

# G.J. CHEMICAL COMPANY, INC. SAFETY DATA SHEET

## 1. PRODUCT IDENTIFIER

1.1 PRODUCT NAME:-----> **CYCLOHEXYLAMINE**

PRODUCT NUMBER(S):-----> 130700

TRADE NAMES/SYNONYMS:-> Aminocyclohexane, Hexahydroaniline

CAS-No: 108-91-8

Chemical Family: Aliphatic Amine

1.2 RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

RECOMMENDED USE: Industrial: As an intermediate in synthesis of other organic compounds and corrosion inhibitor. Laboratory chemicals.

USES ADVISED AGAINST: No information available

1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Company: **G.J. CHEMICAL CO., INC.**

Address: **40 VERONICA AVENUE  
SOMERSET, NJ 08873**

Telephone: **1-973-589-1450**

Fax: **1-973-589-3072**

1.4 Emergency Telephone Number

Emergency Phone: **1-800-424-9300 (CHEMTREC)**

## 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226

Acute toxicity, Oral (Category 2), H301

Acute toxicity, Dermal (Category 3), H311

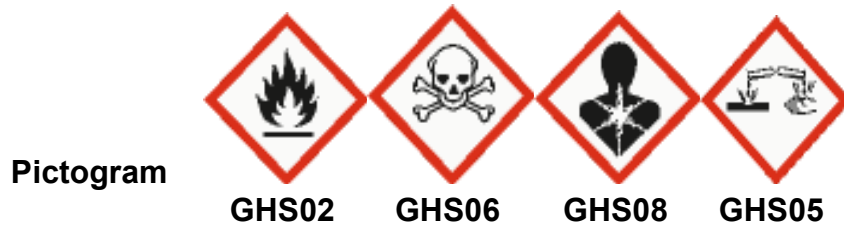
Skin corrosion (Category 1B), H314

Serious eye damage (Category 1), H318

Reproductive toxicity (Category 2), H361

Acute aquatic toxicity (Category 3), H402

## 2.2 GHS Label elements, including precautionary statements



Signal word:            **DANGER**

### Hazard statement(s)

H226 Flammable liquid and vapor.  
H301+ H311 Toxic if swallowed or in contact with skin.  
H314 Causes severe skin burns and eye damage.  
H318 Causes serious eye damage  
H361 Suspected of damaging fertility or the unborn child.  
H402 Harmful to aquatic life.

### Precautionary statement(s)

#### Prevention:

P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P281 Use personal protective equipment as required.

#### Response:

P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.  
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
P304 + P340 + P310 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or

doctor/ physician.

**P305 + P351 + P338 + P310 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/ physician.**

**P308 + P313 IF exposed or concerned:** Get medical advice/ attention.

**P362** Take off contaminated clothing and wash before reuse.

**P370 + P378** In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

**Storage:**

**P403 + P235** Store in a well-ventilated place. Keep cool.

**P405** Store locked up.

**Disposal:**

**P501** Dispose of contents/ container to an approved waste disposal plant.

**2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none**

### **3. INGREDIENTS**

#### **3.1 SUBSTANCE:**

<b>Ingredient</b>	<b>CAS No.</b>	<b>% by WT. Range</b>	<b>CLASSIFICATION</b>
Cyclohexylamine EC-No. 203-629-0 Index-No.612-050-00-6 Reg.-No. 01-2119486803-29-XXXX	108-91-8	99	Flammable liquids (Category 3), H226 Acute toxicity, Oral (Category 2), H301 Acute toxicity, Dermal (Category 3), H311 Skin corrosion (Category 1B), H314 Serious eye damage (Category 1), H318 Reproductive toxicity (Category 2), H361 Acute aquatic toxicity (Category 3), H402

**3.2 MIXTURE:** Not applicable.

### **4. FIRST-AID MEASURES**

#### **4.1 DESCRIPTION OF FIRST AID MEASURES:**

**INHALATION: CYCLOHEXYLAMINE:**

**\*\*FIRST AID-** Remove from exposure area to fresh air

immediately. If breathing has stopped, perform artificial respiration. Keep person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately.

