



Material Safety Data Sheet

Section 1. Product and Company Identification

Product Name 1-Methyl-2-Pyrrolidone, OmniSolv ® , For HPLC, Spectrophotometry **Product Code** MX1390

Manufacturer EMD Chemicals Inc.
P.O. Box 70
480 Democrat Road
Gibbstown, NJ 08027
Prior to January 1, 2003 EMD Chemicals Inc. was EM Industries, Inc. or EM Science, Division of EM Industries, Inc.

Effective Date 4/15/2005
Print Date 4/15/2005

For More Information Call

856-423-6300 Technical Service
Monday-Friday: 8:00 AM - 5:00 PM

In Case of Emergency Call

800-424-9300 CHEMTREC (USA)
613-996-6666 CANUTEC (Canada)
24 Hours/Day: 7 Days/Week

Synonym N-Methylpyrrolidone

Material Uses Analytical reagent.

Chemical Family Cyclic Amine - Ketone

Section 2. Composition and Information on Ingredients

Component	CAS #	% by Weight
1-Methyl-2-Pyrrolidone	872-50-4	100

+ Section 3. Hazards Identification

Physical State and Appearance Liquid.

Emergency Overview WARNING!
COMBUSTIBLE LIQUID AND VAPOR.
VAPOR MAY CAUSE FIRE.
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
MAY BE HARMFUL IF INHALED OR SWALLOWED.

WARNING: This product contains a chemical(s) known to the State of California to cause birth defects or other reproductive harm.

Routes of Entry Inhalation. Ingestion.

Potential Acute Health Effects

Eyes Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching.

Skin Hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Inhalation Hazardous in case of inhalation (lung irritant). May be hazardous in case of inhalation.

Ingestion May be hazardous in case of ingestion. Ingestion can cause nausea and vomiting.

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Potential Chronic Health Effects

Carcinogenic Effects This material is not known to cause cancer in animals or humans.

Additional information See Toxicological Information (section 11)

Medical Conditions

**Aggravated by
Overexposure:**

Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4. 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. Cold water may be used. Get medical attention immediately.
Skin Contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Section 5. Fire Fighting Measures

Flammability of the Product	Combustible.
Auto-ignition Temperature	Not available.
Flash Points	Closed cup: 85.9°C (186.6°F).
Flammable Limits	LOWER: 1.3% UPPER: 9.5%
Products of Combustion	These products are carbon oxides (CO, CO ₂), nitrogen oxides (NO, NO ₂ ...).
Fire Hazards in Presence of Various Substances	Flammable in presence of open flames, sparks and static discharge, of heat, of oxidizing materials.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of static discharge: Flammable in presence of open flames, sparks and static discharge. Slightly explosive in presence of open flames, sparks and static discharge. Risks of explosion of the product in presence of mechanical impact: No.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
Protective Clothing (Fire)	Be sure to use an approved/certified respirator or equivalent.
Special Remarks on Fire Hazards	Not available.
Special Remarks on Explosion Hazards	Not available.

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Section 6. Accidental Release Measures

Small Spill and Leak	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.
Large Spill and Leak	Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.
Spill Kit Information	No specific spill kit required for this product.

Section 7. Handling and Storage

Handling	Keep away from heat, sparks and flame. Keep container closed. Avoid breathing vapors or spray mists. Do not get in eyes, on skin, or on clothing. Do not ingest.
Storage	Keep container tightly closed and sealed until ready for use.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.
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Personal Protection

Eyes Splash goggles.

Body Lab coat.

Respiratory Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Hands Gloves.

Feet Not applicable.

Protective Clothing (Pictograms)



Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
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Product Name	Exposure Limits
1-Methyl-2-Pyrrolidone	AFS (Sweden, 1996). KTV: 300 mg/m ³ 15 minute(s). KTV: 75 ppm 15 minute(s). NGV: 200 mg/m ³ 8 hour(s). NGV: 50 ppm 8 hour(s). EH40-OES (United Kingdom (UK), 1997). Skin STEL: 309 mg/m ³ 15 minute(s). STEL: 75 ppm 15 minute(s). TWA: 103 mg/m ³ 8 hour(s). TWA: 25 ppm 8 hour(s). BMWA_MAK (Austria, 2001). Skin STEL: 320 mg/m ³ 4 times per shift, 15 minute(s). Form: Vapor STEL: 80 ppm 4 times per shift, 15 minute(s). Form: Vapor TWA: 80 mg/m ³ 8 hour(s). Form: Vapor

TWA: 20 ppm 8 hour(s). Form: Vapor

SUVA (Switzerland, 2001). Skin

Kurzzeitgrenzwerte: 400 mg/m³ 15 minute(s).

Kurzzeitgrenzwerte: 100 ppm 15 minute(s).

MAK: 80 mg/m³ 8 hour(s).

MAK: 20 ppm 8 hour(s).

MAK-Werte Liste (Germany, 2000). Skin

Spitzenbegrenzung: 400 mg/m³ 2 times per shift, 30 minute(s).

Spitzenbegrenzung: 95 ML/M3 2 times per shift, 30 minute(s).

TWA: 80 mg/m³ 8 hour(s).

TWA: 19 ML/M3 8 hour(s).

TRGS900 MAK (Germany, 2002). Skin

Spitzenbegrenzung: 320 mg/m³ Form: Vapor

Spitzenbegrenzung: 76 ppm Form: Vapor

TWA: 80 mg/m³ 8 hour(s). Form: Vapor

TWA: 19 ppm 8 hour(s). Form: Vapor

Arbejdstilsynet (Denmark, 2000).

GV: 20 mg/m³ 8 hour(s).

GV: 5 ppm 8 hour(s).

