

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
 	Flammable material; avoid heat and sources of ignition. Irritating to skin, eyes, and the respiratory system. Harmful compound, minimize exposure. Readily absorbed through skin.	   

Section I. Chemical Product and Company Identification

Chemical Name	2-Picoline (α-)		
Catalog Number	P0415	Supplier	TCl America 9211 N. Harborage St. Portland OR 1-800-423-8616
Synonym	2-Methylpyridine (α -)		
Chemical Formula	C ₆ H ₇ N		
CAS Number	109-06-8	In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
2-Picoline (α -)	109-06-8	Min. 98.0 (GC)	Not available.	Rat LD ₅₀ (oral) 790 mg/kg Rat LD ₅₀ (intraperitoneal) 200 mg/kg Rabbit LD ₅₀ (dermal) 410 uL/kg Mouse LD ₅₀ (oral) 674 mg/kg Mouse LC ₅₀ (inhalation) 9000 mg/m ³

Section III. Hazards Identification

Acute Health Effects	Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Readily absorbed through skin. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY : Not available. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	535 °C (995 °F)
Flash Points	25 °C (77 °F).	Flammable Limits	LOWER: 1.4% UPPER: 8.6%
Combustion Products	These products are toxic carbon oxides (CO, CO ₂), nitrogen oxides (NO _x).		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		

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Emergency phone number (800) 424-9300

Fire Fighting Media
and Instructions

Flammable liquid.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. Consult with local fire authorities before attempting large scale fire-fighting operations.

Section VI. Accidental Release MeasuresSpill Cleanup
Instructions

Flammable material. Irritating material. Harmful material. Material readily absorbed through skin.
Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and StorageHandling and Storage
Information

FLAMMABLE. IRRITANT. HARMFUL. READILY ABSORBED THROUGH SKIN. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. Do not breathe gas/fumes/ vapor/spray.
Always store away from incompatible compounds such as oxidizing agents.

Section VIII. Exposure Controls/Personal Protection

Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.

Personal Protection

Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.



Exposure Limits

Not available.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Clear, colorless.)	Solubility	Miscible with water, alcohol, ether. Very soluble in acetone.
Specific Gravity	0.95 (water=1)		
Molecular Weight	93.13	Partition Coefficient	Log K_{ow} : 1.11
Boiling Point	127 to 129°C (260.6 to 264.2°F)	Vapor Pressure	1.2 kPa (@ 20°C)
Melting Point	-70°C (-94°F)	Vapor Density	3.2 (Air = 1)
Refractive Index	1.497 - 1.503	Volatility	Not available.
Critical Temperature	Not available.	Odor	Unpleasant. (Strong.)
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with oxidizing agents.

Section XI. Toxicological Information

RTECS Number	TJ4900000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LD ₅₀ (oral) 790 mg/kg Rat LD ₅₀ (intraperitoneal) 200 mg/kg Rabbit LD ₅₀ (dermal) 410 uL/kg Mouse LD ₅₀ (oral) 674 mg/kg Mouse LC ₅₀ (inhalation) 9000 mg/m ³
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY : Not available. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.
Acute Toxic Effects	Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Readily absorbed through skin. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

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Section XII. Ecological Information

Ecotoxicity Not available.

Environmental Fate 2-Methylpyridine's production and use as chemical intermediate and as a solvent may result in its release to the environment through various waste streams. If released to air, a vapor pressure of 11.2 mm Hg at 25 deg C indicates 2-methylpyridine will exist solely as a vapor in the ambient atmosphere. Vapor-phase 2-methylpyridine will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 15 days. If released to soil, 2-methylpyridine is expected to have high mobility based upon an estimated Koc of 96. 2-Methylpyridine has a pKa of 6.00, which indicates that this compound will partially exist in the protonated form in moist acidic soils, and cations adsorb more strongly to soils than neutral molecules. Therefore, the mobility of 2-methylpyridine is expected to be much lower in acidic soils than in neutral or alkaline soils. Volatilization of the neutral species from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 9.96×10^{-6} atm-cu m/mole. However, in moist acidic soils, where the protonated form is the dominant species, volatilization will not be important because cations do not volatilize. 2-Methylpyridine may volatilize from dry soil surfaces based upon its vapor pressure. This compound is expected to biodegrade fairly rapidly in aerobic environments but may be resistant to biodegradation under anaerobic conditions. Only 2.7% of the initially added 2-methylpyridine remained following 16 days incubation in a silt loam soil. In aerobic versus anaerobic surface soil suspensions, 2-methylpyridine was completely biodegraded in 2 weeks and only 10% biodegraded in 3 months, respectively. If released into water, 2-methylpyridine is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. Volatilization of the neutral species from water surfaces is expected to be an important fate process based upon this compound's Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 4 and 30 days, respectively. In acidic waters where the protonated form is the dominant species, volatilization will not be an important fate process since cations do not volatilize. 2-Methylpyridine has been shown to biodegrade rapidly in aerobic groundwater with complete biodegradation observed by day 4. In anaerobic estuarine sediment, 2-methylpyridine was not biodegraded over a 100-day period. An estimated BCF of 4 suggests the potential for bioconcentration in aquatic organisms is low. Occupational exposure to 2-methylpyridine may occur through inhalation and dermal contact with this compound at workplaces where 2-methylpyridine is produced or used. Monitoring data indicate that the general population may be exposed to 2-methylpyridine via inhalation of ambient air, ingestion of food and drinking water, and dermal contact with this compound and other products containing 2-methylpyridine. Since 2-methylpyridine has been identified as a component of cigarette smoke, people who smoke or inhale second-hand smoke may be exposed to higher levels of 2-methylpyridine than the general population.

Section XIII. Disposal Considerations

Waste Disposal Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

Section XIV. Transport Information

DOT Classification DOT Class 3: Flammable liquid

PIN Number UN2313

Proper Shipping Name Picolines

Packing Group (PG) III

DOT Pictograms

**Section XV. Other Regulatory Information and Pictograms**TSCA Chemical Inventory (EPA) This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.

WHMIS Classification (Canada) On DSL

EINECS Number (EEC) 203-643-7

EEC Risk Statements R10- Flammable.
R18- In use, may form flammable/explosive vapor-air mixture.
R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.
R36/37/38- Irritating to eyes, respiratory system and skin.

Japanese Regulatory Data ENCS No. 5-711

Section XVI. Other Information

Version 1.0
Validated on 7/26/2006.
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Notice to Reader**Continued on Next Page****Emergency phone number (800) 424-9300**

TCl laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.