

# 4-Octylaniline

sc-226768



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

4-Octylaniline

### 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

### SYNOMYS

C14-H23-N, CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>C<sub>6</sub>H<sub>4</sub>NH<sub>2</sub>

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

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

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



### CANADIAN WHMIS SYMBOLS



## EMERGENCY OVERVIEW

### RISK

May cause SENSITIZATION by skin contact.  
Irritating to eyes, respiratory system and skin.  
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

##### SWALLOWED

- Accidental ingestion of the material may be damaging to the health of the individual.
- The substance and/or its metabolites may bind to haemoglobin inhibiting normal uptake of oxygen.

This condition, known as "methaemoglobinemia", is a form of oxygen starvation (anoxia).

##### EYE

- This material can cause eye irritation and damage in some persons.

##### SKIN

- This material can cause inflammation of the skin on contact in some persons.
- The material may accentuate any pre-existing dermatitis condition.
- 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.

##### INHALED

- The material can cause respiratory irritation in some persons.  
The body's response to such irritation can cause further lung damage.
- Inhalation of vapors may cause drowsiness and dizziness.  
This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo.
- Inhalation hazard is increased at higher temperatures.
- Inhalation of high concentrations of gas/vapor causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.

#### CHRONIC HEALTH EFFECTS

- Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

Skin contact with the material is more likely to cause a sensitization 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.

Most arylamines are very toxic to the blood cell-forming system, and they produce methaemoglobinemia in humans. High doses congest the spleen and then cause formation of sarcomas (a type of malignant tumour). Single ring aromatic amines have relatively weak cancer-causing properties, and in animal testing are only harmful in large doses. The polycyclic aromatic amines show a wide range of cancer-causing activity, partly dependent on the position where benzene rings are substituted and the nature of the substituent. Most monocyclic arylamines cause deposition of iron-containing proteins in tissues and organs. They cause genetic toxicity and acute toxic effects, but it is not clear whether this is influenced by iron release during the formation of methaemoglobin or red blood cell turnover and the stress associated with these processes. In any case, toxic tissue changes and scarring occur before the development of tumours in the spleen, liver and kidneys.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
4-octylaniline	16245-79-7	>98

## Section 4 - FIRST AID MEASURES

#### SWALLOWED

- 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.

- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.

#### **EYE**

If this product comes in contact with the eyes

- Wash out immediately with fresh 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.
- Seek medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

#### **SKIN**

If skin contact occurs

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

#### **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.

#### **NOTES TO PHYSICIAN**

■ Symptoms of vasodilation and reflex tachycardia may present following organic nitrate overdose; most organic nitrates are extensively metabolised by hydrolysis to inorganic nitrites. Organic nitrates and nitrites are readily absorbed through the skin, lungs, mucosa and gastro-intestinal tract.

The toxicity of nitrates and nitrites result from their vasodilating properties and their propensity to form methaemoglobin.

- Most produce a peak effect within 30 minutes.
- Clinical signs of cyanosis appear before other symptoms because of the dark pigmentation of methaemoglobin.
- Initial attention should be directed towards improving oxygen delivery, with assisted ventilation, if necessary. Hyperbaric oxygen has not demonstrated conclusive benefits.
- Institute cardiac monitoring, especially in patients with coronary artery or pulmonary disease.

### **Section 5 - FIRE FIGHTING MEASURES**

Vapor Pressure (mmHG) Not available

Upper Explosive Limit (%) Not available

Specific Gravity (water=1) 0.898

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 water delivered as a fine spray to control fire and cool adjacent area.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 100 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.

#### **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

Environmental hazard - contain spillage.

- Clean up all spills immediately.
- Avoid breathing vapors 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

Environmental hazard - contain spillage.

#### Chemical Class amines, aryl

For release onto land recommended sorbents listed in order of priority.

SORBENT TYPE	RANK	APPLICATION	COLLECTION	LIMITATIONS
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Moderate hazard.

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- 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.
- Prevent concentration in hollows and sumps.