#### **SKIN CONTACT: CYCLOHEXYLAMINE:**

\*\*FIRST AID- Remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts of water until no evidence of chemical remains (approximately 15-20 minutes). For chemical burns cover area with sterile, dry dressing bandage securely, but not too tight. Get medical attention immediately.

#### **EYE CONTACT: CYCLOHEXYLAMINE:**

\*\*FIRST AID- Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains (approximately 15-20 minutes). Remove contact lenses, if worn, after initial flush. Get medical attention immediately.

#### **INGESTION: CYCLOHEXYLAMINE:**

\*\*FIRST AID- Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Small amounts, which enter the mouth should be rinsed out until taste is gone. Get medical attention immediately.

#### **4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED:**

**Eye:** Corrosive with symptoms of burning, redness, pain, blurred vision, and edema.

**Skin:** Corrosive with symptoms of burning, scarring, and reddening;

**Inhalation:** Severe irritation of the respiratory tract or acute nervous system depression characterized by headache, dizziness, staggering gait, confusion, unconsciousness or coma.

**Ingestion:** Toxic with severe irritation, nausea, vomiting, abdominal spasms, and restlessness.

**Chronic:**

**Eye:** Repeated or prolonged exposure may result in conjunctivitis:

**Skin:** Repeated or prolonged exposure may result in dermatitis:

**Inhalation:** May be a cumulative poison. May cause ulcerative changes in the mouth and gastrointestinal disturbances:

**Ingestion:** Prolonged and repeated exposure may damage the liver and kidneys.

**Medical Conditions Aggravated by Exposure:** Skin contact may aggravate an existing dermatitis.

**4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:**

Specific details on antidote: No recommendation given.

**5. FIRE FIGHTING MEASURES**

Flash Point: 27°C (81°F) CC

LEL %:1.6 (V)

Auto-ignition Temp: Not self-igniting

UEL %:9.4 (V)

UNIFORM FIRE CODE: Flammable Liquid Class IC

**5.1 SUITABLE EXTINGUISHING MEDIA:** Foam--> x CO2--> x Dry Chemical--> x Water-fog--> x Other-->

Unsuitable extinguishing media: Do not use waterjet.

**5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE:** FIRE AND EXPLOSION HAZARD: DANGEROUS FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME. VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A CONSIDERABLE DISTANCE TO A SOURCE OF IGNITION AND FLASH BACK. VAPOR-AIR MIXTURES ARE EXPLOSIVE. Keep containers tightly closed. Flammable liquid; isolate from all sources of ignition. During a fire potentially toxic/irritating fumes from combustion/decomposition products may be generated.

**CONDITIONS OF FLAMMABILITY:** Flammable in the presence of a source of ignition when the temperature is above the flash point.

**HAZARDOUS COMBUSTION PRODUCTS:** Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, carbon oxides, nitrogen oxides and other unidentified organic compounds evolve when this material undergoes combustion.

**5.3 ADVICE FOR FIREFIGHTERS:** Shut off source. Water fog may be used to cool closed containers to prevent pressure build up and possible auto-ignition or explosion when exposed to extreme heat. Wear NIOSH/MSHA approved self-contained breathing apparatus (SCBA) for confined spaces and where there is exposure to vapors. Use full fire-fighting protective clothing. Keep unnecessary people away; isolate hazard area and deny entry. Avoid breathing vapors, stay upwind. Do not enter fire area without structural fire fighter's protective equipment including NIOSH/MSHA approved self-contained breathing apparatus (SCBA) in positive pressure mode. Use water spray to knock down vapors. Use

halon, carbon dioxide extinguisher or dry powder for small fires. Large fires are best controlled by alcohol foam, fog, and water spray. Move container from fire area if you can do it without risk. Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks. For massive fire in cargo area, use unmanned hose holder or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire. Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire Extinguish only if fire can be stopped. Use flooding amounts of water as a fog; solid streams may be ineffective. Cool containers with flooding amounts of water from as far a distance as possible. Avoid breathing vapors; keep upwind. If fire is uncontrollable or containers are exposed to direct flame, water may be ineffective. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures.

