



# SAFETY DATA SHEET

## STEAMATE\* NA702

### 1. Identification

**Product identifier** STEAMATE NA702  
**Other means of identification** None.  
**Recommended use** Condensate return line treatment  
**Recommended restrictions** None known.

#### Company/undertaking identification

GE Betz, Inc.  
 4636 Somerton Road  
 Trevoese, PA 19053  
 T 215 355 3300, F 215 953 5524

#### Emergency telephone

(800) 877 1940

### 2. Hazard(s) identification

<b>Physical hazards</b>	Flammable liquids	Category 3
<b>Health hazards</b>	Acute toxicity, oral	Category 4
	Acute toxicity, dermal	Category 3
	Acute toxicity, inhalation	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
<b>OSHA defined hazards</b>	Not classified.	

#### Label elements



**Signal word** Danger

**Hazard statement** Flammable liquid and vapor. Toxic if inhaled. Toxic in contact with skin. Harmful if swallowed. Causes severe skin burns and 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/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wash hands thoroughly after handling. Avoid breathing mist/vapors/spray. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area.

<b>Response</b>	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. Immediately call a poison center/doctor. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use appropriate media for extinction.
<b>Storage</b>	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Hazard(s) not otherwise classified (HNOC)</b>	None known.
<b>Supplemental information</b>	43% of the mixture consists of component(s) of unknown acute dermal toxicity.

### 3. Composition/information on ingredients

#### Mixtures

Components	CAS #	Percent
2-Diethylaminoethanol	100-37-8	40 - 60
Cyclohexylamine	108-91-8	20 - 40

**Composition comments** Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

### 4. First-aid measures

<b>Inhalation</b>	Move to fresh air. If breathing stops, provide artificial respiration. Get medical attention immediately.
<b>Skin contact</b>	Take off contaminated clothing and wash before reuse. Wash off with soap and water. Get medical attention immediately.
<b>Eye contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention immediately.
<b>Ingestion</b>	If swallowed, rinse mouth with water (only if the person is conscious). Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting. If vomiting occurs naturally have victim lean forward to reduce risk of burns to mouth, throat and lungs. Call a physician or poison control center immediately.
<b>Most important symptoms/effects, acute and delayed</b>	Corrosive effects. May cause severe irritation or burns to the eyes, skin, gastrointestinal tract, and respiratory system. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause temporary blindness and severe eye damage.
<b>Indication of immediate medical attention and special treatment needed</b>	Material is corrosive. It may not be advisable to induce vomiting. Possible mucosal damage may contraindicate the use of gastric lavage.
<b>General information</b>	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Dry chemical, CO2, water spray or regular foam.
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards arising from the chemical</b>	Corrosive liquid. Oxides of carbon and nitrogen evolved in fire.
<b>Special protective equipment and precautions for firefighters</b>	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
<b>Fire fighting equipment/instructions</b>	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.
<b>General fire hazards</b>	Flammable liquid and vapor.

### 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors and spray mists. Avoid contact with spilled material. See Section 8 of the SDS for Personal Protective Equipment.
<b>Methods and materials for containment and cleaning up</b>	Remove sources of ignition. Ventilate the area. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Flush with plenty of water.

**Environmental precautions**

Avoid discharge into drains, water courses or onto the ground. Prevent from entering sewers or the immediate environment. Accidental release of large quantities into the aquatic environment may harm aquatic organisms. 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**

Flammable. Avoid heat, sparks, open flames and other ignition sources. Adequate ventilation required especially during initial opening. Use only containers which are compatible with the substance. Bond containers during filling or discharge when performed at temperatures at or above the product flash point. See Section 8 of the SDS for Personal Protective Equipment.

**Conditions for safe storage, including any incompatibilities**

Keep away from all sources of ignition. Store in tightly closed original container in a dry, cool and well-ventilated place. Do not freeze. If frozen, thaw completely and mix thoroughly prior to use.

**8. Exposure controls/personal protection****Occupational exposure limits****US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Components	Type	Value
2-Diethylaminoethanol (CAS 100-37-8)	PEL	50 mg/m <sup>3</sup> 10 ppm

**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

**US. NIOSH: Pocket Guide to Chemical Hazards**

Components	Type	Value
2-Diethylaminoethanol (CAS 100-37-8)	TWA	50 mg/m <sup>3</sup> 10 ppm
Cyclohexylamine (CAS 108-91-8)	TWA	40 mg/m <sup>3</sup> 10 ppm

**Biological limit values**

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

**Exposure guidelines****US. ACGIH Threshold Limit Values**

2-Diethylaminoethanol (CAS 100-37-8)

Can be absorbed through the skin.

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

2-Diethylaminoethanol (CAS 100-37-8)

Can be absorbed through the skin.

