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Material Safety Data Sheet

N-Octyl-2-Pyrrolidone

Section 1: Chemical Product and Company Identification

Molecular formula: C(12)H(23)NO

CAS Nr: 2687-94-7

EINECS: 403-700-8

Molecular weight: 197.3 g/mol

Chemical family: lactam

Synonyms: 1-Octylpyrrolidin-2-One; 1-Octyl-2-Pyrrolidinone; 1-Octyl-2-Pyrrolidone;
1-N-Octyl-2-Pyrrolidone; N-Octyl-Pyrrolidone; N-Octyl-2-Pyrrolidone;
1-Octyl-2-Pyrrolidinon; 2-Pyrrolidinone, 1-Octyl-

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Section 2: Composition and Information on Ingredients

Composition:

Name	CAS # %	By Weight
1-octylpyrrolidine-2-one	2687-94-7	≥ 99.0%

Toxicological Data on Ingredients: Not applicable.

Section 3: Hazards Identification

Emergency overview

DANGER: CORROSIVE LIQUID.

Corrosive to the skin, eyes and respiratory system.

CAUSES SEVERE BURNS.

RISK OF SERIOUS DAMAGE TO EYES.

INGESTION MAY CAUSE GASTRIC DISTURBANCES.

Avoid contact with the skin, eyes and clothing.

Avoid inhalation of mists/vapours.

Use with local exhaust ventilation.

Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator.

Wear NIOSH-certified chemical goggles.

Wear full face shield if splashing hazard exists.

Wear chemical resistant protective gloves.

Wear protective clothing.

Eye wash fountains and safety showers must be easily accessible.

Potential health effects

Primary routes of exposure

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:

Ingestion may cause corrosion of the gastrointestinal tract.

Irritation:

Corrosive to the skin, eyes and respiratory system. Skin contact may result in dermatitis and deepburns.

Repeated dose toxicity:

No known chronic effects.

Medical conditions aggravated by overexposure:

Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product.

See MSDS section 11 - Toxicological information.

Potential environmental effects

Aquatic toxicity:

Acutely toxic for aquatic organisms.

Depending on local conditions and existing concentrations, disturbances in the biodegradation process of activated sludge are possible.

Section 4: First Aid Measures

General advice:

Immediately remove contaminated clothing. If danger of loss of consciousness, place patient in recovery position and transport accordingly. Apply artificial respiration if necessary. First aid personnel should pay attention to their own safety.

If inhaled:

Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin:

Wash affected areas thoroughly with soap and water. Remove contaminated clothing. Seek medical attention.

If in eyes:

In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Seek medical attention.

If swallowed:

Rinse mouth and then drink plenty of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Section 5: Fire and Explosion Data

Flash point: 142 °C (DIN 51758)

Autoignition: 225 °C (DIN 51794)

Lower explosion limit: 1.1 %(V)

Upper explosion limit: 7.1 %(V)

Suitable extinguishing media:

water, dry extinguishing media, foam, carbon dioxide

Hazards during fire-fighting:

No particular hazards known.

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

If exposed to fire, keep containers cool by spraying with water.

NFPA Hazard codes:

Health : 3 Fire: 1 Reactivity: 0 Special:

Section 6: Accidental Release Measures

Personal precautions:

Wear appropriate respiratory protection. Use personal protective clothing. Ensure adequate ventilation.

Environmental precautions:

Do not empty into drains.

This product is not regulated by RCRA. This product is not regulated by CERCLA ('Superfund').

Cleanup:

Spills should be contained, solidified, and placed in suitable containers for disposal.

Section 7: Handling and Storage

Handling

General advice:

Ensure thorough ventilation of stores and work areas.

Protection against fire and explosion:

No explosion proofing necessary.

Storage

General advice:

Containers should be stored tightly sealed in a dry place.

No special precautions necessary.

Storage incompatibility:

General: Segregate from acids and acid forming substances.

Storage stability:

Storage temperature: 20 °C

Storage duration: 24 Months

May yellow after lengthy storage.

Section 8: Exposure Controls/Personal Protection

Advice on system design:

Provide local exhaust ventilation to control vapours/mists.

Personal protective equipment

Respiratory protection:

Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator. Do not exceed the maximum use concentration for the respirator facepiece/cartridge combination. For emergency or non-routine, high exposure situations, use a NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves, Consult with glove manufacturer for testing data.

Eye protection:

Tightly fitting safety goggles (chemical goggles) and face shield.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

Wear protective clothing as necessary to prevent contact.