## **6. ACCIDENTAL RELEASE MEASURES**

**6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:** Flammable Liquid; Eliminate ignition sources in the vicinity of the spill or released vapor. Immediately evacuate all nonessential people. Verify that responders are properly trained and wearing appropriate respiratory equipment and fire resistant protective clothing during cleanup operations. For large spills evacuate downwind areas as conditions warrant to prevent exposure and to allow vapors or fumes to dissipate.

### **6.2 ENVIRONMENTAL PRECAUTIONS:**

Keep out of water sources, drains and sewers. Do not flush into surface water or sanitary sewer system

### **6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP:**

Methods for cleanup and containment:

Use explosion proof equipment. Shut off valves, contain spill, keep out of water sources and sewers, for smaller spills add non-flammable absorbent in spill area.

For large spills use foam on spill to minimize vapors clean up by vacuuming then using non-flammable absorbent.

Methods for disposal:

Place all saturated absorbent, using non-sparking tools, in an approved container for disposal. Minimize breathing vapors and skin contact, ventilate confined areas, open all windows and doors, assure conformity with applicable government regulations.

**6.4 REFERENCE TO OTHER SECTIONS:** See Sections 8 and 13.

## **7. HANDLING AND STORAGE**

**7.1 PRECAUTIONS FOR SAFE HANDLING:** This material presents a fire hazard. Liquid quickly evaporates and forms vapor (fumes), which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources, such as pilot lights, welding equipment, and electrical motors and switches. Vapor is heavier than air and can travel considerable distance to a

source of ignition and flash back. Avoid breathing vapors in top of shipping container. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid work practices that may release volatile components in the atmosphere. Avoid contaminating soil or releasing material into sewage and drainage systems. Use non-sparking tools to open or close containers.

Advice on general occupational hygiene:

Wash hands before breaks and after work. Keep away from food, drink and animal feeding stuffs. When using do not smoke.

**STATIC HAZARD:** Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not be sufficient. For more information refer to OSHA Standard 29CFR 1910.106 “Flammable and Combustible Liquids” and National Fire Protection Association (NFPA 77) “Recommended Practice on Static Electricity”.

**7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:**

Follow maximum allowed pile heights specified in the BOCA codes or the NFPA manual. Local fire authorities should be notified for storage of this material in any quantity. Local permits are required for storage in warehouse quantities. Store large quantities only in cool, dry areas in buildings designed to comply with OSHA 1910.106. Recommended storage temperature: 15 - 25°C Keep containers tight and upright to prevent leakage. Do not contact with oxidizing materials. Keep containers closed when not in use. Do not take internally.

**CONTAINER WARNINGS:** Containers should be Bonded and Grounded when pouring. Avoid free fall of liquid in excess of a few inches. Empty containers release residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, or expose such containers to heat, sparks, static electricity or other sources of ignition. Do not attempt to clean. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum re-conditioner.

**7.3 SPECIFIC END USES:** Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

**8. EXPOSURE CONTROL/PERSONAL PROTECTION**

**8.1 CONTROL PARAMETERS:**

Ingredient	CAS No.	% by WT. Range	Exposure Limits
Cyclohexylamine	108-91-8 EC-No. 203-629-0 Index-No.612-050-00-6 Reg.-No. 01-2119486803-29-XXXX	99	10ppm TWA (ACGIH) 10ppm TWA (NIOSH) 10ppm TWA (OSHA)

Key: (PEL) = Permissible Exposure Limit OSHA  
(TLV) = Threshold Limit Value OSHA & ACGIH

(STEL) = Short Term Exposure Limit ACGIH  
(WEEL) = USA. Workplace Environmental Exposure Levels  
(TWA) = Time Weighted Average  
CAS = Chemical Abstracts Registry Number  
IDLH = Immediate Danger to Life and Health  
N.E. =None Established

## 8.2 EXPOSURE CONTROLS

**EXPOSURE GUIDELINES:** Consider the potential hazards of this material (Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended.

