SAFETY DATA SHEET
STEAMATE* PAS6071

1. Product and Company Identification

Material name STEAMATE PAS6071
Version # 2.0
Revision date 07/02/2014
Supersedes date 22/11/2010
CAS # Mixture
Product application Steam condensate treatment.

Company/undertaking identification
GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone
(800) 877 1940

2. Hazards Identification

Emergency overview
DANGER
Corrosive to skin. Absorbed by skin. Potential sensitizer. Corrosive to the eyes. Vapors, gases, mists and/or aerosols cause irritation to the upper respiratory tract. Prolonged exposure may cause dizziness and headache.
Flammable.

Potential health effects

Eyes
Corrosive to eyes

Skin
Primary route of exposure Corrosive to skin

Inhalation
Primary route of exposure Vapors, gases, mists or aerosols cause irritation to the upper respiratory tract. Prolonged exposure may cause dizziness and headache.

Ingestion
May cause severe irritation or burning of mouth, throat, and gastrointestinal tract with severe chest and abdominal pain, nausea, vomiting, diarrhea, lethargy and collapse. Possible death when ingested in very large doses.

Target organs
Repeated exposure may cause skin sensitization and/or toxicity to the liver, kidney, nervous system, and blood system. Prolonged or repeated exposures may cause tissue necrosis.

Signs and symptoms
Inhalation may cause irritation of mucous membranes and respiratory tract. Skin contact may cause severe irritation or burns.

Medical conditions aggravated by exposure
Skin disorders

3. Composition / Information on Ingredients

Hazardous components

<table>
<thead>
<tr>
<th>Hazardous components</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexylamine</td>
<td>108-91-8</td>
<td>10 - 20</td>
</tr>
<tr>
<td>Alkyl diaminopropane</td>
<td>7173-62-8</td>
<td>2.5 - 10</td>
</tr>
</tbody>
</table>
Hazardous components

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-43-5</td>
<td>2.5 - 10</td>
</tr>
</tbody>
</table>

Non-hazardous components

<table>
<thead>
<tr>
<th>CAS #</th>
</tr>
</thead>
<tbody>
<tr>
<td>7732-18-5</td>
</tr>
</tbody>
</table>

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 MSDS for our assessment of the potential hazards of this formulation.

4. First Aid Measures

First aid procedures

Eye contact

URGENT! Immediately flush eyes with plenty of low-pressure water for at least 20 minutes while removing contact lenses. Hold eyelids apart. Get immediate medical attention.

Skin contact

URGENT! Wash thoroughly with soap and water. Remove contaminated clothing. Get immediate medical attention. Thoroughly wash clothing before reuse.

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, trained personnel should give oxygen. Immediately contact a physician.

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. Have victim rinse mouth thoroughly with water. Dilute contents of stomach using 4-10 fluid ounces (120-300 ml) of milk or water.

Notes to physician

Material is corrosive. It may not be advisable to induce vomiting. Possible mucosal damage may contraindicate the use of gastric lavage. Aspiration into the lungs will result in chemical pneumonia and may be fatal.

5. Fire Fighting Measures

Extinguishing media

Carbon dioxide, dry chemicals, foam. Water spray should be used only to cool fire-exposed containers and disperse vapours.

Fire fighting equipment/instructions

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

Hazardous combustion products

Oxides of nitrogen. Oxides of carbon

6. Accidental Release Measures

Personal precautions

See Section 8 of the MSDS for Personal Protective Equipment.

Methods for containment

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Methods for cleaning up

Ventilate area, use specified protective equipment. Remove sources of ignition. Contain and absorb on absorbent material (e.g. sand). Place in waste disposal container. Flush area with water. Spread sand/grit.

7. Handling and Storage

Handling

Combustible. Bond containers during filling or discharge when performed at temperatures at or above the product flash point. Avoid heat, sparks, open flames and other ignition sources. Corrosive to the eyes corrosive to skin Do not mix with acidic material.

