



MATERIAL SAFETY DATA SHEET

Date Issued: 01/09/2006
 MSDS No: NMP
 Date Revised: 04/02/2007
 Revision No: 1

N-METHYLPYRROLIDONE

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: N-METHYLPYRROLIDONE

PRODUCT CODE: NMP

ALTERNATE TRADE NAME(S): N-methylpyrrolidinone, N-methyl-2-pyrrolidone, NMP, M-Pyrol

MANUFACTURER

Distributed by Tarr, LLC
 P.O. Box 12570
 Portland OR 97212
 Service Number: 503-288-5294

24 HR. EMERGENCY TELEPHONE NUMBERS

CHEMTREC (US Transportation) :(800) 424 - 9300
CANUTEC (Canadian Transportation) :(613) 996 - 6666

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE CONCERNS: WARNING! Causes irritation to skin, eyes and respiratory tract. Harmful if swallowed or inhaled. Combustible liquid and vapor.

POTENTIAL HEALTH EFFECTS

EYES: Causes irritation, redness, and pain. May possibly cause corneal clouding.

SKIN: Mildly irritating to the skin.

INGESTION: May cause gastrointestinal discomfort with any or all of the following symptoms: nausea, vomiting, or diarrhea.

INHALATION: Mild irritant if vapor or mist from heated solvent is inhaled. Coughing, possible breathing difficulties may be observed.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

CHRONIC EFFECTS: Minor skin irritation on repeated contact

MEDICAL CONDITIONS AGGRAVATED: No information found.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt. %	CAS
1-Methyl-2-pyrrolidinone	99 - 100	872-50-4

4. FIRST AID MEASURES

EYES: Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open or until all material has been removed. Get medical attention without delay, preferably from an ophthalmologist.

SKIN: Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.

INGESTION: If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Seek immediate medical attention.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: 91°C to 93°C (199°F)

FLAMMABLE LIMITS: 0.99% (V) to 9.5% (V)

AUTOIGNITION TEMPERATURE: 245°C to 346°C (655°F)

EXTINGUISHING MEDIA: Use regular foam, dry chemical, or carbon dioxide (CO₂).

EXPLOSION HAZARDS: Above the flash point, explosive vapor-air mixtures may be formed.

FIRE FIGHTING PROCEDURES: Fire fighters should wear self-contained breathing apparatus pressure-demand, (MSHA/NIOSH approved or equivalent) and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES

GENERAL PROCEDURES: Remove all sources of ignition and provide ventilation. Wear protective clothing as given in section 8. Dike area to contain spill. Take precautions as necessary to prevent contamination of ground and surface waters. Recover free product, if possible. Cover spill with inert, non-combustible absorbent material and remove to closed containers for disposal using non-sparking equipment. Do not flush to sewer. If area of spill is porous, remove as much contaminated earth and gravel, etc. as necessary and place in closed containers for disposal. Report spill as per regulatory requirements. Leaking drum should be emptied or placed into an oversized (recovery) drum.

7. HANDLING AND STORAGE

HANDLING: Wash thoroughly after handling. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. Avoid breathing vapor or mist. Avoid contact with eyes, skin and clothing. Never use pressure to empty a container.

STORAGE: Keep in a tightly closed container. Store in a cool, dry, ventilated area away from sources of heat or ignition. Protect against physical damage. Store separately from reactive or combustible materials, and out of direct sunlight. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

COMMENTS: KEEP OUT OF REACH OF CHILDREN! Empty containers retain product residue (liquid

and/or vapor) and can be dangerous. Do not pressurize, cut weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks static electricity, or other sources of ignition; they may explode and cause injury or death.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide exhaust ventilation sufficient to keep the airborne concentration of this product below its exposure limits. Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Use chemical safety goggles and/or full face shield where splashing is possible.

Maintain eye wash fountain and quick-drench facilities in work areas.

RESPIRATORY: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. If use conditions generate vapors or mists, wear a NIOSH-approved respirator appropriate for those emission levels. Appropriate respirators may be a full facepiece air-purifying cartridge respirator equipped for organic vapors/mists, a self-contained breathing apparatus in the pressure demand mode, or a supplied-air respirator.