### RECOMMENDED STORAGE METHODS

- Metal can or drum
- Packaging as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

### 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.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

The following materials had no OELs on our records

- 4-octylaniline CAS16245-79-7

### PERSONAL PROTECTION



### RESPIRATOR

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

### EYE

- Safety glasses with side shields.
- Chemical goggles.
- 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

#### **NOTE**

- The material may produce skin sensitization 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
- Neoprene gloves

#### **OTHER**

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.

#### **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**

Liquid.

Does not mix with water.

Floats on water.

State	Liquid	Molecular Weight	205.35
Melting Range (°F)	Not available	Viscosity	Not Available
Boiling Range (°F)	347 (13 mm Hg)	Solubility in water (g/L)	Partly miscible
Flash Point (°F)	>230	pH (1% solution)	Not applicable.
Decomposition Temp (°F)	Not available.	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapor Pressure (mmHG)	Not available
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	0.898
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	>1
Volatile Component (%vol)	Not available	Evaporation Rate	Not available

#### **APPEARANCE**

Orange liquid; does not mix well with water.

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

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

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

#### **STORAGE INCOMPATIBILITY**

- Nitroaromatic and in particular polynitroaromatic compounds may present a severe explosion risk if subjected to shock or heated

rapidly and uncontrollably as in fire situations.

- In addition, when such compounds are heated more moderately with caustic alkalies, even when water or organic solvents are present, there is also a risk of violent decomposition or explosion - several industrial accidents, which probably were due to such interactions, have occurred; this potential hazard often remains unacknowledged.
- Aromatic nitro compounds range from slight to strong oxidizing agents. If mixed with reducing agents, including hydrides, sulfides and nitrides, they may begin a vigorous reaction that culminates in a detonation. The explosive tendencies of aromatic nitro compounds are increased by the presence of multiple nitro groups.
- A range of exothermic decomposition energies for nitro compounds is given as 220-410 kJ/mol. The relationship between energy of decomposition and processing hazards has been the subject of discussion; it is suggested that values of energy released per unit of mass, rather than on a molar basis (J/g) be used in the assessment. For example, in "open vessel processes" (with man-hole size openings, in an industrial setting), substances with exothermic decomposition energies below 500 J/g are unlikely to present a danger, whilst those in "closed vessel processes" (opening is a safety valve or bursting disk) present some danger where the decomposition energy exceeds 150 J/g.
- Many arylamines (aromatic amines such as aniline, N-ethylaniline, o-toluidine, xylidine etc. and their mixtures) are hypergolic (ignite spontaneously) with red fuming nitric acid. When the amines are dissolved in triethylamine, ignition occurs at -60 deg. C. or less.
- Various metal oxides and their salts may promote ignition of amine-red fuming nitric acid systems. Soluble materials such as copper(I) oxide, ammonium metavanadate are effective; insoluble materials such as copper(II) oxide, iron(II) oxide, potassium dichromate are also effective.
- Avoid oxidising agents, acids, acid chlorides, acid anhydrides, chloroformates.
- Avoid reaction with oxidising agents, bases and strong reducing agents.

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

## Section 11 - TOXICOLOGICAL INFORMATION

4-octylaniline

### TOXICITY AND IRRITATION

■ 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 sensitization potential the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitizing substance which is widely distributed can be a more important allergen than one with stronger sensitizing 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.

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.

No significant acute toxicological data identified in literature search.