Storage

Keep containers closed when not in use. Store in cool, well ventilated area. Keep away from flames and sparks. Avoid atmospheric exposure. If frozen, thaw completely and mix thoroughly prior to use.

8. Exposure Controls / Personal Protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexylamine (CAS 108-91-8)</td>
<td>TWA</td>
<td>10 ppm</td>
</tr>
<tr>
<td>Ethanolamine (CAS 141-43-5)</td>
<td>STEL</td>
<td>6 ppm</td>
</tr>
<tr>
<td>Ethanolamine (CAS 141-43-5)</td>
<td>TWA</td>
<td>3 ppm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanolamine (CAS 141-43-5)</td>
<td>PEL</td>
<td>6 mg/m3</td>
</tr>
</tbody>
</table>
9. Physical & Chemical Properties

**Appearance**
- Physical state: Liquid
- Color: Colorless to light yellow
- Odor: Amine
- Odor threshold: Not available.
- pH (concentrated product): 12.4
- pH in aqueous solution: 11.8 (5% DISP.)
- Vapor pressure: 18 mm Hg
- Vapor pressure temp.: 70 °F (21 °C)
- Vapor density: < 1 (Air = 1)
- Boiling point: Not available.
- Melting point/Freezing point: 27 °F (-3 °C)
- Solubility (water): > 25 %
- Specific gravity (70°F, 21°C): 0.983
- Flash point: 138 °F (59 °C) P-M(CC)
- Flammability limits in air, upper, % by volume: Not available.
- Flammability limits in air, lower, % by volume: Not available.
- Auto-ignition temperature: Not available.
- Evaporation rate: < 1 (Ether = 1)
- Viscosity: 16 cps
- Viscosity temperature: 70 °F (21 °C)
- Percent volatile: 21 (Estimated)
- Pour point: 32 °F (0 °C)

10. Chemical Stability & Reactivity Information

**Chemical stability**
- Stable under normal storage conditions.

**Conditions to avoid**
- Not available.

**Incompatible materials**
- Avoid contact with strong acids. Avoid contact with strong oxidizers.

**Hazardous decomposition products**
- Oxides of carbon and nitrogen.
### 11. Toxicological Information

#### Toxicological data

<table>
<thead>
<tr>
<th>Components</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alkyl diaminopropane (CAS 7173-62-8)</td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
</tr>
<tr>
<td>Oral, LD50, Rat</td>
<td>253 mg/kg</td>
</tr>
<tr>
<td>Cyclohexylamine (CAS 108-91-8)</td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
</tr>
<tr>
<td>Dermal, LD50, Rabbit</td>
<td>277 mg/kg</td>
</tr>
<tr>
<td>Oral, LD50, Rat</td>
<td>156 mg/kg</td>
</tr>
<tr>
<td>Ethanolamine (CAS 141-43-5)</td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
</tr>
<tr>
<td>Dermal, LD50, Rabbit</td>
<td>1025 mg/kg</td>
</tr>
<tr>
<td>Inhalation, LC50, Rat</td>
<td>1.5 mg/l, 4 Hour</td>
</tr>
<tr>
<td>Oral, LD50, Rat</td>
<td>1720 mg/kg</td>
</tr>
<tr>
<td><strong>Carcinogenicity</strong></td>
<td></td>
</tr>
<tr>
<td>ACGIH Carcinogens</td>
<td></td>
</tr>
<tr>
<td>Cyclohexylamine (CAS 108-91-8)</td>
<td>A4 Not classifiable as a human carcinogen.</td>
</tr>
</tbody>
</table>

