

Revision Date 28-Jun-2011

Revision Number 2

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Description: Pyrrolidine
Cat No. 132080000; 132080050; 132081000; 132082500
Synonyms Azacyclopentane

Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Laboratory chemicals
Uses advised against No Information available

Details of the supplier of the safety data sheet

Company

Acros Organics BVBA
 Janssen Pharmaceuticaaan 3a
 2440 Geel, Belgium

E-mail address begel.sdsdesk@thermofisher.com

Emergency Telephone Number

For information in the US, call: 001-800-ACROS-01
 For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99
 Emergency Number, US: 001-201-796-7100

CHEMTREC Phone Number, US: 001-800-424-9300
 CHEMTREC Phone Number, Europe: 001-703-527-3887

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Dusts and Mists	Category 4
Skin Corrosion / irritation	Category 1 A
Serious Eye Damage/Eye Irritation	Category 1
Flammable liquids.	Category 2

Classification according to EU Directives 67/548/EEC or 1999/45/EC

For the full text of the R phrases mentioned in this Section, see Section 16

Symbol(s) F - Highly flammable
 C - Corrosive
R -phrase(s) R11 - Highly flammable
 R35 - Causes severe burns
Risk Combination Phrases R20/22 - Harmful by inhalation and if swallowed

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2. HAZARDS IDENTIFICATION

Label Elements



Signal Word

Danger

Hazard Statements

H314 - Causes severe skin burns and eye damage

H332 - Harmful if inhaled

H302 - Harmful if swallowed

H225 - Highly flammable liquid and vapor

Precautionary Statements - EU (§28, 1272/2008)

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

P280 - Wear eye protection/ face protection

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing

P310 - Immediately call a POISON CENTER or doctor/ physician

P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

Other Hazards

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	EC No.	Weight %	CAS-No	Classification	GHSCLAS	REACH Reg. No.
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3. COMPOSITION/INFORMATION ON INGREDIENTS

Pyrrolidine 123-75-1	EEC No. 204- 648-7	>95	123-75-1	F; R11 Xn; R20/22 C; R35	Skin Corr. 1A (H314) Eye Dam. 1 (H318) Acute Tox. 4 (H302) Acute Tox. 4 (H332) Flam. Liq. 2 (H225)	-
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For the full text of the R phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES
Description of first aid measures
Eye Contact

Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact

Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Immediate medical attention is required.

Ingestion

Do not induce vomiting. Never give anything by mouth to an unconscious person. Drink plenty of water. Call a physician immediately. If possible drink milk afterwards.

Inhalation

Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Immediate medical attention is required.

Notes to Physician

Treat symptomatically

5. FIRE-FIGHTING MEASURES
Extinguishing media
Suitable Extinguishing Media

Water spray. Carbon dioxide (CO₂). Dry chemical. Use water spray to cool unopened containers. chemical foam.

Extinguishing media which must not be used for safety reasons

No information available.

Special hazards arising from the substance or mixture

Flammable. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

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6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation

Environmental precautions

Prevent further leakage or spillage if safe to do so

Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Do not breathe dust. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Use only in area provided with appropriate exhaust ventilation. Use explosion-proof equipment. Use only non-sparking tools.

Conditions for safe storage, including any incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition. Keep away from direct sunlight. Flammables area. Keep under nitrogen.

Specific End Uses

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure limits

Component

Pyrrolidine

European Union	The United Kingdom	France	Belgium	Spain

Derived No Effect Level (DNEL)

No information available.

Predicted No Effect Concentration (PNEC)

No information available.

Exposure controls

Engineering Measures

Use explosion-proof electrical/ventilating/lighting/equipment Ensure that eyewash stations and safety showers are close to the workstation location

Personal protective equipment

Eye Protection

Goggles

Hand Protection

Protective gloves

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**Skin and body protection
Respiratory Protection**

Wear appropriate protective gloves and clothing to prevent skin exposure
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Hygiene Measures
Environmental exposure controls**

Handle in accordance with good industrial hygiene and safety practice
No information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Colorless
odor	rotten-egg like
pH	12.9 1000 g/l aq.sol.
Vapor Pressure	65 mbar @ 20 °C
Vapor Density	2.45 (Air = 1.0)
Viscosity	0.94 mPa s at 20 °C
Boiling Point/Range	86 - 88°C / 186.8 - 190.4°F @ 760 mmHg
Melting Point/Range	-63°C / -81.4°F
Decomposition temperature	400 °C
Flash Point	3°C / 37.4°F
Autoignition Temperature	345°C / 653°F
Explosion Limits	
Lower	1.6 vol%
Upper	10.6 vol%
Water Solubility	Completely soluble
Specific Gravity	0.866
Molecular Formula	C4 H9 N
Molecular Weight	71.11

10. STABILITY AND REACTIVITY
Reactivity
Chemical Stability

Stable under normal conditions.

Possibility of Hazardous Reactions

Hazardous Polymerization Hazardous polymerization does not occur.
Hazardous Reactions . No information available.

Conditions to Avoid

Burning produces obnoxious and toxic fumes, Heat, flames and sparks, Keep away from open flames, hot surfaces and sources of ignition, Exposure to light, Incompatible products.

Incompatible Materials



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Acids, Strong oxidizing agents, Acid anhydrides, Acid chlorides, Metals, copper, Carbon dioxide (CO2).

Hazardous Decomposition Products

Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO2).

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Pyrrolidine	300 mg/kg (Rat) 430 mg/kg (Rat)		11.7 mg/L/4h (Rat)

Chronic Toxicity

Carcinogenicity There are no known carcinogenic chemicals in this product

Sensitization No information available.
 Mutagenic Effects Not mutagenic in AMES Test
 Reproductive Effects No information available.
 Developmental Effects No information available.
 Target Organs No information available.
 Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information
 Endocrine Disruptor Information None known

12. ECOLOGICAL INFORMATION

Toxicity

Ecotoxicity effects Do not flush into surface water or sanitary sewer system Do not allow material to contaminate ground water system Do not empty into drains

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Pyrrolidine		100-220 mg/L 96h		>100 mg/L 48h

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14. TRANSPORT INFORMATION
IATA

UN-No	1922
Hazard Class	3
Subsidiary Hazard Class	8
Packing Group	II
Proper Shipping Name	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.*

15. REGULATORY INFORMATION
Safety, health and environmental regulations/legislation specific for the substance or mixture
International Inventories

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	CHINA	AICS	KECL
Pyrrolidine	-	-		X	X	-	X	X	X	X	-

Legend
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory Lists

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

PICCS - Philippines Inventory of Chemicals and Chemical Substances

ENCS - Japan Existing and New Chemical Substances

CHINA - China Inventory of Existing Chemical Substances

AICS - Inventory of Chemical Substances

KECL - Existing and Evaluated Chemical Substances

Chemical Safety Assessment
16. OTHER INFORMATION
Text of R phrases mentioned in Section 2-3

R11 - Highly flammable

R35 - Causes severe burns

R20/22 - Harmful by inhalation and if swallowed

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Revision Summary (M)SDS sections updated, 2, 3, 11, 12.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

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16. OTHER INFORMATION**Disclaimer**

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet