ChemicalBook

Chemical Safety Data Sheet MSDS / SDS

Nicotine

Revision Date:2026-05-31 Revision Number:1

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

Product identifier

Product name	: Nicotine
CBnumber	: CB5293753
CAS	: 54-11-5
EINECS Number	: 200-193-3
Synonyms	: Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-,L-Nicotine

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

Relevant identified uses	: For R&D use only. Not for medicinal, household or other use.
Uses advised against	: none

Company Identification

Company	: Chemicalbook
Address	: Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone	: 010-86108875

SECTION 2: Hazards identification

GHS Label elements, including precautionary statements

Symbol(GHS)

Signal word Danger

Precautionary statements

P262 Do not get in eyes, on skin, or on clothing.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continuerinsing.

Hazard statements

H315 Causes skin irritation

H318 Causes serious eye damage

H411 Toxic to aquatic life with long lasting effects

SECTION 3: Composition/information on ingredients

Substance

Product name	: Nicotine
Synonyms	: Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-,L-Nicotine
CAS	: 54-11-5
EC number	: 200-193-3
MF	: C10H14N2
MW	: 162.23

SECTION 4: First aid measures

Description of first aid measures

General information

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing

Do not induce vomiting; immediately call for medical help.

Information for doctor

Most important symptoms and effects, both acute and delayed

No further relevant information available.

Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing agents

CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture

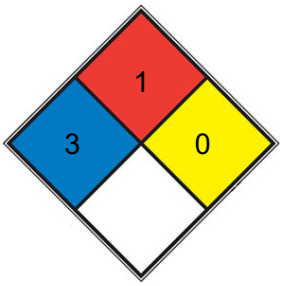
No further relevant information available.

Advice for firefighters

Protective equipment

Mouth respiratory protective device.

NFPA 704



HEALTH	3	Short exposure could cause serious temporary or moderate residual injury (e.g. liquid hydrogen, sulfuric acid, calcium hypochlorite, hexafluorosilicic acid)
FIRE	1	Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur. Includes some finely divided suspended solids that do not require heating before ignition can occur. Flash point at or above 93.3 °C (200 °F). (e.g. mineral oil, ammonia)
REACT	0	Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,N2)
SPEC. HAZ.		

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Not required.

Environmental precautions

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

Methods and material for containment and cleaning up

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to section 13.

Ensure adequate ventilation.

Protective Action Criteria for Chemicals

PAC-1

1.5 mg/m³

PAC-2

3.5 mg/m³

PAC-3

35 mg/m³

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

SECTION 7: Handling and storage

Handling

Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Information about protection against explosions and fires

Keep respiratory protective device available.

Conditions for safe storage, including any incompatibilities

Storage

Store in accordance with information listed on the product insert.

Requirements to be met by storerooms and receptacles

No special requirements.

Information about storage in one common storage facility

Not required.

Further information about storage conditions

Keep receptacle tightly sealed.

Specific end use(s)

No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical systems

No further data; see section 7.

Control parameters

Components with limit values that require monitoring at the workplace:

54-11-5 (−)-Nicotine	
PEL	Long-term value: 0.5 mg/m³ Skin
REL	Long-term value: 0.5 mg/m³ Skin
TLV	Long-term value: 0.5 mg/m³ Skin

Additional information

The lists that were valid during the creation were used as basis.

Exposure controls

Personal protective equipment

General protective and hygienic measures

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Breathing equipment

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

Protection of hands

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection

Goggles recommended during refilling.

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Appearance

Physical State

oil

Color

yellow

Odor

Characteristic

Structural Formula

$C_{10}H_{14}N_2$

Molecular Weight

162.2 g/mol

Odor Threshold

Not determined.

pH

10.2 (8.1g/l, H_2O, 20°C)

Change in condition

Melting point/Melting range

-79 °C (-110.2 °F)

Boiling point/Boiling range

247 °C (476.6 °F)

Flash point

95 °C (203 °F)

Flammability (solid,gas)

Not applicable.

Auto igniting

240 °C (464 °F)

Decomposition temperature

Not determined.

Ignition temperature

Not determined.

Danger of explosion

Product does not present an explosion hazard.

Explosion limits

Lower: 0.7 Vol %

Upper: 4 Vol %

Vapor Pressure at 20 °C (68 °F)

0.056 hPa (0 mm Hg)

Vapor Pressure at 50 °C (122 °F)

0.36 hPa (0.3 mm Hg)

Density at 20 °C (68 °F)

1.0092 g/cm³ (8.42177 lbs/gal)

Relative Density

1.010 g/mL at 20 °C(lit.)

Vapor Density

Not determined.

Evaporation Rate

Not determined.

Solubility in / Miscibility with

ethanol: 50 mg/mL

Water

Fully miscible.

Partition coefficient (n-octanol/water)

Not determined.

Viscosity

Dynamic

Not determined.

Kinematic

Not determined.

