

PRODUCT & COMPANY IDENTIFICATION

In case of Emergency call CHEMTREC 1-800-424-9300

Supplier	FBC Chemical Corporation, 634 Route 228, Mars, PA 16046
Revision Date	6/8/02
Trade Names / Synonyms	Cyclohexylamine, Aminocyclohexane, Hexahydroaniline
CAS Number	108-91-8
Formula	C ₆ H ₁₃ N
Chemical Name	Cyclohexylamine
Molecular Weight	99.1754

INGREDIENTS

Component	CAS No.	%	Hazardous
Cyclohexylamine	108-91-8	100	Yes

HAZARDS IDENTIFICATIONS

Emergency Overview	DANGER! FLAMMABLE LIQUID AND VAPOR. CORROSIVE. CAUSES BURNS TO ANY AREA OF CONTACT. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES SEVERE IRRITATION TO RESPIRATORY TRACT. MAY CAUSE ALLERGIC REACTION. AFFECTS CENTRAL NERVOUS SYSTEM.
Health Rating	3 - Poison
Flammability Rating	3 - Severe (Flammable)
Reactivity Rating	2 - Moderate
Contact Rating	3 - Severe (Corrosive)
Lab Protective Equipment	Goggles, Lab Coat, Vent Hood, Proper Gloves, Class B Extinguishers
Storage Color Code	Red (Flammable)

REACTIVITY DATA

Stability	Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products	May form carbon oxides, nitrogen oxides, hydrocarbons, amine vapors and ammonia when heated to decomposition.
Hazardous Polymerization	Will not occur.
Incompatibilities	Cyclohexylamine reacts vigorously with oxidizing materials. It is incompatible with acids, all copper alloys, lead, chlorine, hypochlorite, acid anhydrides, acid chlorides, halogenated compounds, and reactive organic compounds. It is corrosive to copper, aluminum, zinc and galvanized steel.
Conditions to avoid	Heat, flames, ignition sources and incompatibles.

POTENTIAL HEALTH EFFECTS

Inhalation	Causes irritation to mucous membranes and upper respiratory tract. Symptoms may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. May cause, pulmonary edema, a medical emergency.
Ingestion	Corrosive. Swallowing can cause severe burns of the mouth, throat, and stomach. Can cause sore throat, vomiting, diarrhea. May cause central nervous system depression. Symptoms may include lethargy, drowsiness, staggering and sleepiness.
Skin Contact	Corrosive. Symptoms of redness, pain, and severe burn can occur. May cause skin sensitization. May be absorbed through the skin with possible systemic effects.
Eye contact	Corrosive. Can cause blurred vision, redness, pain, severe tissue burns and eye damage.
Chronic Exposure	No information found
Aggravation of Pre-Existing Conditions	No information found

FIRST AID MEASURES

Eye Contact	Immediately flush with plenty of water at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.
Skin Contact	Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion	If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention.

FIRE FIGHTING MEASURES

Flash Point (test method)	31 °C (88 °F)
Auto-ignition Temperature	293 °C (559 °F)
Flammable limits in air % by volume	Lel: 1.5; uel: 9.4, Flammable Liquid and vapor! A dangerous fire hazard when exposed to heat, flame, or oxidizers
Explosion	Sealed containers may rupture when heated. Above the flash point, explosive vapor-air mixtures may be formed. Vapors can flow along surfaces of distant ignition source and flash back.
Fire Extinguishing Media	Water spray, dry chemical, alcohol foam or carbon dioxide. Do not use a solid stream of water, since the stream will scatter and spread the fire. Water spray may be used to keep fire exposed containers cool.
Special Information	In the event of a fire, wear protective clothing and NIOSH approved self-contained breathing apparatus with full-face piece operated in the pressure demand or other positive pressure mode. If exposure to burning Cyclohexylamine has occurred, there could be potential exposure to released oxides of nitrogen. Such patients should be monitored for the possible development of severe respiratory tract irritation with bronchospasm or pulmonary edema.

ACCIDENTAL RELEASE

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment *as specified in Personal Protection Section*. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush away from exposures. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

HANDLING AND STORAGE

Protect against physical damage. Store in a cool, dry, well ventilated area, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Isolate from incompatible substances. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product. Do not attempt to clean *empty containers since residue is difficult to remove*. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, sparks, flame, static electricity or other ignition: they may explode and cause injury or death.

EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Respirators (NIOSH Approved)	If the exposure limit is exceeded, a full face-piece respirator with organic vapor cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances when the exposure levels are not known, use a full - face piece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators for not protect workers in oxygen-deficient atmospheres.
Skin Protection	Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, <u>as appropriate</u> , to prevent skin contact.
Eye Protection	Use Chemical goggles and/or shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.
Ventilation System	A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, <i>Industrial Ventilation, A Manual of Recommended Practices</i> , most recent edition, for details.
Airborne Exposure Limits	ACGIH Threshold Limit Value (TLV): 10 ppm (TWA) A4 – Not classifiable as a human carcinogen

PHYSICAL AND CHEMICAL INFORMATION

Boiling Point	134.5 °C (273 °F)
Melting Point	-17.7 °C @ (0 °F)
% Volatiles by volume @ 21 °C (70 °C)	100
Vapor Density (Air=1)	3.4
Vapor Pressure (mm Hg) @ 30 ° (86 °F)	15
Appearance	Colorless to tan liquid
Odor	Fishy/amine odor
Solubility	complete
Specific Gravity @ 25/25 °C	0.87
pH	10.5

STABILITY AND REACTIVITY

Stability	Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products	May form carbon oxides, nitrogen oxides, hydrocarbons, amine vapors and ammonia when heated to decomposition.
Hazardous Polymerization	Will not occur.
Incompatibilities	Cyclohexylamine reacts vigorously with oxidizing materials. It is incompatible with acids, all copper alloys, lead, chlorine, hypochlorite, acid anhydrides, acid chlorides, halogenated compounds, and reactive organic compounds. It is corrosive to copper, aluminum, zinc and galvanized steel.
Conditions to avoid	Heat, flames, ignition sources and incompatibles.

TOXICOLOGICAL INFORMATION

Oral Rat LD₅₀	11 mg/Kg
Inhalation Rat LD₅₀	7500 mg/m ³
Skin Rabbit LD₅₀	320 ul/Kg; severe 50 mg/24H moderate – Investigated as a tumorifen, mutagen, reproductive effector.
Cancer Lists	None found

ENVIRONMENTAL DATA

Environmental Fate	When released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material may leach into the groundwater. When release unto the soil, this material may evaporate to a moderate extent. When released into water, this material is expected to quickly evaporate. This material is not expected to significantly bioaccumulate. When release into the air, this material is expected to be readily degraded by reaction with photochemically produces hydroxyl radicals.
Disposal Consideration	Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

TRANSPORT INFORMATION**Domestic (Land D.O.T)**

Proper Shipping Name	Cyclohexylamine
Hazard Class	8, 3
Un / NA	UN2357
Packing Group	II
Information reported for product/size	500 ml

International (Water I.M.O.)

Proper Shipping Name	Cyclohexylamine
Hazard Class	8, 3
Un / NA	UN2357
Packing Group	II
Information reported for product/size	500 ml

International (Air, I.C.A.O.)

Proper Shipping Name	Cyclohexylamine
Hazard Class	8, 3
Un / NA	UN2357
Packing Group	II
Information reported for product/size	500 ml

REGULATORY INFORMATION

Chemical Inventory Status

TSCA	Yes	
EC	Yes	
Japan	Yes	
Australia	Yes	
Korea	Yes	
Canada	DSL: Yes	NDSL: No
Phil.	Yes	

Federal, State & International Regulations

SARA 302	RQ: 1000	TPQ: 10000
SARA 313	List: No	Chemical Catalogue: No
CERCLA	1	
RCRA 261.33	No	
TSCA 8 (d)	No	
Chemical Weapons Convention	No	
TSCA 12 (b)	No	
CDTA	No	
SARA 311 / 312	Acute: Yes	Chronic: Yes Fire: Yes Pressure: No Reactivity: No
Australian Hazchem Code	3WE	
WHMIS	This MSDS has been prepared according the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.	

LABEL INFORMATION

NFPA Ratings	Health: 3 Flammability: 3 Reactivity: 0
Hazard Warning	DANGER! FLAMMABLE LIQUID AND VAPOR. CORROSIVE. CAUSES BURNS TO ANY AREA OF CONTACT. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES SEVERE IRRITATION TO RESPIRATORY TRACT. MAY CAUSE ALLERGIC SKIN REACTION. AFFECTS CENTRAL NERVOUS SYSTEM.
Precautions	Do not breathe vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Do not get in eyes, skin, and clothing. Keep away from heat, sparks, and flame.
First Aid	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Flush skin with soap or mild detergent and water for at least 15 minutes. Wash contaminated clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do not induce vomiting. Give large quantities of water. Never give anything by mouth to an unconscious person. If all cases get medical attention immediately.
Product use	Laboratory Reagent

For industrial use only by trained personnel only!!!

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Attention:

Refer to our Technical bulletin and MSDS regarding, safety, usage, application, and hazards. Consult your supervisor for additional information on Procedures and disposal of this product.