## 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.

### Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
4-octylaniline	HIGH	No Data Available	LOW	MED

### GESAMP/EHS COMPOSITE LIST - GESAMP Hazard Profiles

Name / EHS	TRN	A1a	A1b	A1	A2	B1	B2	C1	C2	C3	D1	D2	D3	E1	E2	E3
Cas No																
/																
RTECS																
No																
Alkyl(C 8-	209 6	220 0	2		2	NR	3	NI	(0)	(0)	(2)	2	2		S	2
C9)phen ylamine , in aromati c																

solvent  
(LOA)  
/  
CAS:162  
45-79-  
7 /

Legend: EHS=EHS Number (EHS=GESAMP Working Group on the Evaluation of the Hazards of Harmful Substances Carried by Ships)  
NRT=Net Register Tonnage, A1a=Bioaccumulation log Pow, A1b=Bioaccumulation BCF, A1=Bioaccumulation, A2=Biodegradation, B1=Acute aquatic toxicity LC/ECIC50 (mg/l), B2=Chronic aquatic toxicity NOEC (mg/l), C1=Acute mammalian oral toxicity LD50 (mg/kg), C2=Acute mammalian dermal toxicity LD50 (mg/kg), C3=Acute mammalian inhalation toxicity LC50 (mg/kg), D1=Skin irritation & corrosion, D2=Eye irritation & corrosion, D3=Long-term health effects, E1=Tainting, E2=Physical effects on wildlife & benthic habitats, E3=Interference with coastal amenities, For column A2: R=Readily biodegradable, NR=Not readily biodegradable. For column D3: C=Carcinogen, M=Mutagenic, R=Reprotoxic, S=Sensitizing, A=Aspiration hazard, T=Target organ systemic toxicity, L=Lunginjury, N=Neurotoxic, I=Immunotoxic. For column E1: NT=Not tainting (tested), T=Tainting test positive. For column E2: Fp=Persistent floater, F=Floater, S=Sinking substances. The numerical scales start from 0 (no hazard), while higher numbers reflect increasing hazard. (GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships)

## Section 13 - DISPOSAL CONSIDERATIONS

### 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 or consult manufacturer for recycling options.
- Consult State Land Waste Authority for disposal.
- Bury or incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

## Section 14 - TRANSPORTATION INFORMATION



### DOT:

Symbols:	G	Hazard class or Division:	9
Identification Numbers:	UN3082	PG:	III
Label Codes:	9	Special provisions:	8, 146, 335, IB3, T4, TP1, TP29
Packaging: Exceptions:	155	Packaging: Non-bulk:	203

Packaging: Exceptions: 155	Quantity limitations: Passenger aircraft/rail:	No limit
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Quantity Limitations: Cargo aircraft only:	No limit	Vessel stowage: Location: A
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Vessel stowage: Other: None
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Hazardous materials descriptions and proper shipping names:

Environmentally hazardous substance, liquid, n.o.s

#### Air Transport IATA:

ICAO/IATA Class: 9	ICAO/IATA Subrisk:	None
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UN/ID Number: 3082	Packing Group:	III
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Special provisions: A97
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Cargo Only

Packing Instructions: 964	Maximum Qty/Pack:	450 L
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Passenger and Cargo	Passenger and Cargo
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Packing Instructions: 964	Maximum Qty/Pack:	450 L
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Passenger and Cargo Limited Quantity	Passenger and Cargo Limited Quantity
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Packing Instructions: Y964	Maximum Qty/Pack:	30 kg G
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Shipping name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(contains 4-octylaniline)

#### Maritime Transport IMDG:

IMDG Class: 9	IMDG Subrisk:	None
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UN Number: 3082	Packing Group:	III
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EMS Number: F-A,S-F	Special provisions:	274 335
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Limited Quantities: 5 L	Marine Pollutant:	Yes
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Shipping name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(contains 4-octylaniline)

## Section 15 - REGULATORY INFORMATION

### 4-octylaniline (CAS: 16245-79-7) is found on the following regulatory lists:

"GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements"

## Section 16 - OTHER INFORMATION

### LIMITED EVIDENCE

- Ingestion may produce health damage\*.
- Cumulative effects may result following exposure\*.
- Vapors potentially cause drowsiness and dizziness\*.

\* (limited evidence).

### Denmark Advisory list for selfclassification of dangerous substances

Substance	CAS	Suggested codes
4- octylaniline	16245- 79- 7	Carc3; R40 Xn; R22 R43 N; R50/53

■ 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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