SOLUBILITY

DMF: 50 mg/ml; DMSO: 30 mg/ml; Ethanol: 50 mg/ml; PBS (pH 7.2): 1 mg/ml

Vapour pressure

0.06 hPa (20 °C)

No information available

Upper/lower flammability or explosive limits

0.7-4%(V)

Water solubility

MISCIBLE

SECTION 10: Stability and reactivity

Reactivity

No further relevant information available.

Chemical stability

Thermal decomposition / conditions to be avoided

No decomposition if used according to specifications.

Possibility of hazardous reactions

No dangerous reactions known.

Conditions to avoid

No further relevant information available.

Incompatible materials

No further relevant information available.

Hazardous decomposition products

No dangerous decomposition products known.

SECTION 11: Toxicological information

RTECS Number

QS5250000

Information on toxicological effects

Acute toxicity

LD/LC50 values that are relevant for classification:

Route	Endpoint	Value
Oral	LD50	5 mg/kg (ATE) ECHA
Dermal	LD50	70 mg/kg (ATE) ECHA
Inhalative	LC50/4 h	0.19 mg/l (ATE) ECHA

Primary irritant effect

on the skin

No irritant effect.

on the eye

No irritating effect.

Sensitization

No sensitizing effects known.

Additional toxicological information

Carcinogenic categories

IARC (International Agency for Research on Cancer)

Substance is not listed.

NTP (National Toxicology Program)

Substance is not listed.

OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

SECTION 12: Ecological information

Toxicity

Aquatic toxicity

No further relevant information available.

Persistence and degradability

No further relevant information available.

Behavior in environmental systems

Bioaccumulative potential

No further relevant information available.

Mobility in soil

No further relevant information available.

Ecotoxical effects

Remark

Toxic for fish

Additional ecological information

General notes

Water hazard class 3 (Self-assessment) extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Toxic for aquatic organisms

Results of PBT and vPvB assessment

PBT

Not applicable.

vPvB

Not applicable.

PBT:

Not applicable.

vPvB:

Not applicable.

Other adverse effects

No further relevant information available.

SECTION 13: Disposal considerations

Waste treatment methods

Recommendation

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Uncleaned packagings

Recommendation

Disposal must be made according to official regulations.

Recommended cleansing agent

Water, if necessary with cleansing agents.

SECTION 14: Transport information

UN-Number

DOT, IMDG, IATA UN1654

UN proper shipping name

DOT, IATA Nicotine

IMDG NICOTINE

Transport hazard class(es)

DOT

Class: 6.1 Toxic substances

Label: 6.1

IMDG

Class: 6.1 Toxic substances

Label: 6.1

IATA

Class: 6.1 Toxic substances

Label: 6.1

Packing group

DOT, IMDG, IATA II

Environmental hazards

Environmentally hazardous substance, liquid

Marine pollutant

Symbol (fish and tree)

Special precautions for user

Warning: Toxic substances

Hazard identification number (Kemler code)

60

EMS Number

F-A,S-A

Stowage Category

A

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

Transport/Additional information

DOT:

Quantity limitations

On passenger aircraft/rail: 5 L

On cargo aircraft only: 60 L

IMDG:

Limited quantities (LQ)

100 ml

Excepted quantities (EQ)

Code: E4

Maximum net quantity per inner packaging: 1 ml

Maximum net quantity per outer packaging: 500 ml

IATA:

Remarks

When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of

E1, E2, E4, or E5, this item meets the De Minimis

Quantities exemption, per IATA 2.6.10.

Therefore packaging does not have to be labeled as

Dangerous Goods/Excepted Quantity.

UN "Model Regulation"

UN 1654 NICOTINE, 6.1, II, ENVIRONMENTALLY

HAZARDOUS

SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

No further relevant information available.

Sara

Section 355 (extremely hazardous substances):	Substance is listed.
Section 313 (Specific toxic chemical listings):	Substance is listed.
TSCA (Toxic Substances Control Act):	ACTIVE
Hazardous Air Pollutants:	Substance is not listed.

Proposition 65

Chemicals known to cause cancer:	Substance is not listed.
Chemicals known to cause reproductive toxicity for females:	Substance is not listed.
Chemicals known to cause reproductive toxicity for males:	Substance is not listed.
Chemicals known to cause developmental toxicity:	Substance is listed.

Chemicals known to cause cancer

Substance is not listed.

Chemicals known to cause reproductive toxicity for females

Substance is not listed.

Chemicals known to cause reproductive toxicity for males

Substance is not listed.

Chemicals known to cause developmental toxicity

Substance is listed.

Carcinogenic categories

EPA (Environmental Protection Agency):	Substance is not listed.

TLV (Threshold Limit Value)

Substance is not listed.

NIOSH-Ca (National Institute for Occupational Safety and Health)

Substance is not listed.

Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Abbreviations and acronyms

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute Toxicity - Oral 2: Acute toxicity – Category 2

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2