Työterveyslaitos (Finland, 2002).

TWA: 100 mg/m³ 8 hour(s).

TWA: 25 ppm 8 hour(s).

NAOSH (Ireland, 2002). Skin

OEL: 101 mg/m³ 8 hour(s).

OEL: 25 ppm 8 hour(s).

Nationale MAC-lijst (Netherlands, 2003). Notes: Administrative

TGG 8 uur: 80 mg/m³ 8 hour(s). Form: Vapor

TGG 8 uur: 20 ppm 8 hour(s). Form: Vapor

Arbejdstilsynet (Norway, 2001). Skin

AN: 20 mg/m³ 8 hour(s).

AN: 5 ppm 8 hour(s).

AIHA WEEL (United States, 2002). Skin

TWA: 10 ppm 8 hour(s).

Section 9. Physical and Chemical Properties

Odor Amine like.

Color Colorless.

Physical State and Appearance Liquid.

Molecular Weight 99.15 g/mole

Molecular Formula C₅H₉N-O

pH Not available.

Boiling/Condensation Point 202.05°C (395.7°F)

Melting/Freezing Point -23.94°C (-11.1°F)

Specific Gravity Not available.

Vapor Pressure Not available.

Vapor Density Not available.

1-Methyl-2-Pyrrolidone, OmniSolv[®], MX1390
For HPLC, Spectrophotometry

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Odor Threshold	Not available.
Evaporation Rate	0.03 compared to (n-BUTYL ACETATE=1)
LogK _{ow}	Not available.
Solubility	Soluble in water.

Section 10. Stability and Reactivity

Stability and Reactivity	The product is stable.
Conditions of Instability	Not available.
Incompatibility with Various Substances	Reactive with oxidizing agents, reducing agents, acids.
Rem/Incompatibility	Not available.
Hazardous Decomposition Products	carbon oxides (CO, CO ₂) , nitrogen oxides (NO, NO ₂ ...)
Hazardous Polymerization	Will not occur.

Section 11. Toxicological Information

RTECS Number:	1-Methyl-2-Pyrrolidone, OmniSolv [®] , For HPLC, Spectrophotometry	UY5790000
Toxicity	Acute oral toxicity (LD ₅₀): 3914 mg/kg [Rat].	
Chronic Effects on Humans	Not available.	
Acute Effects on Humans	Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching. Hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Hazardous in case of inhalation (lung irritant). May be hazardous in case of inhalation. May be hazardous in case of ingestion.	
Synergetic Products (Toxicologically)	Not available.	
Irritancy	Draize Test: Not available.	
Sensitization	Not available.	
Carcinogenic Effects	This material is not known to cause cancer in animals or humans.	
Toxicity to Reproductive System	Tests on laboratory animals for reproductive effects are cited in Registry of Toxic Effects on Chemical Substances (RTECS).	
Teratogenic Effects	Not available.	
Mutagenic Effects	Tests on laboratory animals for mutagenic effects are cited in Registry of Toxic Effects of Chemical Substances (RTECS).	

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Section 12. Ecological Information

Ecotoxicity Not available.

BOD5 and COD Not available.

Toxicity of the Products of Biodegradation The products of degradation are less toxic than the product itself.

Section 13. Disposal Considerations

EPA Waste Number Not available.

Treatment Material does not have an EPA Waste Number and is not a listed waste, however consultation with a permitted waste disposal site (TSD) should be accomplished. Always contact a permitted waste disposal (TSD) to assure compliance with all current local, state, and Federal Regulations.

Section 14. Transport Information

DOT Classification Not available.

TDG Classification Not available.

IMO/IMDG Classification Not available.

ICAO/IATA Classification Not available.

Section 15. Regulatory Information

U.S. Federal Regulations TSCA 4(a) final test rules: 1-METHYL-2-PYRROLIDONE
TSCA 8(b) inventory: 1-METHYL-2-PYRROLIDONE
TSCA 12(b) one time export: 1-METHYL-2-PYRROLIDONE
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: 1-METHYL-2-PYRROLIDONE
SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
1-METHYL-2-PYRROLIDONE: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard
SARA 313 toxic chemical notification and release reporting: 1-METHYL-2-PYRROLIDONE
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean air act (CAA) 112 accidental release prevention: No products were found.
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found.

WHMIS (Canada) CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).
Class D-2B: Material causing other toxic effects (TOXIC).

CEPA DSL: 1-METHYL-2-PYRROLIDONE

This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all required information.

International Regulations
EINECS

1-METHYL-2-PYRROLIDONE 212-828-1

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DSCL (EEC) R36/38- Irritating to eyes and skin.

International Lists Australia (NICNAS): 1-Methyl-2-Pyrrolidone

China: 1-Methyl-2-Pyrrolidone

Germany water class: 1-Methyl-2-Pyrrolidone

Japan (MITI): 1-Methyl-2-Pyrrolidone

Japan (MOL): 1-Methyl-2-Pyrrolidone

Korea (TCCL): 1-Methyl-2-Pyrrolidone

Philippines (RA6969): 1-Methyl-2-Pyrrolidone

China: 1-Methyl-2-Pyrrolidone

State Regulations

Pennsylvania RTK: 1-METHYL-2-PYRROLIDONE: (generic environmental hazard)

Massachusetts RTK: 1-METHYL-2-PYRROLIDONE

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: 1-Methyl-2-Pyrrolidone

California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: 1-Methyl-2-Pyrrolidone

Section 16. Other Information

**National Fire
Protection
Association
(U.S.A.)**



**Changed Since Last
Revision**



Notice to Reader

The statements contained herein are based upon technical data that EMD Chemicals Inc. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD CHEMICALS INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.