**Appropriate engineering controls**

Explosion-proof general and local exhaust ventilation. 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. Bulk tanks should be vented externally.

**Individual protection measures, such as personal protective equipment****Eye/face protection**

Chemical goggles and face shield are recommended.

**Skin protection****Hand protection**

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. Glove selection must take into account any solvents and other hazards present.

**Other**

Wear suitable protective clothing. Chemical resistant apron. Wash off after each use. Replace as necessary.

**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. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.

**Thermal hazards**

Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations**

Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

<b>Appearance</b>	
Color	Light yellow
Physical state	Liquid
<b>Odor</b>	Amine
<b>Odor threshold</b>	Not available.
<b>pH (concentrated product)</b>	12.6
<b>Melting point/freezing point</b>	< -29 °F (< -34 °C)
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	117 °F (47 °C) SETA(CC)
<b>Evaporation rate</b>	< 1 (Ether = 1)
<b>Flammability (solid, gas)</b>	Not available.
<b>Upper/lower flammability or explosive limits</b>	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	(Air = 1)
<b>Relative density</b>	0.89
<b>Solubility(ies)</b>	
Solubility (water)	100 %
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	20 cps
<b>Viscosity temperature</b>	70 °F (21 °C)
<b>Other information</b>	
Percent volatile	95 (Calculated)

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.
<b>Conditions to avoid</b>	Avoid heat, sparks, open flames and other ignition sources. Protect from freezing.
<b>Incompatible materials</b>	Strong oxidizing substances. Contact with oxidizers may cause fire. Bases, alkalis (organic).
<b>Hazardous decomposition products</b>	Oxides of carbon, nitrogen, and sulphur evolved in fire.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Toxic by inhalation. Inhalation of vapors/mists/aerosols may cause eye, nose, throat and lung irritation.
<b>Skin contact</b>	Toxic in contact with skin. Causes severe skin burns.
<b>Eye contact</b>	Causes severe eye burns. Risk of serious damage to eyes.
<b>Ingestion</b>	Harmful if swallowed. Ingestion may cause severe irritation of the mouth, the esophagus and the gastrointestinal tract.

**Symptoms related to the physical, chemical and toxicological characteristics**

Symptoms on skin may develop from redness and itching with development to burns due to corrosion. Symptoms on eyes may develop from tearing with development into severe irritation and/or burns due to corrosion. Permanent eye damage including blindness could result. Symptoms on ingestion may develop from discomfort with development into severe irritation and/or burns due to corrosion.

**Information on toxicological effects**

**Acute toxicity** Toxic in contact with skin. Toxic by inhalation. Harmful if swallowed.

Product	Species	Test Results
STEAMATE NA702 (CAS Mixture)		
<b>Acute</b> <i>Dermal</i> LD50	Rabbit	497 mg/kg, (Calculated according to GHS additivity formula)
<i>Inhalation</i> LC50	Rat	7.89 mg/l, 4 Hours, (Calculated according to GHS additivity formula)
<i>Oral</i> LD50	Rat	348 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
2-Diethylaminoethanol (CAS 100-37-8)		
<b>Acute</b> <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)		
<b>Acute</b> <i>Dermal</i> LD50	Rabbit	277 mg/kg
<i>Oral</i> LD50	Rat	156 mg/kg

**Skin corrosion/irritation** Causes skin burns.

**Serious eye damage/eye irritation** Causes severe eye burns.

**Respiratory or skin sensitization**

**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** Not classified.

**Carcinogenicity** This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

**IARC Monographs. Overall Evaluation of Carcinogenicity**

Not available.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not listed.

**US. National Toxicology Program (NTP) Report on Carcinogens**

Not available.

**Reproductive toxicity** Suspected of damaging fertility or the unborn child.

**Specific target organ toxicity - single exposure** May cause irritation to the respiratory system.

**Specific target organ toxicity - repeated exposure** Not classified.

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

**Chronic effects** No evidence of potential chronic effects.

## 12. Ecological information

### Ecotoxicity

Product	Species	Test Results
STEAMATE NA702 (CAS Mixture)		
LC50	Fathead Minnow	758 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
NOEL	Fathead Minnow	500 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
<b>Aquatic</b>		
Crustacea		
LC50	Daphnia magna	319 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
NOEL	Daphnia magna	125 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
<b>Bioaccumulative potential</b>	Not available.	
<b>Partition coefficient n-octanol / water (log Kow)</b>		
Cyclohexylamine	1.49	
<b>Mobility in soil</b>	Not available.	
<b>Other adverse effects</b>	Not available.	
<b>Persistence and degradability</b>		
- COD (mgO2/g)	2386 (calculated data)	
- BOD 5 (mgO2/g)	1 (calculated data)	
- BOD 28 (mgO2/g)	329 (calculated data)	
- Closed Bottle Test (% Degradation in 28 days)	12 (calculated data)	
- Zahn-Wellens Test (% Degradation in 28 days)	35 (calculated data)	
- TOC (mg C/g)	593 (calculated data)	

