

Material Safety Data Sheet

Cyclohexylamine, p.a.

ACC# 74447

Section 1 - Chemical Product and Company Identification

MSDS Name: Cyclohexylamine, p.a.

Catalog Numbers: AC220350000, AC220350010

Synonyms: Aminocyclohexane; Aminohexahydrobenzene; Cyclohexanamine; Hexahydroaniline; Hexahydrobenzenamine; CHA.

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
108-91-8	Cyclohexylamine	100	203-629-0

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. Flash Point: 27 deg C.

Danger! Corrosive. Causes eye and skin burns. **Flammable liquid and vapor.** Harmful if swallowed, inhaled, or absorbed through the skin. May cause allergic skin reaction. May cause severe respiratory tract irritation with possible burns. May cause severe digestive tract irritation with possible burns. May cause central nervous system depression.

Target Organs: Central nervous system, eyes, skin, mucous membranes.

Potential Health Effects

Eye: Causes eye burns. May cause chemical conjunctivitis and corneal damage. May cause tearing, conjunctivitis and corneal edema when vapor is absorbed into the tissue of the eye.

Skin: Harmful if absorbed through the skin. Causes skin burns. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

Ingestion: Harmful if swallowed. Causes gastrointestinal tract burns. May cause systemic effects. Ingestion may cause death unless treated promptly.

Inhalation: Harmful if inhaled. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Aspiration may lead to pulmonary edema. Vapors may cause dizziness or suffocation. May cause systemic effects. May cause burning sensation in the chest. In cases of reported human cyclohexylamine vapor exposure, workers developed nausea, lightheadedness, apprehension and anxiety, drowsiness, slurred speech, vomiting and dilated pupils.

Chronic: Prolonged or repeated skin contact may cause dermatitis. Prolonged exposure may produce a narcotic effect.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

Skin: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.

Ingestion: If swallowed, do NOT induce vomiting. Get medical aid immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Flammable liquid and vapor. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Do NOT use straight streams of water. Solid streams of water may be ineffective and spread material.

Flash Point: 27 deg C (80.60 deg F)

Autoignition Temperature: 560 deg F (293.33 deg C)

Explosion Limits, Lower:1.5%

Upper: 9.4%

NFPA Rating: (estimated) Health: 3; Flammability: 3; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Use water spray to dilute spill to a non-flammable mixture. Clean up spills immediately, observing precautions in the Protective Equipment section. Scoop up with a nonsparking tool, then place into a suitable container for disposal. Use water spray to disperse the gas/vapor. Remove all sources of ignition. Provide ventilation. A vapor suppressing foam may be used to reduce vapors. Approach spill from upwind.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Wash hands before eating. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Do not ingest or inhale. Discard contaminated shoes. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Keep container closed when not in use. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from organic halogens. Flammables-area. Keep away from acids.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product. Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Cyclohexylamine	10 ppm TWA	10 ppm TWA; 40 mg/m ³ TWA	none listed

OSHA Vacated PELs: Cyclohexylamine: 10 ppm TWA; 40 mg/m³ TWA

Personal Protective Equipment

Eyes: Wear chemical goggles and a face shield.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: clear, colorless

Odor: Strong, fishy odor.

pH: alkaline

Vapor Pressure: 10 mm Hg @ 20 deg C

Vapor Density: 3.42 (Air=1)

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 134 deg C @ 760 mm Hg

Freezing/Melting Point: -17 deg C

Decomposition Temperature: Not available.

Solubility: Soluble.

Specific Gravity/Density: 0.8647 @ 25°C

Molecular Formula: C₆H₁₃N

Molecular Weight: 99.18

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Ignition sources, excess heat, Cyclohexylamine slowly corrodes copper, aluminum, zinc and galvanized surfaces..

Incompatibilities with Other Materials: Strong oxidizing agents, acids, chlorine, hypochlorite, halogenated agents.

Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, carbon dioxide, hydrocarbons, ammonia, amines.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 108-91-8: GX0700000

LD50/LC50:

CAS# 108-91-8:

Draize test, rabbit, eye: 50 ug/24H Severe;

Draize test, rabbit, eye: 100 uL/5M Severe;

Draize test, rabbit, skin: 2 mg/24H Severe;

Draize test, rabbit, skin: 500 uL Severe;
Inhalation, mouse: LC50 = 1070 mg/m³;
Inhalation, rat: LC50 = 7500 mg/m³;
Oral, mouse: LD50 = 224 mg/kg;
Oral, rat: LD50 = 11 mg/kg;
Skin, rabbit: LD50 = 320 uL/kg;

Carcinogenicity:

CAS# 108-91-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.

Teratogenicity: Large doses of cyclohexylamine were not teratogenic in mice, rats, rabbits, or monkeys, although growth impairment of the fetus was observed in association with maternal toxicity.

Reproductive Effects: Cyclohexylamine produces testicular toxicity in high doses (200-250 mg/kg/d) in rats and dogs, resulting in a decrease in spermatocyte numbers. A reduction in male fertility has not, however, been demonstrated with this agent.

Mutagenicity: See actual entry in RTECS for complete information.

Neurotoxicity: See actual entry in RTECS for complete information.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Rainbow trout: LC50 = 90 mg/L; 96 Hr.; Static Condition, 15 degrees C Fish: Rainbow trout: LC50 = 44 mg/L; 96 Hr.; 20.0 mg/L CaCO₃ Water flea Daphnia: EC50 = 80 mg/L; 24 Hr.; 70.0 mg/L CaCO₃ Algae: EC50 = 20 mg/L; 96 Hr.; Unspecified No data available.

Environmental: Using a recommended value for the log octanol-water partition coefficient of 1.49, a BCF of 7.99 was estimated. Based on this estimated BCF value, cyclohexylamine is not expected to bioconcentrate significantly in aquatic organisms.

Physical: Aliphatic amines do not absorb radiation above 250 nm so cyclohexylamine (CHA) would not be expected to directly photolyze. The principal loss mechanism for amines in the atmosphere is by reaction with photochemically produced hydroxyl radicals which results in a calculated half-life of 1.82 days.

Other: Using a recommended value for the log octanol-water partition coefficient of 1.49, a Koc value of 154 was estimated. Based on this Koc value and the high water solubility of cyclohexylamine, extensive leaching and very little adsorption to soil or sediments is expected.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	CYCLOHEXYLAMINE	CYCLOHEXYLAMINE
Hazard Class:	8	8(3)
UN Number:	UN2357	UN2357
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 108-91-8 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

CAS# 108-91-8: 10000 lb TPQ

SARA Codes

CAS # 108-91-8: immediate, delayed, fire.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 108-91-8 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

C

Risk Phrases:

R 10 Flammable.

R 21/22 Harmful in contact with skin and if swallowed.

R 34 Causes burns.

Safety Phrases:

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 108-91-8: 1

Canada - DSL/NDSL

CAS# 108-91-8 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B2, E, D1B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 108-91-8 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 6/01/1999

Revision #4 Date: 3/04/2004

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.