

Chemical Safety Data Sheet MSDS / SDS

2-methylpyridine SDS

Revision Date:2024-04-25 Revision Number:1

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

Product name: 2-methylpyridine

CAS: 109-06-8

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.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification**Classification of the substance or mixture**

Flammable liquids, Category 3

Acute toxicity - Category 4, Oral

Acute toxicity - Category 4, Dermal
Eye irritation, Category 2
Acute toxicity - Category 4, Inhalation
Specific target organ toxicity - single exposure, Category 3

GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

Hazard statement(s)

H226 Flammable liquid and vapour
H302 Harmful if swallowed
H312 Harmful in contact with skin
H319 Causes serious eye irritation
H332 Harmful if inhaled
H335 May cause respiratory irritation

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.

Response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].
P370+P378 In case of fire: Use ... to extinguish.
P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P317 Get medical help.
P321 Specific treatment (see ... on this label).
P362+P364 Take off contaminated clothing and wash it before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P319 Get medical help if you feel unwell.

Storage

P403+P235 Store in a well-ventilated place. Keep cool.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	2-methylpyridine
Common names and synonyms:	2-methylpyridine
CAS number:	109-06-8
EC number:	203-643-7
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Do NOT induce vomiting. Refer for medical attention .

Most important symptoms/effects, acute and delayed

INHALATION, INGESTION OR SKIN ABSORPTION: Narcosis, headache, nausea, giddiness, vomiting. EYES: Severe irritation. SKIN: Causes burns. INGESTION: Irritation and gastric upset. (USCG, 1999)

Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Aromatic hydrocarbons and related compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

To fight fire, use carbon dioxide, dry chemical.

Specific hazards arising from the chemical

Special Hazards of Combustion Products: When heated to decomposition, emits toxic fumes of cyanide. Behavior in Fire: Heat may cause pressure buildup in closed containers. Use water to keep container cool. (USCG, 1999)

Special protective actions for fire-fighters

Use water spray, powder, alcohol-resistant foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit including self-contained breathing apparatus. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Environmental precautions

Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Personal protection: chemical protection suit including self-contained breathing apparatus.

Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames, NO sparks and NO smoking. Above 26°C use a closed system, ventilation and explosion-proof electrical equipment. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Fireproof. Separated from oxidants.

SECTION 8: Exposure controls/personal protection

Control parameters**Occupational Exposure limit values**

no data available

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)**Eye/face protection**

Wear face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Liquid.
Colour:	Colorless.
Odour:	Strong unpleasant odor
Melting point/freezing point:	-70 °C. Atm. press.:1.013 hPa.

Boiling point or initial boiling point and boiling range:	> 128 - < 129 °C. Atm. press.:760 mm Hg.
Flammability:	Flammable. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	39 °C. Atm. press.:101.3 kPa.
Auto-ignition temperature:	538 °C. Atm. press.:760 mm Hg. Remarks:Assume standard conditions.
Decomposition temperature:	no data available
pH:	/SRP/: Weak base
Kinematic viscosity:	no data available
Solubility:	greater than or equal to 100 mg/mL at 68° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Pow = 1.11. Temperature:20 °C. Remarks:Assume standard temperature and pressure.
Vapour pressure:	8 mm Hg. Temperature:20 °C. Remarks:Equivalent to 10.66 hPa.
Density and/or relative density:	0.944 g/cm ³ . Temperature:20 °C.
Relative vapour density:	3.2 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on burning. This produces toxic fumes including nitrogen oxides. Reacts with oxidants. Attacks copper and its alloys.

Chemical stability

2-Methylpyridine is highly stable in aqueous solns .

Possibility of hazardous reactions

Moderate fire risk 2-METHYLPYRIDINE is hygroscopic. This compound reacts with hydrogen peroxide, iron(II) sulfate, sulfuric acid, oxidizing agents, acids, and metals. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

Mixtures with hydrogen peroxide + iron(II)sulfate + sulfuric acid may ignite & then explode.

