

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Irritating to skin, eyes, and the respiratory system. Combustible material; avoid heat and sources of ignition. Hygroscopic -- keep container tightly sealed. Store under nitrogen.	

Section I. Chemical Product and Company Identification

Chemical Name	1-Methyl-2-pyrrolidone		
Catalog Number	M0418	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	N-Methylpyrrolidinone		
Chemical Formula	C ₅ H ₉ NO		
CAS Number	872-50-4	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
1-Methyl-2-pyrrolidone	872-50-4	Min. 99.0 (GC)	Not available.	Rat LD ₅₀ (oral) 3914mg/kg Rat LD ₅₀ (intravenous) 805mg/kg Rat LD ₅₀ (intraperitoneal) 2472mg/kg

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. 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. There is no known effect from chronic exposure to this product. 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. IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. COLD water may be used. DO NOT use an eye ointment. Flush eyes with running water for a minimum of 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention. Treat symptomatically and supportively.
Skin Contact	If the chemical gets spilled on a clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical touches the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. COLD water may be used. Cover the irritated skin with an emollient. Seek medical attention. Treat symptomatically and supportively. Wash any contaminated clothing before reusing.
Inhalation	If the victim is not breathing, perform artificial respiration. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention. Treat symptomatically and supportively.
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, administer artificial respiration. 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. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively.

Section V. Fire and Explosion Data

Flammability	Combustible.	Auto-Ignition	269°C (516.2°F)
Flash Points	86°C (186.8°F).	Flammable Limits	LOWER: 1.3% UPPER: 9.5%
Combustion Products	These products are toxic carbon oxides (CO, CO ₂), nitrogen oxides (NO, NO ₂).		
Fire Hazards	No specific information is available regarding the flammability of this compound in the presence of various materials.		

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Emergency phone number (800) 424-9300

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.
No additional information is available regarding the risks of explosion.

Fire Fighting Media and Instructions SMALL FIRE: Use DRY chemicals, CO₂, water spray or foam.
LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.

Section VI. Accidental Release Measures

Spill Cleanup Instructions Irritating material. Combustible material.
Keep away from heat and sources of ignition. Mechanical exhaust required. Stop leak if without risk. Finish cleaning the spill by rinsing any contaminated surfaces with copious amounts of water. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage

Handling and Storage Information IRRITANT. COMBUSTIBLE. HYGROSCOPIC. STORE UNDER NITROGEN. Keep away from heat and sources of ignition. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. DO NOT ingest. Do not breathe gas, fumes, vapor or spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Avoid contact with skin and eyes.
Always store away from incompatible compounds such as oxidizing agents, acids.

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	Colorless liquid.	Solubility	Soluble in cold water, hot water, ether and acetone.
Specific Gravity	1.03		
Molecular Weight	99.13	Partition Coefficient	Not available.
Boiling Point	202°C (395.6°F)	Vapor Pressure	0.29 mm of Hg (@ 20°C)
Melting Point	-23°C (-9.4°F)	Vapor Density	3.4 (Air = 1) @ 20°C
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
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. Hygroscopic; keep container tightly closed. Store under nitrogen.

Incompatibilities Highly reactive with oxidizing agents, acids.

Section XI. Toxicological Information

RTECS Number UY5790000

Routes of Exposure Eye contact. Inhalation. Ingestion. Skin contact.

Toxicity Data Rat LD₅₀ (oral) 3914mg/kg
Rat LD₅₀ (intravenous) 805mg/kg
Rat LD₅₀ (intraperitoneal) 2472mg/kg

Chronic Toxic Effects **CARCINOGENIC EFFECTS** : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Not available.
DEVELOPMENTAL TOXICITY Not available.
There is no known effect from chronic exposure to this product. 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. 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	1-Methyl-2-pyrrolidinone is used as a solvent in a wide variety of commercial applications. It may be released to the environment as a fugitive emission during its production and use. 1-Methyl-2-pyrrolidinone may be a naturally occurring compound. If released to soil, 1-methyl-2-pyrrolidinone has the potential to biodegrade under aerobic conditions. It is expected to display very high mobility in soil. 1-Methyl-2-pyrrolidinone may slowly volatilize from dry soil to the atmosphere, but it is not expected to significantly volatilize from moist soil. If released to water, screening studies indicate that 1-methyl-2-pyrrolidinone will biodegrade under aerobic conditions after a short lag period. A calculated bioconcentration factor of 0.16 indicates that 1-methyl-2-pyrrolidinone is not expected to significantly bioconcentrate in fish and aquatic organisms nor is it expected to significantly adsorb to sediment or suspended organic matter. An estimated Henry's Law constant of 1.56X10E-8 atm-cu m/mole at 25 deg indicates that 1-methyl-2-pyrrolidinone is not expected to significantly volatilize from water to the atmosphere. The estimated half-life for volatilization of 1-methyl-2-pyrrolidinone from a model river is 2335 days. If released to the atmosphere, 1-methyl-2-pyrrolidinone is expected to undergo a gas-phase reaction with photochemically produced hydroxyl radicals with an estimated half-life of 5.2 hrs. It may undergo atmospheric removal by wet deposition processes. Occupational exposure to 1-methyl-2-pyrrolidinone may occur by inhalation or dermal contact during its production and use. The general population may be exposed to 1-methyl-2-pyrrolidinone by the ingestion of foods in which it is contained or by the ingestion of contaminated drinking water. (HSDB)

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local or 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 this substance.
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Section XIV. Transport Information

DOT Classification	Not a DOT controlled material (United States).
PIN Number	Not applicable.
Proper Shipping Name	Not applicable.
Packing Group (PG)	Not applicable.
DOT Pictograms	

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This product is ON the EPA Toxic Substance Control Act (TSCA) inventory.
WHMIS Classification (Canada)	WHMIS CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). WHMIS CLASS D-2B: Material causing other toxic effects (TOXIC).
EINECS Number (EEC)	212-828-1
EEC Risk Statements	R36/38- Irritating to eyes and skin.
Japanese Regulatory Data	Not available.

Section XVI. Other Information

Version 1.0
Validated on 8/15/2000.
Printed 3/1/2005.

Notice to Reader

TCl laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, household, 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.