

# 1-Dodecyl-2-pyrrolidinone

sc-224648



The Power to Question

## Material Safety Data Sheet

Hazard Alert Code  
Key:

EXTREME

HIGH

MODERATE

LOW

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

1-Dodecyl-2-pyrrolidinone

### STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

### NFPA



### SUPPLIER

Santa Cruz Biotechnology, Inc.  
2145 Delaware Avenue  
Santa Cruz, California 95060  
800.457.3801 or 831.457.3800

### EMERGENCY

ChemWatch  
Within the US & Canada: 877-715-9305  
Outside the US & Canada: +800 2436 2255  
(1-800-CHEMCALL) or call +613 9573 3112

### SYNONYMS

C16-H31-N-O, 1-lauryl-2-pyrrolidinone, N-dodecylpyrrolidinone, N-(n-dodecyl)pyrrolidone, 1-dodecyl-2-pyrrolidinone, "2-pyrrolidinone, 1-dodecyl-"

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability	1	
Toxicity	0	
Body Contact	3	
Reactivity	1	
Chronic	2	

Min/Nil=0  
Low=1  
Moderate=2  
High=3  
Extreme=4



### CANADIAN WHMIS SYMBOLS



## **EMERGENCY OVERVIEW**

### **RISK**

Causes burns.

Risk of serious damage to eyes.

May cause SENSITISATION by skin contact.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### **POTENTIAL HEALTH EFFECTS**

#### **ACUTE HEALTH EFFECTS**

##### **SWALLOWED**

■ The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.

■ Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g.

##### **EYE**

■ The material can produce chemical burns to the eye following direct contact.

Vapours or mists may be extremely irritating.

■ If applied to the eyes, this material causes severe eye damage.

##### **SKIN**

■ The material can produce chemical burns following direct contact with the skin.

■ The material may cause severe inflammation of the skin either following direct contact or after a delay of some time.

Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.

■ Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.

■ Open cuts, abraded or irritated skin should not be exposed to this material.

■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.

Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

■ Solution of material in moisture on the skin, or perspiration, may increase irritant effects.

##### **INHALED**

■ If inhaled, this material can irritate the throat and lungs of some persons.

■ Inhaling corrosive bases may irritate the respiratory tract.

Symptoms include cough, choking, pain and damage to the mucous membrane.

■ The material has NOT been classified by EC Directives or other classification systems as "harmful by inhalation".

This is because of the lack of corroborating animal or human evidence.

■ Inhalation of quantities of liquid mist may be extremely hazardous, even lethal due to spasm, extreme irritation of larynx and bronchi, chemical pneumonitis and pulmonary oedema.

##### **CHRONIC HEALTH EFFECTS**

■ Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Gastrointestinal disturbances may also occur. Chronic exposures may result in dermatitis and/or conjunctivitis.

Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population.

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

### Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
1-lauryl-2-pyrrolidone	2687-96-9	>98

### Section 4 - FIRST AID MEASURES

#### SWALLOWED

- For advice, contact a Poisons Information Centre or a doctor at once.
- Urgent hospital treatment is likely to be needed.
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

#### EYE

If this product comes in contact with the eyes

- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.

#### SKIN

If skin or hair contact occurs

- Immediately flush body and clothes with large amounts of water, using safety shower if available.
- Quickly remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
- Transport to hospital, or doctor.

#### INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema.
- Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).
- As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested.
- Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.

#### NOTES TO PHYSICIAN

■ Treat symptomatically.

For acute or short-term repeated exposures to highly alkaline materials

- Respiratory stress is uncommon but present occasionally because of soft tissue edema.
- Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.
- Oxygen is given as indicated.
- The presence of shock suggests perforation and mandates an intravenous line and fluid administration.

## Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG)	Not volatile.
Upper Explosive Limit (%)	Not available.
Specific Gravity (water=1)	0.90
Lower Explosive Limit (%)	Not available.

### EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

### FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

### GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- Combustible.
- Slight fire hazard when exposed to heat or flame.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).

Combustion products include carbon dioxide (CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), other pyrolysis products typical of burning organic material.

May emit corrosive fumes.

### FIRE INCOMPATIBILITY

- Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

## Section 6 - ACCIDENTAL RELEASE MEASURES

### MINOR SPILLS

Slippery when spilt.

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.

### MAJOR SPILLS

Slippery when spilt.

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.

## Section 7 - HANDLING AND STORAGE

### PROCEDURE FOR HANDLING

- DO NOT allow clothing wet with material to stay in contact with skin
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.

- Avoid contact with moisture.

#### RECOMMENDED STORAGE METHODS

- Lined metal can, lined metal pail/ can.
- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

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#### STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- DO NOT store near acids, or oxidising agents
- No smoking, naked lights, heat or ignition sources.

### Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

#### EXPOSURE CONTROLS

The following materials had no OELs on our records

- 1-lauryl-2-pyrrolidone CAS2687-96-9

#### PERSONAL PROTECTION



#### RESPIRATOR

- Type AK-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 1432000 & 1492001, ANSI Z88 or national equivalent)

#### EYE

- Chemical goggles.
- Full face shield may be required for supplementary but never for primary protection of eyes
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

#### HANDS/FEET

- Wear chemical protective gloves, eg. PVC.
- Wear safety footwear or safety gumboots, eg. Rubber
- When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.

#### NOTE

- The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
- Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

#### **OTHER**

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.

#### **ENGINEERING CONTROLS**

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

### **Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

#### **PHYSICAL PROPERTIES**

Does not mix with water.

Floats on water.

Corrosive.

Alkaline.

State	LIQUID	Molecular Weight	253.42
Melting Range (°F)	50	Viscosity	Not Available
Boiling Range (°F)	682	Solubility in water (g/L)	Immiscible
Flash Point (°F)	241(TCC).	pH (1% solution)	3.5-7.0 (10%).
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available.	Vapour Pressure (mmHG)	Not volatile.
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	0.90
Lower Explosive Limit (%)	Not available.	Relative Vapour Density (air=1)	Not Available
Volatile Component (%vol)	1.00 max.water	Evaporation Rate	Not available

#### **APPEARANCE**

Liquid with slight amine odor. Does not mix with water (solubility 0.2% approx.).

### **Section 10 - CHEMICAL STABILITY**

#### **CONDITIONS CONTRIBUTING TO INSTABILITY**

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

#### **STORAGE INCOMPATIBILITY**

- Avoid strong acids, acid chlorides, acid anhydrides and chloroformates.
- Avoid contact with copper, aluminium and their alloys.
- Avoid reaction with oxidising agents

For incompatible materials - refer to Section 7 - Handling and Storage.

## Section 11 - TOXICOLOGICAL INFORMATION

1-lauryl-2-pyrrolidone

### TOXICITY AND IRRITATION

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

■ Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.

The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.

## Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

This material and its container must be disposed of as hazardous waste.

Avoid release to the environment.

Refer to special instructions/ safety data sheets.

## Section 13 - DISPOSAL CONSIDERATIONS

### US EPA Waste Number & Descriptions

A. General Product Information

Corrosivity characteristic: use EPA hazardous waste number D002 (waste code C)

### Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Treat and neutralise at an approved treatment plant.
- Treatment should involve: Neutralisation with suitable dilute acid followed by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material).
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

## Section 14 - TRANSPORTATION INFORMATION



DOT:

Symbols:	None	Hazard class or Division:	8
Identification Numbers:	UN3267	PG:	III
Label Codes:	8	Special provisions:	IB3, T7, TP1, TP28
Packaging: Exceptions:	154	Packaging: Non-bulk:	203
Packaging: Exceptions:	154	Quantity limitations: Passenger aircraft/rail:	5 L
Quantity Limitations: Cargo aircraft only:	60 L	Vessel stowage: Location:	A
Vessel stowage: Other:	40, 52		

Hazardous materials descriptions and proper shipping names:

Corrosive liquid, basic, organic, n.o.s.

### Air Transport IATA:

ICAO/IATA Class:	8	ICAO/IATA Subrisk:	None
UN/ID Number:	3267	Packing Group:	III
Special provisions:	A3		
Cargo Only			
Packing Instructions:	856	Maximum Qty/Pack:	60 L
Passenger and Cargo		Passenger and Cargo	
Packing Instructions:	852	Maximum Qty/Pack:	5 L
Passenger and Cargo Limited Quantity		Passenger and Cargo Limited Quantity	
Packing Instructions:	Y841	Maximum Qty/Pack:	1 L

Shipping name: CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (contains 1-lauryl-2-pyrrolidone)

### Maritime Transport IMDG:

IMDG Class:	8	IMDG Subrisk:	None
UN Number:	3267	Packing Group:	III



EMS Number:	F-A,S-B	Special provisions:	223 274
Limited Quantities:	5 L	Marine Pollutant:	Yes
Shipping name:CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.(contains 1-lauryl-2-pyrrolidone)			

### Section 15 - REGULATORY INFORMATION

**1-lauryl-2-pyrrolidone (CAS: 2687-96-9) is found on the following regulatory lists;**

"Canada Domestic Substances List (DSL)", "International Fragrance Association (IFRA) Survey: Transparency List", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

### Section 16 - OTHER INFORMATION

#### LIMITED EVIDENCE

■ Cumulative effects may result following exposure\*.

\* (limited evidence).

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

[www.chemwatch.net/references](http://www.chemwatch.net/references).

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

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