

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 12/20/2007

Reviewed on 01/24/2007

1 Identification of substance:**Product details:****Product name:** Cyclohexylamine**Stock number:**

A15851

L04232

Manufacturer/Supplier:

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Emergency Phone: (978) 521-6300

CHEMTREC: (800) 424-9300

Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department**Emergency information:**

During normal hours the Health, Safety and Environmental Department.

After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:**Chemical characterization:****Description: (CAS#)**

Cyclohexylamine (CAS# 108-91-8); 100%

Identification number(s):**EINECS Number:** 203-629-0**EU Number:** 612-050-00-6**3 Hazards identification****Hazard description:**

C Corrosive

Information pertaining to particular dangers for man and environment

R 10 Flammable.

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

R 34 Causes burns.

Classification system**HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	2
FIRE	1
REACTIVITY	1

Health (acute effects) = 2

Flammability = 1

Reactivity = 1

4 First aid measures**General information**

Immediately remove any clothing soiled by the product.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

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After skin contact

Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek immediate medical advice.

5 Fire fighting measures**Suitable extinguishing agents**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards caused by the material, its products of combustion or resulting gases:

In case of fire, the following can be released:

Nitrogen oxides (NO_x)

Carbon monoxide and carbon dioxide

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

Measures for environmental protection:

Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Keep away from ignition sources.

Additional information:

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Information for safe handling:**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Information about protection against explosions and fires:

Keep ignition sources away.

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

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Storage**Requirements to be met by storerooms and receptacles:**

No special requirements.

Information about storage in one common storage facility:

Do not store together with oxidizing and acidic materials.

Further information about storage conditions:

Store under dry inert gas.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:

Cyclohexylamine

	ppm
ACGIH TLV	10
Belgium TWA	10
Denmark TWA	10, skin
Finland TWA	10, skin
France TWA	10
Germany TWA	10
Hungary TWA	1 mg/m ³ , 2 mg/m ³ STEL
Ireland TWA	10, skin
Netherlands TWA	5, skin
Russia TWA	1 mg/m ³
Switzerland TWA	10, 20 STEL, skin
United Kingdom TWA	10

Components with limit values that require monitoring at the workplace:**Additional information:** No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Breathing equipment:

Use suitable respirator when high concentrations are present.

Protection of hands: Impervious gloves**Eye protection:**

Safety glasses

Full face protection

Body protection: Protective work clothing.**9 Physical and chemical properties:****General Information****Form:** Liquid

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Color:	Yellowish
Odor:	Ammonia-like
Change in condition	
Melting point/Melting range:	-17.7°C (0°F)
Boiling point/Boiling range:	134.5°C (274°F)
Sublimation temperature / start:	Not determined
Flash point:	27°C (81°F)
Ignition temperature:	265°C (509°F)
Decomposition temperature:	Not determined
Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures is possible.
Explosion limits:	
Lower:	1.6 Vol %
Upper:	9.4 Vol %
Vapor pressure at 20°C (68°F):	13 hPa (10 mm Hg)
Density at 20°C (68°F):	0.86 g/cm ³
Solubility in / Miscibility with Water at 20°C (68°F):	
	1000 g/l

10 Stability and reactivity**Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Materials to be avoided:

Oxidizing agents

Carbon dioxide

Acids

Dangerous reactions No dangerous reactions known

Dangerous products of decomposition:

Carbon monoxide and carbon dioxide

Nitrogen oxides

11 Toxicological information**Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	224 mg/kg (mus)
		11 mg/kg (rat)
Dermal	LD50	320 µg/kg (rbt)
Inhalative	LC50	1070 mg/m ³ (mus)
		7500 mg/m ³ (rat)
	LCLo/7H	1200 ppm/7H (gpg)
		150 ppm/7H (rbt)
Irritation of skin	severe	2 mg/24H (rbt)
Irritation of eyes	severe	50 µg/24H (rbt)

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Primary irritant effect:**on the skin:** Corrosive effect on skin and mucous membranes.**on the eye:** Strong corrosive effect.**Sensitization:** No sensitizing effects known.**Other information (about experimental toxicology):**

Reproductive effects have been observed on tests with laboratory animals.

Mutagenic effects have been observed on tests with laboratory animals.

Mutagenic effects have been observed on tests with bacteria.

Subacute to chronic toxicity:**Subacute to chronic toxicity:**

Along with the obvious corrosive nature of cyclohexylamine, exposure has been shown to cause convulsions and muscular contractions. The kidney, ureter, bladder and heart have been damaged in tests with animals.

Subacute to chronic toxicity:

Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus.

May cause skin burns or irritation depending on the severity of the exposure.

Additional toxicological information:

Danger through skin absorption.

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.

12 Ecological information:**General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

13 Disposal considerations**Product:****Recommendation**

Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:**Recommendation:** Disposal must be made according to official regulations.**Recommended cleansing agent:** Water, if necessary with cleansing agents.

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14 Transport information

DOT regulations:



Hazard class: 8
Identification number: UN2357
Packing group: II
Proper shipping name (technical name): CYCLOHEXYLAMINE
Label: 8+3

Land transport ADR/RID (cross-border)



ADR/RID class: 8 (CF1) Corrosive substances
Danger code (Kemler): 83
UN-Number: 2357
Packaging group: II
Description of goods: 2357 CYCLOHEXYLAMINE

Maritime transport IMDG:



IMDG Class: 8
UN Number: 2357
Label: 8+3
Packaging group: II
EMS Number: F-E, S-C
Proper shipping name: CYCLOHEXYLAMINE

Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class: 8
UN/ID Number: 2357
Label: 8+3
Packaging group: II
Proper shipping name: CYCLOHEXYLAMINE

15 Regulations

Product related hazard informations:

Hazard symbols:

C Corrosive

Risk phrases:

10 Flammable.

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

34 Causes burns.

Safety phrases:

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

45 In case of accident or if you feel unwell, seek medical advice immediately.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use:

For use only by technically qualified individuals.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

Contact: Paul V. Connolly