CAS 110-91-8)	TWA	20 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Cyclohexylamine (CAS 108-91-8)	TWA	40 mg/m3 10 ppm
Morpholine (CAS 110-91-8)	STEL	105 mg/m3 30 ppm
	TWA	70 mg/m3 20 ppm

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

Exposure guidelines

US ACGIH Threshold Limit Values: Skin designation

Morpholine (CAS 110-91-8) Danger of cutaneous absorption

US NIOSH Pocket Guide to Chemical Hazards: Skin designation

Morpholine (CAS 110-91-8) Can be absorbed through the skin.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Morpholine (CAS 110-91-8) Can be absorbed through the skin.

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Impervious gloves. Confirm with reputable supplier first.

Other As required by employer code.

Respiratory protection Where exposure guideline levels may be exceeded, use an approved NIOSH respirator. Respirator should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134), CAN/CSA-Z94.4 and ANSI's standard for respiratory protection (Z88.2).

Thermal hazards Not applicable.

General hygiene considerations When using do not smoke. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with the skin and the eyes. When using do not eat or drink.

9. Physical and Chemical Properties

Appearance	Transparent
Physical state	Liquid.
Form	Liquid. Liquid
Color	Colourless - yellow
Odor	Slight amine
Odor threshold	Not available.
pH	11.4 (1% water solution)
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Other information	
Pour point	Not available.
Specific gravity	0.99
Partition coefficient (n-octanol/water)	Not available.
Flash point	129.2 °F (54.0 °C) Tag Closed Cup
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and Reactivity

Reactivity	May react with incompatible materials.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Chemical stability	Risk of ignition.
Conditions to avoid	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Do not mix with other chemicals.
Incompatible materials	Oxidizers. Acids.
Hazardous decomposition products	May include and are not limited to: Oxides of nitrogen. Oxides of carbon. Ammonia.

11. Toxicological Information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system.
Skin contact	Toxic in contact with skin. Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns. Harmful if swallowed. May cause stomach distress, nausea or vomiting.

Symptoms related to the physical, chemical and toxicological characteristics

Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Coughing.

Information on toxicological effects

Acute toxicity Harmful if swallowed. See below.

Components	Species	Test Results
Cyclohexylamine (CAS 108-91-8)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	275 mg/kg, 24 Hours, ECHA
<i>Inhalation</i>		
LC50	Rat	16.2 mg/L, 4 Hours, HSDB/CCOHS: cited as 4000ppm
<i>Oral</i>		
LD50	Rat	150 - 1660 mg/kg, ECHA
Morpholine (CAS 110-91-8)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	500 mg/kg, 24 Hours, ECHA
<i>Inhalation</i>		
LC50	Rat	24 mg/L, 4 Hours
<i>Oral</i>		
LD50	Rat	1900 mg/kg, ECHA

Skin corrosion/irritation Causes severe skin burns.

Exposure minutes Not available.

Erythema value Not available.

Oedema value Not available.

Serious eye damage/eye irritation Causes serious eye damage.

Corneal opacity value Not available.

Iris lesion value Not available.

Conjunctival reddening value Not available.

Conjunctival oedema value Not available.

Recover days Not available.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity Non-hazardous by OSHA criteria.

Carcinogenicity See below.

ACGIH Carcinogens

Cyclohexylamine (CAS 108-91-8)

A4 Not classifiable as a human carcinogen.

Morpholine (CAS 110-91-8)

A4 Not classifiable as a human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity

Morpholine (CAS 110-91-8)

Volume 47, Volume 71 - 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity Suspected of damaging fertility or the unborn child.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful.

Further information

Symptoms may be delayed.

12. Ecological Information

Ecotoxicity See below**Ecotoxicological data****Components**

Cyclohexylamine (CAS 108-91-8)

Aquatic

Fish

LC50

SpeciesRainbow trout,donaldson trout
(Oncorhynchus mykiss)**Test Results**

44 mg/L, 96 hours

Morpholine (CAS 110-91-8)

Aquatic

Fish

LC50

Zebra danio (Danio rerio)

> 1 mg/L, 96 hours

Persistence and degradability

No data is available on the degradability of any ingredients in the mixture.

Bioaccumulative potential**Partition coefficient n-octanol / water (log Kow)**

Cyclohexylamine

1.49

Morpholine

-0.86

Mobility in soil

No data available.

Mobility in general

Not available.

Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal Considerations

Disposal instructions

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of container in accordance with local, regional, national and international regulations.

Local disposal regulations

Dispose in accordance with all applicable regulations.

Hazardous waste code

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging

Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport Information

U.S. Department of Transportation (DOT)**Basic shipping requirements:****UN number**

UN2734

Proper shipping name

Amine, liquid, corrosive, flammable, n.o.s.

Technical name

Morpholine

Technical name

Cyclohexylamine

Hazard class

8

Subsidiary hazard class

3

Packing group

II

Special provisions

IB2, T11, TP2, TP27

DOT



15. Regulatory Information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Cyclohexylamine (CAS 108-91-8) Listed.
Morpholine (CAS 110-91-8) Listed.

SARA 304 Emergency release notification

Cyclohexylamine (CAS 108-91-8) 10000 LBS

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance No

Classified hazard categories Flammable (gases, aerosols, liquids, or solids)
Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Reproductive toxicity

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Cyclohexylamine (CAS 108-91-8)

Safe Drinking Water Act (SDWA) Not regulated.

Food and Drug Administration (FDA) Not regulated.

US state regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. See below

US - Illinois Chemical Safety Act: Listed substance

Cyclohexylamine (CAS 108-91-8)
Morpholine (CAS 110-91-8)

US - Louisiana Spill Reporting: Listed substance

Cyclohexylamine (CAS 108-91-8) Listed.
Morpholine (CAS 110-91-8) Listed.

US - Minnesota Haz Subs: Listed substance

Cyclohexylamine (CAS 108-91-8) Cyclohexylamine
Morpholine (CAS 110-91-8) Morpholine

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Morpholine (CAS 110-91-8)

US. Massachusetts RTK - Substance List

Cyclohexylamine (CAS 108-91-8)
Morpholine (CAS 110-91-8)

US. New Jersey Worker and Community Right-to-Know Act

Cyclohexylamine (CAS 108-91-8)
Morpholine (CAS 110-91-8)

US. Pennsylvania Worker and Community Right-to-Know Law

Cyclohexylamine (CAS 108-91-8)
Morpholine (CAS 110-91-8)

US. Rhode Island RTK

Cyclohexylamine (CAS 108-91-8)
Morpholine (CAS 110-91-8)

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

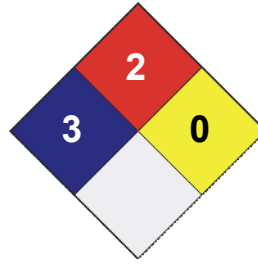
Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

16. Other Information

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

HEALTH	* 3
FLAMMABILITY	2
PHYSICAL HAZARD	0
PERSONAL PROTECTION	X



Disclaimer

Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

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Version

01

Further information

Not available.

Other information

For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.

Prepared by

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