SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name: (±)-Nicotine

Product Number: N0267
Brand: Sigma
CAS-No.: 22083-74-5

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

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, Oral (Category 3), H301
Acute toxicity, Dermal (Category 2), H310
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)
H301  Toxic if swallowed.
H310  Fatal in contact with skin.
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.
P301 + P310 + P330  IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
                   Rinse mouth.
P302 + P350 + P310  IF ON SKIN: Gently wash with plenty of soap and water.
                   Immediately call a POISON CENTER or doctor/ physician.
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.

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

SECTION 3: Composition/information on ingredients

3.1 Substances
Formula:  C_{10}H_{14}N_{2}
Molecular weight:  162.23 g/mol
CAS-No.:  22083-74-5

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>(±)-Nicotine</td>
<td>Acute Tox. 3; Acute Tox. 2; Aquatic Acute 2;</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td></td>
<td>Aquatic Chronic 2; H301, H310, H401, H411</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.
In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

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
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Nitrogen oxides (NOx)
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.
6.3  **Methods and materials for containment and cleaning up**  
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4  **Reference to other sections**  
For disposal see section 13.

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**SECTION 7: Handling and storage**

7.1  **Precautions for safe handling**  
For precautions see section 2.2.

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

**Storage conditions**  
Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

**Storage class**  
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

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**SECTION 8: Exposure controls/personal protection**

8.1  **Control parameters**  

**Ingredients with workplace control parameters**  
Contains no substances with occupational exposure limit values.

8.2  **Exposure controls**  

**Appropriate engineering controls**  
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

**Personal protective equipment**  

**Eye/face protection**  
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

**Body Protection**  
protective clothing

**Respiratory protection**  
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

**Control of environmental exposure**  
Do not let product enter drains.
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance
   - Form: liquid
   - Color: dark yellow

b) Odor
   - No data available

c) Odor Threshold
   - No data available

d) pH
   - No data available

e) Melting point/freezing point
   - No data available

f) Initial boiling point and boiling range
   - No data available

g) Flash point
   - 101 °C (214 °F) - closed cup

h) Evaporation rate
   - No data available

i) Flammability (solid, gas)
   - No data available

j) Upper/lower flammability or explosive limits
   - No data available

k) Vapor pressure
   - No data available

l) Vapor density
   - No data available

m) Density
   - 1.02 g/cm³ at 25 °C (77 °F) - lit.
   - Relative density
   - No data available

n) Water solubility
   - No data available

o) Partition coefficient: n-octanol/water
   - No data available

p) Autoignition temperature
   - No data available

q) Decomposition temperature
   - No data available

r) Viscosity
   - No data available

s) Explosive properties
   - No data available

t) Oxidizing properties
   - none

9.2 Other safety information
   - No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
   - Forms explosive mixtures with air on intense heating.
   - A range from approx. 15 Kelvin below the flash point is to be rated as critical.
10.2 **Chemical stability**
The product is chemically stable under standard ambient conditions (room temperature).

10.3 **Possibility of hazardous reactions**
No data available

10.4 **Conditions to avoid**
Avoid moisture.
Strong heating.

10.5 **Incompatible materials**
Strong oxidizing agents

10.6 **Hazardous decomposition products**
In the event of fire: see section 5

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**SECTION 11: Toxicological information**

11.1 **Information on toxicological effects**

**Acute toxicity**
Acute toxicity estimate Oral - 100.1 mg/kg
(Expert judgment)
Inhalation: No data available
Acute toxicity estimate Dermal - 100.1 mg/kg
(Expert judgment)
No data available

**Skin corrosion/irritation**
Remarks: No data available

**Serious eye damage/eye irritation**
Remarks: No data available

**Respiratory or skin sensitization**
No data available

**Germ cell mutagenicity**
No data available

**Carcinogenicity**
IARC: No ingredient 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 ingredient 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**
May cause congenital malformation in the fetus.
No data available

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available
Aspiration hazard
No data available

11.2 Additional Information
RTECS: QS5257500
prolonged or repeated exposure can cause: Nausea, Dizziness, Headache, Vomiting, Diarrhea, Convulsions
Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 1654  Class: 6.1  Packing group: II
Proper shipping name: Nicotine
Reportable Quantity (RQ):
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
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

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
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 and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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