

## SAFETY DATA SHEET

Version 6.3  
Revision Date 06/06/2020  
Print Date 07/25/2021**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : (–)-Nicotine

Product Number : N3876

Brand : Sigma

Index-No. : 614-001-00-4

CAS-No. : 54-11-5

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

Identified uses : Laboratory chemicals, Synthesis of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765

Fax : +1 800 325-5052

**1.4 Emergency telephone number**

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Acute toxicity, Dermal (Category 2), H310  
Skin irritation (Category 2), H315  
Serious eye damage (Category 1), H318  
Short-term (acute) aquatic hazard (Category 2), H401  
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

|                            |  |
|----------------------------|--|
| Hazard statement(s)        |  |
| H310                       | Fatal in contact with skin.  |
| H315                       | Causes skin irritation.  |
| H318                       | Causes serious eye damage.   |
| H411                       | Toxic to aquatic life with long lasting effects.   |
| Precautionary statement(s) |  |
| P262                       | Do not get in eyes, on skin, or on clothing.   |
| P264                       | Wash skin thoroughly after handling.   |
| P270                       | Do not eat, drink or smoke when using this product.  |
| P273                       | Avoid release to the environment.  |
| P280                       | Wear protective gloves/ protective clothing/ eye protection/ face protection.  |
| P302 + P350 + P310         | IF ON SKIN: Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/ physician.  |
| P302 + P352                | IF ON SKIN: Wash with plenty of soap and water.  |
| P305 + P351 + P338 + P310  | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor. |
| P332 + P313                | If skin irritation occurs: Get medical advice/ attention.  |
| P362                       | Take off contaminated clothing and wash before reuse.  |
| P391                       | Collect spillage.  |
| P405                       | Store locked up.   |
| P501                       | Dispose of contents/ container to an approved waste disposal plant.  |

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

|                  |  |
|------------------|--|
| Synonyms         | : L(-)-3-(N-Methyl)- $\alpha$ -pyrrolidyl)pyridin<br>(-)-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   |
| CAS-No.          | : 54-11-5  |
| EC-No.           | : 200-193-3  |
| Index-No.        | : 614-001-00-4   |

| Component       | Classification  | Concentration |
|-----------------|---|---------------|
| <b>nicotine</b> | Acute Tox. 2; Skin Irrit. 2; Eye Dam. 1; Aquatic Acute 2; Aquatic Chronic 2; H310, H315, H318, H401, H411 | <= 100 %      |

For the full text of the H-Statements mentioned in this Section, see Section 16.

---

## SECTION 4: First aid measures

### 4.1 Description of 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

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

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

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

---

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

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

### 5.2 Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NO<sub>x</sub>)  
Combustible.

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

No data available

---

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.  
For personal protection see section 8.

### 6.2 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.

### 6.3 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.

### 6.4 Reference to other sections

For disposal see section 13.

---

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.  
For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

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.

Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

---

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Components with workplace control parameters

| Component | CAS-No. | Value  | Control parameters                 | Basis   |
|-----------|---------|--|------------------------------------|---|
| nicotine  | 54-11-5 | TWA  | 0.5 mg/m <sup>3</sup>              | USA. ACGIH Threshold Limit Values (TLV)   |
|           | Remarks | Central Nervous System impairment<br>Gastrointestinal damage<br>Cardiac impairment<br>Danger of cutaneous absorption |                                    |   |
|           |         | TWA  | 0.5 mg/m <sup>3</sup>              | USA. NIOSH Recommended Exposure Limits  |
|           |         | Potential for dermal absorption  |                                    |   |
|           |         | TWA  | 0.5 mg/m <sup>3</sup>              | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants        |
|           |         | Skin designation   |                                    |   |
|           |         | PEL  | 0.075 ppm<br>0.5 mg/m <sup>3</sup> | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
|           |         | Skin   |                                    |   |

### 8.2 Exposure controls

#### Appropriate engineering controls

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

## Personal protective equipment

### Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin 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® (KCL 897 / Aldrich Z677647, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.4 mm

Break through time: 30 min

Material tested: Camatril® (KCL 730 / 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 and safety officer 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.

### 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.

### 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).

### Control of environmental exposure

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

---

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |               |                                    |
|---------------|------------------------------------|
| a) Appearance | Form: liquid<br>Colour: colourless |
| b) Odour      | pyridine-like                      |