**ENGINEERING CONTROLS:** Provide general dilution or local exhaust ventilation in volume and pattern to keep concentrations within permitted exposure limits. All areas should be ventilated in accordance with OSHA Regulation 29 CFR Part 1910. Explosion proof motors should be used in mechanical ventilation.

**RESPIRATORY PROTECTION:** The specific respirator selected must be based on contamination levels found in the work place, must not exceed the working limits of the respirator and be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA):

For vapor concentrations up to 100ppm or 1 to 10 times ACGIH TWA an air purifying NIOSH/MSHA Approved respirator with full face-piece and organic vapor cartridges. For concentrations over 100ppm or in confined areas use a NIOSH/MSHA approved positive pressure full face-piece supplied air respirator (SCBA).

**BODY CLOTHING:** Use chemical resistant apron or other impervious clothing. Remove and wash contaminated clothing before reuse. Users should determine acceptable performance characteristics of protective clothing.

**SKIN PROTECTION:** Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.

Full contact

Material: Fluorinated rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Splash contact

Material: Nature latex/chloroprene

Minimum layer thickness: 0.6 mm

Break through time: 31 min

**HYGIENE:** Use good personal hygiene practices, wash hands before eating, drinking, smoking or using toilet facilities.



**EYE /FACE PROTECTION:** Use safety eyewear such as splash-proof safety goggles and a face shield.

Shower and eyewash should be easily accessible to the work area.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### **9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:**

Cyclohexylamine 108-91-8

<b>APPEARANCE:</b>	Liquid
<b>COLOR:</b>	Colorless to light yellow
<b>ODOR:</b>	Strong amine odor.
<b>ODOR THRESHOLD:</b>	No Data Available
<b>pH:</b>	11.5 at 100 g/l at 20 °C (68°F)
<b>MOLECULAR WEIGHT:</b>	99.17 amu
<b>MELTING POINT:</b>	-17 °C (1°F)
<b>BOILING POINT:</b>	134°C (273°F)
<b>SPECIFIC GRAVITY:</b>	0.867@25°C
<b>VAPOR PRESSURE:</b>	10mm Hg @ 22°C (72.0°F) 23mmHg @ 37.7°C (99.9°F)
<b>VAPOR DENSITY:</b>	3.42
<b>WATER SOLUBILITY:</b>	Soluble
<b>PARTITION COEFFICIENT N-OCTANOL/WATER</b>	log Pow: 1.2@ 25°C (77°F)
<b>FLASH POINT:</b>	27°C (81°F) - closed cup
<b>EVAPORATION RATE (BUTYL ACETATE=1):</b>	0.734
<b>UPPER FLAMMABILITY LIMIT:</b>	9.4% (V)
<b>LOWER FLAMMABILITY LIMIT:</b>	1.6% (V)
<b>AUTO IGNITION TEMPERATURE:</b>	Not self igniting
<b>DECOMPOSITION TEMPERATURE:</b>	No Data Available
<b>VISCOSITY:</b>	No Data Available
<b>EXPLOSIVE PROPERTIES:</b>	No Data Available
<b>OXIDIZING PROPERTIES:</b>	No Data Available

### **9.2 OTHER INFORMATION:**

Surface tension: 68.8 mN/m at 20°C (68°F)

## **10. STABILITY AND REACTIVITY INFORMATION**

**10.1 REACTIVITY:** No data available.

**10.2 CHEMICAL STABILITY:** Unstable ( ) Stable (X)  
Stable under recommended storage conditions.

**10.3 POSSIBILITY OF HAZARDOUS REACTIONS:** Vapors may form explosive mixtures with air.

**HAZARDOUS POLYMERIZATION:** May occur ( ) Will not occur (X)

**10.4 CONDITIONS TO AVOID:** Heat, Sparks, Pilot Lights, Static Electricity, and Open Flame.

**10.5 INCOMPATIBLE MATERIALS:** Strong oxidants such as liquid chlorine, oxygen, sodium hypochlorite, inorganic acids e.g. hydrochloric acid hydrogen peroxide.