Hazardous decomposition products

When heated to decomp, emits toxic fumes of nitrogen oxides.

SECTION 11: Toxicological information**Acute toxicity**

Oral: LD50 - rat (male) - > 950 mg/kg bw. Remarks: 950 mg/kg- highest dose tested.

Inhalation: LC50 - rat (male/female) - > 9.4 mg/L air (analytical).

Dermal: LD50 - rabbit (male/female) - > 200 - < 316 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is corrosive to the eyes and skin. The vapour is irritating to the respiratory tract. Exposure at high levels could cause unconsciousness.

STOT-repeated exposure

The substance defats the skin, which may cause dryness or cracking.

Aspiration hazard

A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: EC50 - Danio rerio (previous name: Brachydanio rerio) - > 560 - < 1 000 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 320 mg/L - 48 h.

Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - 320 mg/L - 72 h.

Toxicity to microorganisms: NOEC - activated sludge - 20 mg/L - 28 d.

Persistence and degradability

AEROBIC: 2-Methylpyridine was reported as readily biodegradable in the MITI test(1). In an aerobic screening test using an enrichment culture obtained from soil as an inoculum, 100% degradation was obtained in 14 to 32 days(2). When this test was repeated under anaerobic conditions, degradation was much slower, requiring >97 days for complete biodegradation(2). Only 2.7% of the added 2-methylpyridine (initial concentration of 2 umoles/g) remained after 16 days following incubation in a silt loam soil(3). Complete biodegradation of 2-methylpyridine, initially added at 4 mg/L, was reported in aerobic groundwater incubated at 15 deg C for 4 days(4). In an aerobic column study where subsurface sediment was leached with contaminated groundwater, 65% of the initially applied 2-methylpyridine was removed after 5 weeks of operation(5). Complete biodegradation of 2-methylpyridine was observed in 24 days following incubation in a defined medium inoculated with soil(6). Contaminated groundwater, from the American Creosote Works Superfund site in Pensacola, FL, was incubated with 2-methylpyridine; 33, 33, 33, 66, and 100% degradation was reported after incubation for 1, 3, 5, 8, and 14 days, respectively(7). 2-Methylpyridine, present at 100 mg/L, reached 0.1% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(8).

Bioaccumulative potential

An estimated BCF of 3 was calculated for 2-methylpyridine(SRC), using a log Kow of 1.11(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC). Low bioconcentration was reported for tests using carp (*Cyprinus carpio*)(4); however, actual BCF values were not available(SRC).

Mobility in soil

The sorption behavior of 2-methylpyridine was studied in soil column tests using 5 Eurosoil reference soils having organic carbon content ranging from 0.33-1.85% and pH ranging from 5.2-8.6(1); measured Kd values ranging from 0.08 to 6.52(1) correspond to calculated Koc values of 4, 38, 70, 100 and 215(SRC); the lowest Koc value of 4 corresponds to Eurosoil 2 which had the highest pH value(8.6). The pKa of 2-methylpyridine is 5.96(2), indicating that this compound will exist partially in cation form in the environment and cations generally adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts(3). In the Eurosoil column tests(1), lowest adsorption occurred when 2-methylpyridine was in non-ionized form(1). Sorption of 2-methylpyridine to soil is primarily controlled by cation exchange and surface complex formation(1,4). According to a classification scheme(5), the Koc values suggest that 2-methylpyridine is expected to have very high to moderate mobility in soil.

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN2313 (For reference only, please check.)

IMDG: UN2313 (For reference only, please check.)

IATA: UN2313 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: PICOLINES (For reference only, please check.)

IMDG: PICOLINES (For reference only, please check.)

IATA: PICOLINES (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.)

IMDG: 3 (For reference only, please check.)

IATA: 3 (For reference only, please check.)

Packing group, if applicable

ADR/RID: III (For reference only, please check.)

IMDG: III (For reference only, please check.)

IATA: III (For reference only, please check.)

Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:
http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website:
<http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

See ICSCs 0802 and 0803.

Disclaimer: 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. We as supplier shall not be held liable for any