|   |   |
|---|---|
| c) Odour Threshold                              | No data available   |
| d) pH   | 10.2 at 8.1 g/l at 20 °C (68 °F)  |
| e) Melting point/freezing point                 | Melting point: -79 °C (-110 °F)   |
| f) Initial boiling point and boiling range      | 248.8 °C 479.8 °F at 1,013 hPa - OECD Test Guideline 103                  |
| g) Flash point                                  | 111 °C (232 °F) - Tested according to Annex V of Directive 67/548/EEC.    |
| h) Evaporation rate                             | No data available   |
| i) Flammability (solid, gas)                    | No data available   |
| j) Upper/lower flammability or explosive limits | Upper explosion limit: 4 %(V)<br>Lower explosion limit: 0.7 %(V)          |
| k) Vapour pressure                              | 0.06 hPa at 20 °C (68 °F) - OECD Test Guideline 104                       |
| l) Vapour density                               | No data available   |
| m) Relative density                             | 1.010 g/cm <sup>3</sup> at 20 °C (68 °F) -                                |
| n) Water solubility                             | soluble   |
| o) Partition coefficient: n-octanol/water       | log Pow: 1.17 - (experimental) - (Lit.), Bioaccumulation is not expected. |
| p) Auto-ignition temperature                    | No data available   |
| q) Decomposition temperature                    | ca.247 °C (ca.477 °F) -   |
| r) Viscosity                                    | No data available   |
| s) Explosive properties                         | No data available   |
| t) Oxidizing properties                         | No data available   |

## 9.2 Other safety information

|                              |                |
|------------------------------|----------------|
| Solubility in other solvents | Ethanol 50 g/l |
|------------------------------|----------------|

---

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

No data available

## 10.5 Incompatible materials

No data available

## 10.6 Hazardous decomposition products

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

Other decomposition products - No data available

In the event of fire: see section 5

---

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

(Regulation (EC) No 1272/2008, Annex VI)

Inhalation: (Regulation (EC) No 1272/2008, Annex VI)

LD50 Dermal - Rabbit - female - 70.4 mg/kg

(OECD Test Guideline 402)

Dermal: (Regulation (EC) No 1272/2008, Annex VI)

#### Skin corrosion/irritation

Skin - Rabbit

Result: Irritating to skin.

(OECD Test Guideline 402)

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irreversible effects on the eye

(OECD Test Guideline 405)

#### Respiratory or skin sensitisation

Sensitisation test: - Mouse

Result: Does not cause skin sensitisation.

(OECD Test Guideline 429)

#### Germ cell mutagenicity

In vitro mammalian cell gene mutation test

Chinese hamster fibroblasts

Result: negative

Micronucleus test

human lymphoblastoid cells

Result: negative

#### 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.

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 on OSHA's list of regulated carcinogens.

## Reproductive toxicity

## Specific target organ toxicity - single exposure

## Specific target organ toxicity - repeated exposure

## Aspiration hazard

## Additional Information

RTECS: QS5250000

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.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

---

## SECTION 12: Ecological information

### 12.1 Toxicity

|   |  |
|---|--|
| Toxicity to fish                                    | semi-static test NOEC - Oncorhynchus mykiss (rainbow trout) - 3 mg/l - 96 h<br>(OECD Test Guideline 203) |
| Toxicity to daphnia and other aquatic invertebrates | semi-static test EC50 - Daphnia magna (Water flea) - 3 mg/l - 48 h<br>(OECD Test Guideline 202)          |
| Toxicity to algae                                   | static test ErC50 - Desmodesmus subspicatus (green algae) - 37 mg/l - 72 h<br>(OECD Test Guideline 201)  |
|   | static test NOEC - Desmodesmus subspicatus (green algae) - 3.2 mg/l - 72 h<br>(OECD Test Guideline 201)  |

### 12.2 Persistence and degradability

|                  |   |
|------------------|---|
| Biodegradability | aerobic - Exposure time 28 d<br>Result: 71 % - Readily biodegradable.<br>(OECD Test Guideline 301B) |
|------------------|---|

### 12.3 Bioaccumulative potential

### 12.4 Mobility in soil

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

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

Toxic to aquatic life with long lasting effects.

Insecticide

Hazard for drinking water supplies.

Discharge into the environment must be avoided.



---

**SECTION 13: Disposal considerations****13.1 Waste treatment methods****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.

---

**SECTION 14: Transport information****DOT (US)**

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

**IMDG**

UN number: 1654 Class: 6.1 Packing group: II EMS-No: F-A, S-A  
Proper shipping name: NICOTINE  
Marine pollutant : yes

**IATA**

UN number: 1654 Class: 6.1 Packing group: II  
Proper shipping name: Nicotine

---

**SECTION 15: Regulatory information****SARA 302 Components**

|          |                    |                             |
|----------|--------------------|-----------------------------|
| nicotine | CAS-No.<br>54-11-5 | Revision Date<br>2008-11-03 |
|----------|--------------------|-----------------------------|

**SARA 313 Components**

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

|          |                    |                             |
|----------|--------------------|-----------------------------|
| nicotine | CAS-No.<br>54-11-5 | Revision Date<br>2008-11-03 |
|----------|--------------------|-----------------------------|

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

---

## **SECTION 16: Other information**

### **Further information**

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact [mlsbranding@sial.com](mailto:mlsbranding@sial.com).

Version: 6.3

Revision Date: 06/06/2020

Print Date: 07/25/2021