**10.6 HAZARDOUS DECOMPOSITION PRODUCTS:** Fumes, Smoke, Carbon Monoxide, Carbon Dioxide, oxides of Nitrogen.

## **11. TOXICOLOGICAL INFORMATION**

### **11.1 INFORMATION ON TOXICOLOGICAL EFFECTS:**

**Routes of Entry:** Inhalation--> x Skin--> x Ingestion--> x

#### **ACUTE HEALTH EFFECTS:**

**Effects of overexposure:**

**Eye>** Corrosive with symptoms of burning, redness, pain, blurred vision, and edema.

**Skin>** Corrosive with symptoms of burning, scarring, and reddening;

**Inhalation>** Severe irritation of the respiratory tract or acute nervous system depression characterized by headache, dizziness, staggering gait, confusion, unconsciousness or coma.

**Ingestion>** Toxic with severe irritation, nausea, vomiting, abdominal spasms, and restlessness.

**Chronic:**

**Eye>** Repeated or prolonged exposure may result in conjunctivitis:

**Skin>** Repeated or prolonged exposure may result in dermatitis:

**Inhalation>** May be a cumulative poison. May cause ulcerative changes in the mouth and gastrointestinal disturbances:

**Ingestion>** Prolonged and repeated exposure may damage the liver and kidneys.

**Medical Conditions Aggravated by Exposure>** Skin contact may aggravate an existing dermatitis.

#### **ACUTE TOXICITY:**

The effects of overexposure shown in Section II are based on acute animal toxicity profiles. Typical values are:

Ingredient	Oral LD50 (Rat)	Skin LD50 (Rabbit)	Inhalation LC50
Cyclohexylamine	300mg/kg	277mg/kg	7500mg/m3

**SKIN CORROSION/IRRITATION: Skin - Rabbit Result: Corrosive - 20 h**

**SERIOUS EYE DAMAGE/EYE IRRITATION: Eyes - Rabbit Result: Corrosive**

**RESPIRATORY OR SKIN SENSITIZATION: No data available.**

**MUTAGENIC EFFECTS: Reverse mutation assay *S. typhimurium* Result: negative**

**CARCINOGEN STATUS:**

**ACGIH designates this product (A4), as not classifiable as a human carcinogen.**

**IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.**

**NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.**

**OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.**

**REPRODUCTIVE TOXICITY: Suspected human reproductive toxicant.**

**Specific target organ toxicity (STOT-SE) - single exposure (Globally Harmonized System): No Data Available**

**Specific target organ toxicity (STOT-RE) - repeated exposure (Globally Harmonized System): No Data Available**

**Aspiration hazard: No data available**

**11.2 ADDITIONAL DATA: Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Cough, Shortness of breath, Headache, Nausea**

**RTECS GX0700000**

**12. ECOLOGICAL INFORMATION**

**DANGEROUS TO AQUATIC LIFE IN HIGH CONCENTRATIONS:**

May be dangerous if it enters water intakes.  
Notify local health and pollution control officials.  
Notify operators of nearby water intakes.

#### **12.1 AQUATIC TOXICITY (Acute):**

Toxicity to fish:

LC50 - *Oryzias latipes* (Japanese Rice fish) - 33 mg/l - 96 h Semi static test  
(OECD Test Guideline 203)

LC50 - *Leuciscus idus* (Golden orfe) - 44 mg/l - 96 h

LC50 - *Oncorhynchus mykiss* (Rainbow trout) - 90mg/l – 96 h

Toxicity to daphnia and other aquatic invertebrates:

EC50 - *Daphnia magna* (Water flea) – 36.3 mg/l - 48 h Immobilization test  
(OECD Test Guideline 202)

Toxicity to algae:

EC50 - *Pseudokirchneriella subcapitata* (green algae) - 20 mg/l - 96 h  
(OECD Test Guideline 201)

**12.2 PERSISTENCE AND DEGRADABILITY:** aerobic - Exposure time 20 d Result:  
92 % - Readily biodegradable (Closed Bottle test)

**12.3 BIOACCUMULATIVE POTENTIAL:** Log Pow: 1.2 Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

#### **12.4 MOBILITY IN SOIL:**

Surface tension: 23.2 mN/m at 20.0°C (68.0°F)

The substance will slowly evaporate into the atmosphere from the water surface.

#### **12.5 RESULTS OF PBT AND vPvB:**

PBT assessment results: This substance is not classified as PBT or vPvB.

**12.6 OTHER ADVERSE EFFECTS:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

### **13. DISPOSAL CONSIDERATIONS**

**13.1 WASTE TREATMENT METHODS:** Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly it is the responsibility of the user to determine the proper storage, transportation, treatment, and or disposal methodologies for spent materials and residues at time of disposition. Dispose in accordance with all applicable disposal regulations. Incinerate under controlled conditions in a permitted facility.

**CONTAMINATED PACKAGING: Dispose of as unused product.**

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

RCRA: The unused product is a RCRA hazardous waste if discarded. The RCRA ID number is D001.

If the waste is a spent solvent, the appropriate spent solvent code should be used.

**DISPOSAL MUST BE IN ACCORDANCE WITH STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE, 48 CFR 262**

**14. TRANSPORT INFORMATION**

**Land Transport (DOT)**

- 14.1 USDOT ID Number-----> UN2357
- 14.2 USDOT Shipping Name-----> Cyclohexylamine
- 14.3 USDOT Hazard Classification-----> 8 (Corrosive Liquid)  
    USDOT Label Codes-----> 8, 3 (Corrosive, Flammable) (Sub risk)
- 14.4 USDOT Package Code-----> II
- 14.5 Marine Pollutant-----> No
- 14.6 Special precautions for user-----> Yes  
    Emergency Response Guide-----> 132  
    Reportable quantity-----> None

**Sea Transport (IMDG)**

- 14.1 ID Number-----> UN2357
- 14.2 Proper shipping name-----> CYCLOHEXYLAMINE
- 14.3 Hazard Classification-----> 8 (Corrosive Liquid)  
    Label Codes-----> 8, 3
- 14.4 Package Code-----> II
- 14.5 Marine Pollutant-----> No
- 14.6 Special precautions for user-----> Yes  
    EMS-Number-----> F-E, S-C

**Air Transport (IATA)**

- 14.1 ID Number-----> UN2357
- 14.2 Proper shipping name-----> Cyclohexylamine
- 14.3 Hazard Classification-----> 8 (Corrosive Liquid)  
    Label Codes-----> 8, 3
- 14.4 Package Code-----> II
- 14.5 Environmental hazard-----> None

14.6 Special precautions for user-----> No

## 15. REGULATORY INFORMATION

### 15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE:

#### SARA TITLE III (Superfund Amendment and Reauthorization Act)

SECTION 302 AND 304: Extremely Hazardous Substance List (40 CFR 355) - Listed

Cyclohexylamine CAS 108-91-8; TPQ 10000lbs.

SECTION 313: Toxic Chemicals Listing (40 CFR 372.65) - Not Listed

SECTION 311/312: Hazard Categorization (40 CFR 370) - Acute Health Hazard, Chronic Health Hazard and Fire Hazard.

#### CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)

SECTION 102(A) Hazardous Substances (40 CFR 302.4) - Not Listed

Reportable Quantity - None

SECTION 101(14) Reportable Quantity: None

Massachusetts Right to Know Components

Cyclohexylamine CAS-No.108-91-8

Pennsylvania Right to Know Components

Cyclohexylamine CAS-No.108-91-8

New Jersey Right to Know Components

Cyclohexylamine CAS-No.108-91-8

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

#### TSCA (Toxic Substance Control Act)

Cyclohexylamine CAS: 108-91-8 is listed on the TSCA Inventory.

