



SAFETY DATA SHEET

STEAMATE* NA5640

1. Identification

Product identifier	STEAMATE NA5640
Other means of identification	None.
Version #	1.2
Prepared by	This SDS has been prepared by SUEZ Regulatory Department (1-215-355-3300).
Revision date	May-13-2018
Supersedes date	Dec-17-2017
Recommended use	Steam condensate treatment.
Recommended restrictions	None known.

Company/undertaking identification

SUEZ Water Technologies & Solutions Canada
3239 Dundas Street West
Oakville, Ontario, L6M 4B2
T 905-465-3030

Emergency telephone

(800) 877-1940

2. Hazard(s) 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	Category 2
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation

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. Causes serious eye damage. May cause respiratory irritation. Suspected of damaging fertility or the unborn child.

Precautionary statement

Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. 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. Immediately call a poison center/doctor. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Other hazards	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent (wt/wt)
Cyclohexylamine	108-91-8	15 - 40
2-Diethylaminoethanol	100-37-8	10 - 30
Morpholine	110-91-8	3 - 7

Composition comments Information for specific product ingredients as required by the WHMIS Regulations is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
Ingestion	Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Call a physician or poison control center immediately. Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Nausea, vomiting. 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. May cause respiratory irritation. Coughing.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off immediately all contaminated clothing. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). 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.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO2).
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 form explosive mixtures with air. 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	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Flammable liquid and vapor.

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). Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. 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

Use water spray to reduce vapors or divert vapor cloud drift. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. 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.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground. Water contaminated with this product may be sent to a sanitary sewer treatment facility, or a permitted waste treatment facility, in accordance with any local agreements.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. 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. Explosion-proof general and local exhaust ventilation. 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 breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. When using, do not eat, drink or smoke. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS). Store in accordance with local/regional/national/international regulation.

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
2-Diethylaminoethanol (CAS 100-37-8)	TWA	2 ppm
Cyclohexylamine (CAS 108-91-8)	TWA	10 ppm
Morpholine (CAS 110-91-8)	TWA	20 ppm

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
2-Diethylaminoethanol (CAS 100-37-8)	TWA	9.6 mg/m ³
		2 ppm
Cyclohexylamine (CAS 108-91-8)	TWA	41 mg/m ³
		10 ppm
Morpholine (CAS 110-91-8)	TWA	71 mg/m ³
		20 ppm

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
2-Diethylaminoethanol (CAS 100-37-8)	TWA	2 ppm
Cyclohexylamine (CAS 108-91-8)	TWA	10 ppm
Morpholine (CAS 110-91-8)	TWA	20 ppm

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value
2-Diethylaminoethanol (CAS 100-37-8)	TWA	2 ppm
Cyclohexylamine (CAS 108-91-8)	TWA	10 ppm
Morpholine (CAS 110-91-8)	TWA	20 ppm

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value
2-Diethylaminoethanol (CAS 100-37-8)	TWA	2 ppm
Cyclohexylamine (CAS 108-91-8)	TWA	10 ppm
Morpholine (CAS 110-91-8)	TWA	20 ppm

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
2-Diethylaminoethanol (CAS 100-37-8)	TWA	48 mg/m3 10 ppm
Cyclohexylamine (CAS 108-91-8)	TWA	41 mg/m3 10 ppm
Morpholine (CAS 110-91-8)	TWA	71 mg/m3 20 ppm

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

Exposure guidelines

Canada - Alberta OELs: Skin designation

2-Diethylaminoethanol (CAS 100-37-8) Can be absorbed through the skin.
Morpholine (CAS 110-91-8) Can be absorbed through the skin.

Canada - British Columbia OELs: Skin designation

2-Diethylaminoethanol (CAS 100-37-8) Can be absorbed through the skin.
Morpholine (CAS 110-91-8) Can be absorbed through the skin.

