

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 03/27/2007

Reviewed on 03/27/2007

1 Identification of substance:**Product details:****Product name:** 1,6-Hexanediamine**Stock number:**

A14212

L07227

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#)**

1,6-Hexanediamine (CAS# 124-09-4): 100%

Identification number(s):**EINECS Number:** 204-679-6**EU Number:** 612-104-00-9**3 Hazards identification****Hazard description:**

C Corrosive

Information pertaining to particular dangers for man and environment

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

R 34 Causes burns.

R 37 Irritating to respiratory system.

Classification system**NFPA Ratings (scale 0-4)**

Health = 3

Fire = 2

Reactivity = 0

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

HEALTH	2
FIRE	2
REACTIVITY	1

Health (acute effects) = 2

Flammability = 2

Reactivity = 1

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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.

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:

Carbon monoxide and carbon dioxide

Nitrogen oxides (NOx)

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

Measures for environmental protection:

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

Measures for cleaning/collecting:

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

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.

Prevent formation of dust.

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Information about protection against explosions and fires:

Keep ignition sources away.

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

No special requirements.

Information about storage in one common storage facility:

Store away from oxidizing agents.

Do not store together with acids.

Further information about storage conditions:

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:

1,6-Hexanediamine

	mg/m ³
ACGIH TLV	2.3
Hungary TWA	1; 2-STEL (skin)
Ireland TWA	2.3
Netherlands TWA	2.3
Russia	0.1-STEL

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

Tightly sealed goggles

Full face protection

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

Form:	Solid
Color:	White
Odor:	Not determined

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Change in condition

Melting point/Melting range: 42-44°C (108-111°F)
Boiling point/Boiling range: 203-205°C (397-401°F)
Sublimation temperature / start: Not determined

Flash point: 81°C (178°F)

Ignition temperature: Not determined

Decomposition temperature: Not determined

Danger of explosion: Product does not present an explosion hazard.

Explosion limits:

Lower: Not determined

Upper: Not determined

Vapor pressure: Not determined

Density: Not determined

Solubility in / Miscibility with Water: Soluble

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:

Acids

Oxidizing agents

Acid chlorides

Acid anhydrides

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	750 mg/kg (rat)
Dermal	LD50	1110 mg/kg (rbt)
Inhalative	LC	>950 mg/m ³ /4H (rat)

Primary irritant effect:**on the skin:**

Corrosive effect on skin and mucous membranes.

Irritant to skin and mucous membranes.

on the eye:

Strong corrosive effect.

Irritating effect.

Sensitization: No sensitizing effects known.

Other information (about experimental toxicology):

Reproductive effects have been observed on tests with laboratory animals.

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

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Lungs, Thorax, or Respiration - other changes.

Lung, Thorax, or Respiration - structural or functional change in trachea or bronchi.

Nutritional and Gross Metabolic - weight loss or decreased weight gain.

Cardiac - other changes.

Vascular - other changes.

Blood - hemorrhage.

Related to Chronic Data - death.

Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).

Reproductive - Specific Developmental Abnormalities - hepatobiliary system.

Reproductive - Specific Developmental Abnormalities - urogenital system.

Reproductive - Effects on Newborn - growth statistics (e.g.%, reduced weight gain).

Reproductive - Fertility - litter size (e.g. # fetuses per litter; measured before birth).

Reproductive - Specific Developmental Abnormalities - musculoskeletal system.

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.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

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.

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

14 Transport information

DOT regulations:

Hazard class: 8
Identification number: UN3259
Packing group: III
Proper shipping name (technical name): AMINES, SOLID, CORROSIVE, N.O.S. (1,6-Hexanediamine)
Label: 8

Land transport ADR/RID (cross-border)

ADR/RID class: 8 (C8) Corrosive substances
Danger code (Kemler): 80
UN-Number: 3259
Packaging group: III
Description of goods: 3259 AMINES, SOLID, CORROSIVE, N.O.S. (1,6-Hexanediamine)

Maritime transport IMDG:

IMDG Class: 8
UN Number: 3259
Label: 8
Packaging group: III
Proper shipping name: AMINES, SOLID, CORROSIVE, N.O.S. (1,6-Hexanediamine)

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 8
UN/ID Number: 3259
Label: 8
Packaging group: III

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Proper shipping name: AMINES, SOLID, CORROSIVE, N.O.S. (1,6-Hexanediamine)**15 Regulations****Product related hazard informations:****Hazard symbols:**

C Corrosive

Risk phrases:

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

34 Causes burns.

37 Irritating to respiratory system.

Safety phrases:

22 Do not breathe dust.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

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