Section 9: Physical and Chemical Properties

Form:	liquid
Odour:	amine-like
Colour:	colourless to yellow
pH value:	9.1 (100 g/l)
Melting point:	-26 °C
Boiling point:	306 - 307 °C
Vapour pressure:	0.0008 mbar (20 °C)
0.02 mbar (55 °C)	
Density:	0.92 g/cm3 (20 °C)
Relative density:	0.92 (20 °C)
Partitioning coefficient noctanol/ water (log Pow):	4.15
Viscosity, dynamic:	8 mPa.s (25 °C)
Solubility in water:	1 g/l (20 °C)
Solubility (qualitative):	soluble
solvent(s): organic	solvents

Section 10: Stability and Reactivity Data

Conditions to avoid:
No data available.

Substances to avoid:
acids, bases

Hazardous reactions:
No hazardous reactions if stored and handled as prescribed/indicated.
The product is chemically stable.

Decomposition products:
Hazardous decomposition products: carbon monoxide, carbon dioxide, nitrogen oxides
Corrosion to metals: No data available.

Section 11: Toxicological Information

Skin irritation:

Rabbit: Corrosive. (OECD Guideline 404)

Eye irritation :
As the product corrodes the skin, it can be expected to have a similar effect on the eyes also.

Sensitization:
Guinea pig maximization test/guinea pig: Skin sensitizing effects were not observed in animal studies.
Chronic toxicity

Other information:

No experimental evidence available for genotoxicity in vitro (Ames test negative).

Section 12: Ecological Information

Environmental fate and transport

Biodegradation:

Test method: OECD 301F; ISO 9408; 92/69/EEC, C.4-D, activated sludge, domestic

Method of analysis: BOD of the ThOD

Degree of elimination: 80 % (28 d)

Bioaccumulation:

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is possible.

Chemical oxygen demand (COD):

2,558 mg/g

Adsorbable organically-bound halogen (AOX):

This product contains no organically-bound halogen.

Environmental toxicity

Acute and prolonged toxicity to fish:

Directive 84/449/EEC, C.1 zebra fish/LC50 (96 h): > 12.3 - < 44.8 mg/l

The statement of the toxic effect relates to the analytically determined concentration.

Acute toxicity to aquatic invertebrates:

Daphnia magna/EC50 (48 h): 12.2 mg/l

Toxicity to aquatic plants:

green algae/EC50 (96 h): 6.2 mg/l

Literature data.

OECD Guideline 201 green algae/EC50 (72 h): 19.0 mg/l

The statement of the toxic effect relates to the analytically determined concentration.

Toxicity to microorganisms:

DIN 38412 Part 27 (draft) bacterium/EC50 (0.5 h): 460 mg/l

The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested.

OECD Guideline 209 activated sludge, domestic/EC20 (0.5 h): approx. 70 mg/l Nominal concentration.

Chronic toxicity to fish:

Brachydanio rerio No observed effect concentration (35 d) 0.91 mg/l

The statement of the toxic effect relates to the analytically determined concentration.

Chronic toxicity to aquatic invertebrates:

Daphnia magna No observed effect concentration (21 d) 2.5 mg/l

Other ecotoxicological advice:

Do not release untreated into natural waters.

Section 13: Disposal Considerations

Waste disposal of substance:

Do not discharge into waterways or sewer systems without proper authorization.

Dispose of in accordance with national, state and local regulations.

Container disposal:

Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

Section 14: Transport Information

Land transport

USDOT

Proper shipping name: CORROSIVE LIQUID, N.O.S. (contains 1-OCTYL-2-PYRROLIDINONE)

Hazard class: 8

ID number: UN 1760

Packing group: III

Sea transport

IMDG

Proper shipping name: CORROSIVE LIQUID, N.O.S. contains (1-OCTYL-2-PYRROLIDINONE)

Hazard class: 8

ID number: UN 1760

Packing group: III

Marine pollutant: NO

Air transport

IATA/ICAO

Proper shipping name: CORROSIVE LIQUID, N.O.S. contains (1-OCTYL-2-PYRROLIDINONE)

Hazard class: 8

ID number: UN 1760

Packing group: III

Section 15: Other Regulatory Information

Federal Regulations

Registration status:

TSCA, US released / listed

OSHA hazard category: Acute target organ effects reported, Corrosive to skin and/or eyes

SARA hazard categories (EPCRA 311/312): Acute

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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