Canada - Manitoba OELs: Skin designation

2-Diethylaminoethanol (CAS 100-37-8) Can be absorbed through the skin.
Morpholine (CAS 110-91-8) Can be absorbed through the skin.

Canada - Ontario OELs: Skin designation

2-Diethylaminoethanol (CAS 100-37-8) Can be absorbed through the skin.
Morpholine (CAS 110-91-8) Can be absorbed through the skin.

Canada - Quebec OELs: Skin designation

2-Diethylaminoethanol (CAS 100-37-8) Can be absorbed through the skin.
Morpholine (CAS 110-91-8) Can be absorbed through the skin.

Canada - Saskatchewan OELs: Skin designation

2-Diethylaminoethanol (CAS 100-37-8) Can be absorbed through the skin.
Morpholine (CAS 110-91-8) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

2-Diethylaminoethanol (CAS 100-37-8) Can be absorbed through the skin.
Morpholine (CAS 110-91-8) Can be absorbed through the skin.

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Splash proof chemical goggles.

Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Suitable gloves can be recommended by the glove supplier. Glove selection must take into account any solvents and other hazards present.
Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Observe any medical surveillance requirements. When using do not smoke. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	Liquid
Color	Colorless to light yellow
Odor	Amine
Odor threshold	Not available.
pH (concentrated product)	12.5
Melting point/freezing point	25 °F (-4 °C)
Initial boiling point and boiling range	212 °F (100 °C)
Flash point	135 °F (57 °C) P-M(CC)
Evaporation rate	< 1 (Ether = 1)
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	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	> 1 (Air = 1)
Relative density	0.96
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	10 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Pour point	30 °F (-1 °C)
Specific gravity	0.96
VOC	40 % (Calculated)

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong acids. Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
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.

Symptoms related to the physical, chemical and toxicological characteristics Nausea, vomiting. 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. May cause respiratory irritation. Coughing.

Information on toxicological effects

Acute toxicity Toxic in contact with skin. Harmful if swallowed. May cause respiratory irritation.

Product	Species	Test Results
STEAMATE NA5640 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	948 mg/kg, (Calculated according to GHS additivity formula)
<i>Oral</i>		
LD50	Rat	632 mg/kg, (Calculated according to GHS additivity formula)
Components	Species	Test Results
2-Diethylaminoethanol (CAS 100-37-8)		
Acute		
<i>Dermal</i>		
LD50	Guinea Pig	885 mg/kg
<i>Inhalation</i>		
LC50	Rat	> 4.5 mg/l, 4 Hour
<i>Oral</i>		
LD50	Rat	1300 mg/kg
Cyclohexylamine (CAS 108-91-8)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	277 mg/kg
<i>Oral</i>		
LD50	Rat	156 mg/kg
Morpholine (CAS 110-91-8)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	504 mg/kg
<i>Inhalation</i>		
LC50	Rat	8 mg/l, 4 Hour

Components	Species	Test Results
Oral LD50	Rat	1680 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes severe skin burns and eye damage.	
Serious eye damage/eye irritation	Causes serious eye damage.	
Respiratory or skin sensitization		
Canada - Alberta OELs: Irritant		
Cyclohexylamine (CAS 108-91-8)	Irritant	
Respiratory sensitization	This product is not expected to cause respiratory sensitization.	
Skin sensitization	This product is not expected to cause skin sensitization.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity	Not classified.	
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.	
Canada - Manitoba OELs: carcinogenicity		
Cyclohexylamine (CAS 108-91-8)	Not classifiable as a human carcinogen.	
Morpholine (CAS 110-91-8)	Not classifiable as a human carcinogen.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Morpholine (CAS 110-91-8)	3 Not classifiable as to carcinogenicity to humans.	
Reproductive toxicity	Suspected of damaging fertility or the unborn child.	
Specific target organ toxicity - single exposure	May cause respiratory irritation.	
Specific target organ toxicity - repeated exposure	Not classified.	
Aspiration hazard	Not available.	
Chronic effects	Prolonged inhalation may be harmful.	

12. Ecological information

Ecotoxicity

Product	Species	Test Results
STEAMATE NA5640 (CAS Mixture)	LC50	Fathead Minnow 250 mg/L, Acute Toxicity, 96 hour, (Estimated)
	NOEL	Fathead Minnow 110 mg/L, Acute Toxicity, 96 hour, (Estimated)
Aquatic Crustacea	LC50	Daphnia magna 69 mg/L, Acute Toxicity, 48 hour, (Estimated)
	NOEL	Daphnia magna 30 mg/L, Acute Toxicity, 48 hour, (Estimated)

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)	
2-Diethylaminoethanol	0.05
Cyclohexylamine	1.49
Morpholine	-0.86
Bioconcentration factor (BCF)	
2-Diethylaminoethanol	< 6.1

Mobility in soil No data available.

Other adverse effects Not available.

Persistence and degradability

- COD (mgO₂/g) 1041 (calculated data)

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- BOD 5 (mgO2/g) 1 (calculated data)
- BOD 28 (mgO2/g) 126 (calculated data)
- Closed Bottle Test (% Degradation in 28 days) 13 (calculated data)
- Zahn-Wellens Test (% Degradation in 28 days) 59 (calculated data)
- TOC (mg C/g) 250 (calculated data)

13. Disposal considerations

- Disposal instructions** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
- Local disposal regulations** Dispose in accordance with all applicable regulations.
- 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

TDG

- UN number** UN2734
- UN proper shipping name** AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. (2-DIMETHYLAMINOETHANOL, CYCLOHEXYLAMINE)
- Transport hazard class(es)**
- Class** 8
 - Subsidiary risk** 3
- Packing group** II
- Environmental hazards** Not available.

The goods described above have been classified using a combination of testing, technical data, calculations and manufacturer knowledge in accordance with Part 2, Classification. TDG Classification is valid for road or rail transport only. For shipment by air or water, refer to IATA or IMDG regulations.

DOT

- UN number** UN2734
- UN proper shipping name** Amines, liquid, corrosive, flammable, n.o.s. (2-DIMETHYLAMINOETHANOL, CYCLOHEXYLAMINE)
- Transport hazard class(es)**
- Class** 8
 - Subsidiary risk** 3
- Packing group** II
- Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.
- ERG number** 132

Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IMDG

- UN number** UN2734
- UN proper shipping name** AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. (2-DIMETHYLAMINOETHANOL, CYCLOHEXYLAMINE)
- Transport hazard class(es)**
- Class** 8
 - Subsidiary risk** 3
- Packing group** II
- Environmental hazards**
- Marine pollutant** No.
- EmS** F-E, S-C
- Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

IATA

- UN number** UN2734
- UN proper shipping name** Amines, liquid, corrosive, flammable, n.o.s. (2-DIMETHYLAMINOETHANOL, CYCLOHEXYLAMINE)
- Transport hazard class(es)**
- Class** 8

Subsidiary risk 3
Packing group II
Environmental hazards No.
ERG Code 132
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

DOT



IATA; IMDG; TDG



15. Regulatory information

Canadian regulations

Controlled Drugs and Substances Act

Not regulated.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date Mar-08-2016
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Version # 1.2

List of abbreviations

CAS: Chemical Abstract Service Registration Number
TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.
ACGIH: American Conference of Governmental Industrial Hygienists
NOEL: No Observed Effect Level
STEL: Short Term Exposure Limit
LC50: Lethal Concentration, 50%
LD50: Lethal Dose, 50%
TWA: Time Weighted Average
BOD: Biochemical Oxygen Demand
COD: Chemical Oxygen Demand
TOC: Total Organic Carbon
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods Code
TLV: Threshold Limit Value

References:

No data available

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Revision information

Transport Information: Material Transportation Information

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