

## Material Safety Data Sheet

Version 4.5

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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : (-)-Nicotine

Product Number : N3876

Brand : Sigma

Supplier : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

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2. HAZARDS IDENTIFICATION

## Emergency Overview

## OSHA Hazards

Target Organ Effect, Highly toxic by ingestion, Highly toxic by skin absorption, Teratogen

## Target Organs

Peripheral nervous system, Central nervous system, Skeletal muscle., Gastro-intestinal system

## GHS Classification

Acute toxicity, Oral (Category 2)

Acute toxicity, Dermal (Category 1)

Acute aquatic toxicity (Category 1)

## GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H300 + H310

Fatal if swallowed or in contact with skin

H400

Very toxic to aquatic life.

Precautionary statement(s)

P264

Wash hands thoroughly after handling.

P273

Avoid release to the environment.

P280

Wear protective gloves/ protective clothing.

P302 + P350

IF ON SKIN: Gently wash with plenty of soap and water.

P310

Immediately call a POISON CENTER or doctor/ physician.

## HMIS Classification

Health hazard: 4

Chronic Health Hazard: \*

Flammability: 1

Physical hazards: 0

**NFPA Rating**  
**Health hazard:** 4  
**Fire:** 1  
**Reactivity Hazard:** 0

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. May cause respiratory tract irritation.  
**Skin** May be fatal if absorbed through skin. May cause skin irritation.  
**Eyes** May cause eye irritation.  
**Ingestion** May be fatal if swallowed.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : L(-)-3-(N-Methyl)- $\alpha$ -pyrrolidylpyridin  
(-)-1-Methyl-2-(3-pyridyl)pyrrolidine

Formula : C<sub>10</sub>H<sub>14</sub>N<sub>2</sub>  
Molecular Weight : 162.23 g/mol

Component		Concentration
<b>(-)-Nicotine</b>		
CAS-No.	54-11-5	-
EC-No.	200-193-3	
Index-No.	614-001-00-4	

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**4. FIRST AID MEASURES**

**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**

Flush eyes with water as a precaution.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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**5. FIREFIGHTING MEASURES**

**Conditions of flammability**

Not flammable or combustible.

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NO<sub>x</sub>)

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**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions**

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

### Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Store under inert gas. Hygroscopic. Air and light sensitive.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
(-)-Nicotine	54-11-5	TWA	0.5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
Remarks	Skin designation			
		TWA	0.5 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
	Skin notation			
		TWA	0.5 mg/m3	USA. NIOSH Recommended Exposure Limits
	Potential for dermal absorption			
		TWA	0.5 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Central Nervous System impairment Gastrointestinal damage Cardiac impairment Danger of cutaneous absorption			

### Personal protective equipment

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

##### Full contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: > 480 min

Material tested:Butoject® (Aldrich Z677647, Size M)

##### Splash protection

Material: Nitrile rubber

Minimum layer thickness: 0.4 mm

Break through time: > 30 min

Material tested:Camatril® (Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

#### **Eye protection**

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### **Skin and body protection**

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### **Hygiene measures**

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

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## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### **Appearance**

Form	clear, liquid
Colour	dark brown

### **Safety data**

pH	10.2
Melting point/freezing point	Melting point/range: -79 °C (-110 °F)
Boiling point	247 °C (477 °F) at 993 hPa (745 mmHg)
Flash point	101 °C (214 °F) - closed cup
Ignition temperature	244 °C (471 °F)
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	0.051 hPa (0.038 mmHg) at 25 °C (77 °F)
Density	1.010 g/cm <sup>3</sup> at 20 °C (68 °F)
Water solubility	completely miscible
Partition coefficient: n-octanol/water	log Pow: 1.17
Solubility in other solvents	Ethanol 50 g/l
Relative vapour density	5.6 - (Air = 1.0)
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

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## **10. STABILITY AND REACTIVITY**

### **Chemical stability**

Stable under recommended storage conditions.

### **Possibility of hazardous reactions**

no data available

**Conditions to avoid**

no data available

**Materials to avoid**

Strong oxidizing agents

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

Other decomposition products - no data available

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**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Oral LD50**

LD50 Oral - rat - 50 mg/kg

**Inhalation LC50**

no data available

**Dermal LD50**

no data available

**Other information on acute toxicity**

no data available

**Skin corrosion/irritation**

no data available

**Serious eye damage/eye irritation**

no data available

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

no data available

**Teratogenicity**

Possible risk of congenital malformation in the fetus.

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. May cause respiratory tract irritation.
<b>Ingestion</b>	May be fatal if swallowed.
<b>Skin</b>	May be fatal if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	May cause eye irritation.

**Signs and Symptoms of Exposure**

prolonged or repeated exposure can cause: Vomiting, Diarrhoea, Convulsions, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**

no data available

**Additional Information**

RTECS: QS5250000

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## 12. ECOLOGICAL INFORMATION

**Toxicity**

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 4 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.24 mg/l - 48 h

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life.

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## 13. DISPOSAL CONSIDERATIONS

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

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## 14. TRANSPORT INFORMATION

**DOT (US)**

UN number: 1654	Class: 6.1	Packing group: II
Proper shipping name: Nicotine		
Reportable Quantity (RQ): 100 lbs		
Marine pollutant: No		
Poison Inhalation Hazard: No		

**IMDG**

UN number: 1654 Class: 6.1  
Proper shipping name: NICOTINE  
Marine pollutant: No

Packing group: II

EMS-No: F-A, S-A

**IATA**

UN number: 1654 Class: 6.1  
Proper shipping name: Nicotine

Packing group: II

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**15. REGULATORY INFORMATION**

**OSHA Hazards**

Target Organ Effect, Highly toxic by ingestion, Highly toxic by skin absorption, Teratogen

**SARA 302 Components**

The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
(-)-Nicotine	54-11-5	2008-11-03

**SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
(-)-Nicotine	54-11-5	2008-11-03

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

	CAS-No.	Revision Date
(-)-Nicotine	54-11-5	2008-11-03

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
(-)-Nicotine	54-11-5	2008-11-03

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
(-)-Nicotine	54-11-5	2008-11-03

**California Prop. 65 Components**

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	54-11-5	2007-09-28
(-)-Nicotine		

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**16. OTHER INFORMATION**

**Further information**

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