### 12. Ecological Information

#### Ecotoxicity

<table>
<thead>
<tr>
<th>Product</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEAMATE PAS6071 (CAS Mixture)</td>
<td></td>
</tr>
<tr>
<td>LC50, Fathead Minnow</td>
<td>3.6 mg/l, Static Bioassay with 48-Hour Renewal, 96 hour</td>
</tr>
<tr>
<td>NOEL, Fathead Minnow</td>
<td>2.5 mg/l, Static Bioassay with 48-Hour Renewal, 96 hour</td>
</tr>
<tr>
<td>LC50, Daphnia magna</td>
<td>2.9 mg/l, Acute Toxicity, 48 hour</td>
</tr>
<tr>
<td>NOEL, Daphnia magna</td>
<td>1.3 mg/l, Acute Toxicity, 48 hour</td>
</tr>
<tr>
<td>LC50, Rainbow Trout</td>
<td>2.4 mg/l, Static Bioassay with 48-Hour Renewal, 96 hour</td>
</tr>
<tr>
<td>NOEL, Rainbow Trout</td>
<td>1.3 mg/l, Static Bioassay with 48-Hour Renewal, 96 hour</td>
</tr>
</tbody>
</table>

#### Partition coefficient

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexylamine</td>
<td>1.5</td>
</tr>
<tr>
<td>Ethanolamine</td>
<td>-1.3</td>
</tr>
</tbody>
</table>

### 13. Disposal Considerations

**Contaminated packaging**

Dispose of in a safe manner, in accordance with local regulations. Via an authorized waste disposal contractor to an approved waste disposal site, observing all local and national regulations.

### 14. Transport Information

**DOT**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic shipping requirements:</td>
<td></td>
</tr>
<tr>
<td>UN number</td>
<td>UN2920</td>
</tr>
<tr>
<td>Proper shipping name</td>
<td>CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Cyclohexylamine RQ = 670 lbs, Ethanolamine)</td>
</tr>
<tr>
<td>Hazard class</td>
<td>8</td>
</tr>
<tr>
<td>Subsidiary hazard class</td>
<td>3</td>
</tr>
</tbody>
</table>

Material name: STEAMATE® PAS6071

Version number: 2.0
Packing group: II
Additional information: 132
ERG code: 132

TDG
UN number: UN2920
UN proper shipping name: CORROSIVE LIQUIDS, FLAMMABLE, N.O.S. (Cyclohexylamine, Ethanolamine)
Hazard class: 8
Subsidiary hazard class: III
Packing group: II
ERG code: 132

IATA
UN number: UN2920
UN proper shipping name: CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Cyclohexylamine, Ethanolamine)
Transport hazard class(es): 8
Subsidiary class(es): III
Packing group: II
ERG code: 132

IMDG
UN number: UN2920
UN proper shipping name: CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Cyclohexylamine, Ethanolamine)
Transport hazard class(es): 8
Subsidiary class(es): 3
Packing group: II

DOT

15. Regulatory Information
US federal regulations
US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Spill: Reportable quantity
Cyclohexylamine (CAS 108-91-8) 10000 lbs
US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Substance: Threshold Planning Quantity
Cyclohexylamine (CAS 108-91-8) 10000 lbs
US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance
None listed.
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.
CERCLA (Superfund) reportable quantity
Cyclohexylamine: 100 lbs
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
- No

SARA 311/312 Hazardous chemical
- No

Inventory status

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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

State regulations

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

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.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin
- No ingredient listed.

US - Massachusetts RTK - Substance List
- Cyclohexylamine (CAS 108-91-8)
- Ethanolamine (CAS 141-43-5)

US - New Jersey RTK - Substances: Listed substance
- Cyclohexylamine (CAS 108-91-8) Listed.
- Ethanolamine (CAS 141-43-5) Listed.

US - Pennsylvania RTK - Hazardous Substances
- Cyclohexylamine (CAS 108-91-8) Listed.
- Ethanolamine (CAS 141-43-5) Listed.

US - Rhode Island RTK
- Cyclohexylamine (CAS 108-91-8)

16. Other Information

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

HMIS® ratings
- Health: 3
- Flammability: 2
- Physical hazard: 0
- Personal protection: D

NFPA ratings
- Health: 3
- Flammability: 2
- Instability: 0
- Special hazards: CORR