Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 12/10/2009 Reviewed on 12/09/2009

1 Identification of substance:

Product details:

Product name: Pyrrolidine

Stock number:
A14852
L02741

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#)
Pyrrolidine (CAS# 123-75-1)
Identification number(s):
EINECS Number: 204-648-7

3 Hazards identification

Hazard description:

C Corrosive
F Highly flammable

Information pertaining to particular dangers for man and environment
R 11 Highly flammable.
R 20/22 Harmful by inhalation and if swallowed.
R 34 Causes burns.
Classification system
HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)

HEALTH	2
FIRE	3
REACTIVITY	1

Health (acute effects) = 2
Flammability = 3
Reactivity = 1

GHS label elements

Danger

2.6/2 - Highly flammable liquid and vapour.

Danger

3.2/1B - Causes severe skin burns and eye damage.

Warning

3.1/4 - Harmful if swallowed.
3.1/4 - Harmful if inhaled.
Prevention:
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Wear protective gloves/protective clothing/eye protection/face protection.
Response:
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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IF exposed or concerned: Get medical advice/attention.

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 CO2, sand, extinguishing powder. Do not use water.
For safety reasons unsuitable extinguishing agents Water
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)
Possibly HCN
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:
Handle under dry protective gas.
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.

Storage
Requirements to be met by storerooms and receptacles: Store in a cool location.
Information about storage in one common storage facility:
Do not store together with acids.
Store away from oxidizing agents.
Store away from air.
Further information about storage conditions:
Store under dry inert gas.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

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This product is air sensitive.

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: Not required.
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:	Clear liquid
Color:	Colorless
Odor:	Amine-like
Change in condition	
Melting point/Melting range:	-63°C (-81°F)
Boiling point/Boiling range:	86-88°C (187-190°F)
Sublimation temperature / start:	Not determined
Flash point:	2°C (36°F)
Ignition temperature:	345°C (653°F)
Decomposition temperature:	Not determined
Explosion limits:	
Lower:	1.6 Vol %
Upper:	10.6 Vol %
Vapor pressure at 20°C (68°F):	65.17 hPa (49 mm Hg)
Density:	Not determined
Bulk density at 20°C (68°F):	2.45 kg/m³
Solubility in / Miscibility with	
Water:	Fully miscible
Alcohols:	Soluble
Organic solvents:	Soluble in ether. Soluble in chloroform.
pH-value (100 g/l) at 20°C (68°F):	12.9
Viscosity:	
dynamic at 20°C (68°F):	0.94 mPas

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
Air
Carbon dioxide
Dangerous reactions No dangerous reactions known

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Dangerous products of decomposition:
Carbon monoxide and carbon dioxide
Nitrogen oxides
Possibly HCN

11 Toxicological information

Acute toxicity:

LD/LC50 values that are relevant for classification:		
Oral	LD50	250 mg/kg (mam)
		450 mg/kg (mouse)
		300 mg/kg (rat)
	LDLo	250 mg/kg (guinea pig)
		250 mg/kg (rabbit)
Inhalative	LC50/2H	1300 mg/m3/2H (mouse)

Primary irritant effect:
on the skin: Corrosive effect on skin and mucous membranes.
on the eye: Strong corrosive effect.
Sensitization: No sensitizing effects known.
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.
Pyrrolidine is found in carrot leaves or tobacco and is used in fungicides, insecticides, pharmaceutical intermediates, inhibitors, and epoxy resin curing agents. It is considered corrosive and fairly toxic by ingestion or inhalation causing excitement, vascular changes, and convulsions.
Additional toxicological information:
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.
Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably reduced, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

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.

14 Transport information

DOT regulations:

Hazard class: 3
Identification number: UN1922

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Packing group:	II
Proper shipping name (technical name):	PYRROLIDINE
Label	3+8

Land transport ADR/RID (cross-border)

ADR/RID class:	3 (FC) Flammable liquids
Danger code (Kemler):	338
UN-Number:	1922
Packaging group:	II
Description of goods:	1922 PYRROLIDINE

Maritime transport IMDG:

IMDG Class:	3
UN Number:	1922
Label	3+8
Packaging group:	II
Marine pollutant:	No
Proper shipping name:	PYRROLIDINE

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class:	3
UN/ID Number:	1922
Label	3+8
Packaging group:	II
Proper shipping name:	PYRROLIDINE

UN "Model Regulation": UN1922, PYRROLIDINE, 3 (8), II

15 Regulations

Product related hazard informations:

Hazard symbols:
C Corrosive
F Highly flammable

Risk phrases:
11 Highly flammable.
20/22 Harmful by inhalation and if swallowed.
34 Causes burns.

Safety phrases:
16 Keep away from sources of ignition - No smoking.
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.

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

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user.

Department issuing MSDS: Health, Safety and Environmental Department.
Contact: Zachariah Holt
Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent