

NMP

Date of Preparation: September 2003

Revision: 2

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: NMP
Chemical Formula: CH₃NC₄H₆O
Other Designations: N-Methyl-2-Pyrrolidone; Normal-Methyl-2-Pyrrolidone; 1-Methyl-2-Pyrrolidone
General Use: A component of lacquer coatings, thinners, paint removers, solvent cleaners, and stripper for photo resisters.

Manufacturer: Kanto Corporation, 13424 N. Woodrush Way, Portland, OR 97203
Non-Emergency Contact: Customer Service: Phone (503) 283-0405, FAX (503) 240-0409

For All Transportation Emergencies Call CHEMTREC at 1-800-424-9300

Section 2 – Composition/ Information on Ingredients

Ingredient Name	CAS Number	% by wt
N-Methyl-2-Pyrrolidone	872-50-4	100%

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL	
	TWA	STEL	TWA	STEL	TWA	STEL
N-Methyl-2-Pyrrolidone	None established		None established		None established	

Section 3 - Hazards Identification

☆☆☆☆☆ **Emergency Overview** ☆☆☆☆☆

Combustible. Colorless liquid with mild amine odor. Irritating to the eyes, skin, and respiratory system.
 Chronic liver effects. Remove all ignition sources before handling.

HMIS
H 2
F 1
R 0
PPE †
†Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation, ingestion.

Target Organs: Eyes, skin, mucous membranes.

Acute Effects

Inhalation: Vapor is highly discomforting to the upper respiratory tract resulting in nausea, headache, giddiness, and mental confusion. Hazard increases at higher temperatures and may be more harmful with prolonged exposure.

Eye: Vapor and liquid is discomforting and may cause temporary impairment of vision, inflammation, and ulceration. Direct contact with liquid may cause burning or stinging, watering and inflammation of the conjunctiva and temporary corneal clouding.

Skin: Enhances skin permeability for other substances. Liquid is discomforting to the skin and may cause drying leading to dermatitis, reddening, and swelling with symptoms of nausea, headache, giddiness, and mental confusion. Prolonged contact can lead to severe dermatitis, redness, cracking, swelling, blisters, and edema.

Ingestion: Gastrointestinal discomfort, nausea, pain, and vomiting are symptoms if swallowed. If aspirated into the lungs while vomiting, chemical pneumonitis can result.

Carcinogenicity: Not listed

Medical Conditions Aggravated by Long-Term Exposure: Skin, liver and blood conditions.

Chronic Effects: Dermatitis, nervous system impairment, liver tumors, and blood changes.

Section 4 - First Aid Measures

Eye Contact: Gently lift eyelids and flush immediately and continuously with copious amounts of water for at least 15 minutes. Do not allow the victim to rub or keep eyes tightly shut. Consult an ophthalmologist immediately.

Skin Contact: Rinse with flooding amounts of water, while removing contaminated clothing, for at least 15 minutes. Wash with soap and water. Seek medical attention immediately. Wash clothing before reuse.

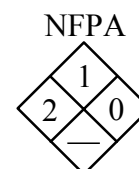
Ingestion: If the victim is conscious, give large amounts of water. Seek medical attention immediately. Never give anything by mouth to an unconscious or convulsing person.

Inhalation: Remove exposed person to an uncontaminated atmosphere and support breathing. If not breathing, give artificial respiration. Seek medical attention immediately.

After first aid, seek appropriate in-plant, paramedic, or community medical support.

Section 5 - Fire-Fighting Measures

Flash Point: 205°F (96 °C)
Flash Point Method: Open Cup
Auto ignition Temperature: 518°F (270 °C)
LEL: 1.5 % v/v
UEL: 9.5 % v/v



Flammability Classification: Combustible liquid.

Extinguishing Media: Water spray or fog, powder, alcohol resistant foam, or carbon dioxide.

Unusual Fire or Explosion Hazards: Heat may cause expansion leading to violent rupture of containers. Slight fire hazard when exposed to heat or flame.

Hazardous Combustion Products: Toxic fumes including nitrogen oxides and carbon monoxide.

Fire-Fighting Instructions: Contact fire department and tell them location and nature of hazard. Prevent spillage from entering drains or waterways. Do not approach containers suspected to be hot. Cool fire-exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire. Avoid spraying water onto liquid pools.

Fire-Fighting Equipment: Because fire produces toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full-face piece operated in pressure-demand or positive-pressure mode. Equipment should be thoroughly decontaminated after use.

Section 6 - Accidental Release Measures

Small Spills: Remove all ignition sources. Clean up spills wearing proper personal protective equipment. Contain and absorb spill with sand, earth, or other inert material. Wipe up residue and place in a suitable container for disposal.

Large Spills: Contact fire department and tell them the location and nature of the hazard. Wear respiratory protection and proper personal protective equipment. Prevent spillage from entering drains or waterways. Eliminate all ignition sources. Contain spill with inert material. Collect recoverable product for recycling. Absorb remaining material with sand, earth, or vermiculite. Wash area and prevent runoff into drains.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120) in addition to any state or federal guidelines.

Section 7 - Handling and Storage

Handling Precautions: Wear proper personal protective equipment. Use in a well-ventilated area. Avoid smoking, bare lights, or ignition sources. Keep containers securely sealed when not in use. Avoid physical damage to containers. Observe manufacturer's storing and handling recommendations.

Recommended Storage Methods: Glass, metal can or drum. Check all containers are clearly labeled and free from leaks. Package as recommended by the manufacturer.

Regulatory Requirements: Follow applicable federal, state and local regulations and guidelines.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or non-routine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.

Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties**Physical State:** Liquid**Appearance and Odor:** Colorless with characteristic amine odor**Vapor Pressure:** 0.29 mm Hg at 20°C**Vapor Density (Air=1):** 3.4**Formula Weight:** 99.15**pH:** Not applicable**Water Solubility:** Soluble**Boiling Point:** 396°F (202°C)**Melting Point:** -11.2°F (-24°C)**% Volatile:** 100**Evaporation Rate:** No information available**Density:** 1.03 at 25°C**Specific Gravity (H₂O=1, at 4 °C):** 1.03**Section 10 - Stability and Reactivity****Stability:** Stable under normal handling conditions.**Polymerization:** Hazardous polymerization will not occur.**Chemical Incompatibilities:** Strong oxidizers such as hydrogen peroxide, nitric acid, and sulfuric acid.**Conditions to Avoid:** Increasing heat.**Hazardous Decomposition Products:** Thermal oxidative decomposition of mixture can produce carbon dioxide and nitrogen oxides.**Section 11- Toxicological Information*****Acute Effects:**Rat, inhalation, TC: 1 gm/m³Mouse, oral, LD₅₀: 5130 mg/kgRat, oral, LD₅₀: 3914 mg/kgRabbit, skin, LD₅₀: 8 gm/kg**Chronic Effects:** Dermatitis, nervous system impairment, liver tumors, and blood changes.**Carcinogenicity:** Not listed**Mutagenicity:** Sex chromosome loss and disjunction**Reproductive:** Fetotoxicity, CNS development, decrease in fertility

* See NIOSH, RTECS (UY5970000), for additional toxicity data.

Section 12 - Ecological Information**Ecotoxicity:** No information available.**Environmental Fate:** Readily biodegrades when exposed to the environment.**Section 13 - Disposal Considerations****Disposal:** Contact your supplier or a licensed contractor for detailed recommendations. Recycle when possible. Incinerate residue at approved site.**Disposal Regulatory Requirements:** Follow applicable federal, state, and local regulations.**Section 14 - Transport Information****DOT Transportation Data (49 CFR 172.101):**

Not regulated for transportation

Section 15 - Regulatory Information**EPA Regulations:**

RCRA Hazardous Waste Classification (40 CFR 261): Not classified

CERCLA Hazardous Substance (40 CFR 302.4) unlisted specific per RCRA, Sec. 3001; CWA, Sec. 311 (b)(4); CWA, Sec. 307(a), CAA, Sec. 112

CERCLA Reportable Quantity (RQ): None

SARA 311/312 Codes: None

SARA Toxic Chemical (40 CFR 372.65): Listed

SARA EHS (Extremely Hazardous Substance) (40 CFR 355): None

TSCA: Listed

OSHA Regulations:

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): None

Section 16 - Other Information**Revision Notes:** Rev 1 - Sections 11 and 14.
Rev 2 - 2/7/2005, Section 14

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