## 13. Disposal considerations

<b>Disposal instructions</b>	Dispose of contents/container in accordance with local/regional/national/international regulations. According to Hazardous Waste Regulations. Via an authorized waste disposal contractor to an approved waste disposal site, observing all local and national regulations.
<b>Hazardous waste code</b>	D001 = Ignitable; D002= Corrosive The complete waste code should be assigned in discussion with the waste disposal company.
<b>Waste from residues / unused products</b>	Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied. According to Hazardous Waste Regulations. Via an authorized waste disposal contractor to an approved waste disposal site, observing all local and national regulations.

## 14. Transport information

<b>DOT</b>	
<b>UN number</b>	UN2734
<b>UN proper shipping name</b>	AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. (CYCLOHEXYLAMINE, DIETHYLAMINOETHANOL), RQ(CYCLOHEXYLAMINE)
<b>Transport hazard class(es)</b>	
<b>Class</b>	8
<b>Subsidiary risk</b>	3
<b>Packing group</b>	II
<b>Special precautions for user</b>	Not available.
<b>ERG number</b>	132
	Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.
<b>IATA</b>	
<b>UN number</b>	UN2734
<b>UN proper shipping name</b>	AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. (CYCLOHEXYLAMINE, DIETHYLAMINOETHANOL)

**Transport hazard class(es)**

Class 8  
Subsidiary risk 3  
Packing group II  
Environmental hazards No.  
Special precautions for user Not available.

Some containers may not be approved under IATA, please check BOL for exact container classification.

**IMDG**

UN number UN2734  
UN proper shipping name AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. (CYCLOHEXYLAMINE, DIETHYLAMINOETHANOL)  
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 Not available.

**DOT**



**IATA; IMDG**



**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.

**SARA 304 Emergency release notification**

Cyclohexylamine (CAS 108-91-8) 10000 LBS

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories** Immediate Hazard - Yes  
Delayed Hazard - Yes  
Fire Hazard - Yes  
Pressure Hazard - No  
Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
Cyclohexylamine	108-91-8	10000	10000 lbs		
<b>SARA 311/312 Hazardous chemical</b>	Yes				
<b>SARA 313 (TRI reporting)</b>	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.**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).

**Food and drug administration** ALL ingredients in this product are authorized in 21CFR173.310 for use as boiler water additives where the steam may contact food.**NSF Registered and/or meets USDA (according to 1998 guidelines):** Registration No. – 146008  
Category Code(s):  
G5 Cooling and retort water treatment products  
G6 Boiler treatment products, steam line products – food contact**US state regulations****US - Massachusetts RTK - Substance List**

2-Diethylaminoethanol (CAS 100-37-8)

Cyclohexylamine (CAS 108-91-8)

**US - Pennsylvania RTK - Hazardous Substances**

2-Diethylaminoethanol (CAS 100-37-8)

Cyclohexylamine (CAS 108-91-8)

**US - Rhode Island RTK**

Cyclohexylamine (CAS 108-91-8)

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

Not listed.

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

2-Diethylaminoethanol (CAS 100-37-8)

Cyclohexylamine (CAS 108-91-8)

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

2-Diethylaminoethanol (CAS 100-37-8)

Cyclohexylamine (CAS 108-91-8)

**US. California Proposition 65**

WARNING: This product contains a chemical known to the State of California to cause cancer.

**US - California Proposition 65 - CRT: Listed date/Carcinogenic substance**

ACETALDEHYDE (CAS 75-07-0)

Listed: April 1, 1988

Aniline (CAS 62-53-3)

Listed: January 1, 1990

**US - California Proposition 65 - CRT: Listed date/Developmental toxin**

No ingredient listed.

**US - California Proposition 65 - CRT: Listed date/Female reproductive toxin**

No ingredient listed.



No ingredient listed.

## 16. Other information, including date of preparation or last revision

**Issue date** Sep-26-2014

**Revision date** Oct-28-2015

**Version #** 2.0

### 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%  
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  
LD50: Lethal Dose, 50%  
NFPA: National Fire Protection Association

**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** Product and Company Identification: Physical States  
Hazard(s) identification: Prevention  
Hazard(s) identification: Response  
Fire-fighting measures: Unsuitable extinguishing media  
Exposure controls/personal protection: Respiratory protection  
Toxicological Information: Toxicological Data  
Toxicological information: Respiratory sensitization  
Toxicological information: Skin sensitization  
Disposal considerations: Hazardous waste code  
Transport Information: Material Transportation Information  
Regulatory information: US federal regulations  
Other information, including date of preparation or last revision: Prepared by  
HazReg Data: North America  
GHS: Classification

**Prepared by** This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

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