PROTECTIVE CLOTHING: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

WORK HYGIENIC PRACTICES: Use good personal hygiene when handling this product. Wash hands after use, before eating, drinking, smoking, or using the toilet.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

ODOR: Slight amine odor.

COLOR: Clear, colorless liquid.

pH: 7.7

PERCENT VOLATILE: 100

VAPOR PRESSURE: 0.5 at 25°C (77°F)

VAPOR DENSITY: 3.4

BOILING POINT: 202°C (396°F)

FLASHPOINT AND METHOD: 91°C to 93°C (199°F)

SOLUBILITY IN WATER: Miscible

DENSITY: 8.595

SPECIFIC GRAVITY: 1.026 to 1.031

VISCOSITY: Not Determined

1 **(VOC):** ~ 8.595 lbs./gal.

10. STABILITY AND REACTIVITY

STABILITY: Stable under ordinary conditions of use and storage. Hygroscopic and basic.

POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Avoid heat, flames, ignition sources and incompatibles.

HAZARDOUS DECOMPOSITION PRODUCTS: Burning may produce carbon dioxide, carbon monoxide, nitrogen oxides.

INCOMPATIBLE MATERIALS: Strong oxidants and acids. Reacts with chlorinating agents to form the amide. Reacts with sulfur or carbon disulfide at high temperatures and pressures.

11. TOXICOLOGICAL INFORMATION

ACUTE

Chemical Name	ORAL LD ₅₀ (rat)	DERMAL LD ₅₀ (rabbit)	INHALATION LC ₅₀ (rat)
1-Methyl-2-pyrrolidinone	3914	2200 to 4000	> 5100

MUTAGENICITY: 1-methyl-2-pyrrolidinone: Investigated as a mutagen, reproductive effector

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: When 1-methyl-2-pyrrolidinone is released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material may evaporate to a moderate extent. When released into water, this material is not expected to evaporate significantly, this material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material may be removed from the atmosphere to a moderate extent by wet deposition.

ECOTOXICOLOGICAL INFORMATION: Avoid uncontrolled releases of this material. Where spills are possible, a comprehensive spill response plan should be developed and implemented.

AQUATIC TOXICITY (ACUTE)

96-HOUR LC₅₀: > 100 mg/l (fish)

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Federal, state and local disposal laws and regulations will determine the proper waste disposal/recycling/reclamation procedure. Disposal requirements are dependent on the hazard classification and will vary by location and the type of disposal selected.

EMPTY CONTAINER: KEEP OUT OF REACH OF CHILDREN! Empty containers retain product

residue and can be dangerous. Do not pressurize, cut weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks static electricity, or other sources of ignition.

RCRA/EPA WASTE INFORMATION: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

PROPER SHIPPING NAME: Combustible Liquid, N.O.S.

TECHNICAL NAME: (1-Methyl-2-Pyrrolidinone)

PRIMARY HAZARD CLASS/DIVISION: Combustible liquid

UN/NA NUMBER: NA 1993

PACKING GROUP: III

NAERG: 128

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES: This product should be reported as an immediate (acute) health hazard.

FIRE: No **PRESSURE GENERATING:** No **REACTIVITY:** No **ACUTE:** Yes
CHRONIC: No

302/304 EMERGENCY PLANNING

EMERGENCY PLAN: To the best of our knowledge, this product is not listed as an extremely hazardous substance.

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA REGULATORY: All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

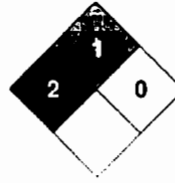
16. OTHER INFORMATION

REASON FOR ISSUE: Updated to new MSDS format.

PREPARED BY: P. Rodabaugh

REVISION SUMMARY: Revision #: 1 This MSDS replaces the September 01, 2006 MSDS. Any changes in information are as follows: In Section 9 VOC (Unit) (VOC) (wt%) (Operator) VOC (From)

NFPA CODES



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