#### International Inventories:

<u>Country or Region</u>	<u>Inventory Name</u>	<u>On inventory yes/no</u>
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<u>Australia</u>	Australian Inventory of Chemical Substances (AICS)	Yes
<u>Canada</u>	Domestic Substances List (DSL)	Yes
<u>Canada</u>	Non-Domestic Substances List (NDSL)	No
<u>China</u>	Inventory of Existing Chemical Substances in China (IECSC)	Yes
<u>Europe</u>	European Inventory of Existing Commercial Chemicals	Yes

	Substances (EINECS)	
<u>Europe</u>	European List of Notified Chemical Substances (ELINCS)	No
<u>Japan</u>	Inventory of Existing and New Chemical Substances (ENCS)	Yes
<u>Japan</u>	Industrial Safety & Health Law Inventory (ISHL)	Yes
<u>Korea</u>	Existing Chemicals List (ECL)	Yes
<u>Mexico</u>	National Inventory of Chemical Substances (INSQ)	Yes
<u>New Zealand</u>	New Zealand Inventory	Yes
<u>Philippines</u>	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
<u>Switzerland</u>	Inventory of Notified New Substances (CHINV)	Yes
<u>Taiwan</u>	National Existing Chemical Inventory (NECI)	Yes
<u>United States &amp; Puerto Rico</u>	Toxic Substances Control Act Inventory	Yes

**15.2 CHEMICAL SAFETY ASSESSMENT: A chemical safety assessment has been carried out for this substance.**

## **16. OTHER INFORMATION:**

**HMIS** (Hazardous Materials Identification System)

**Hazard Rating:**

- 4-Extreme**
- 3-High**
- 2-Moderate**
- 1-Slight**
- 0-Insignificant**

**NFPA RATINGS (SCALE 0-4):** Health=3 Fire=3 Reactivity=0  
**HMIS RATINGS (SCALE 0-4):** Health=3 Fire=3 Reactivity=0 PPE=H

**Hazard statement(s) from Section 2 and 3:**

- H226 Flammable liquid and vapor.**
- H301+ H311 Toxic if swallowed or in contact with skin.**
- H314 Causes severe skin burns and eye damage.**
- H318 Causes serious eye damage**
- H361 Suspected of damaging fertility or the unborn child.**
- H402 Harmful to aquatic life.**

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### **Acronyms:**

- ACGIH - American Conference of Governmental Industrial Hygienists
- AIHA - American Industrial Hygiene Association
- ANSI - American Nation Standards Institute
- API - American Petroleum Institute
- CERCLA - Comprehensive Emergency Response, Compensation, and Liability Act

DOT	-	U.S. Department of Transportation
EPA	-	U.S. Environmental Protection Agency
HMIS	-	Hazardous Materials Information System
IARC	-	International Agency For Research On Cancer
MSHA	-	Mine Safety and Health Administration
NFPA	-	National Fire Protection Association
NIOSH	-	National Institute of Occupational Safety and Health
NOIC	-	Notice of Intended Change (Proposed change to ACGIH TLV)
NTP	-	National Toxicology Program
OPA	-	Oil Pollution Act of 1990
OSHA	-	U.S. Occupational Safety & Health Administration
PEL	-	Permissible Exposure Limit (OSHA)
RCRA	-	Resource Conservation and Recovery Act
REL	-	Recommended Exposure Limit (NIOSH)
SARA	-	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	-	Self-Contained Breathing Apparatus
STEL	-	Short-Term Exposure Limit (generally 15 minutes)
TLV	-	Threshold Limit Value
TSCA	-	Toxic Substances Control Act
TWA	-	Time Weighted Average (8hr.)
WHMIS	-	Canadian Workplace Hazardous Materials Information System

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