

Burdick & Jackson

Material Safety Data Sheet

N-Methylpyrrolidone

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: N-Methylpyrrolidone

OTHER/GENERIC NAMES: NMP, 1-Methyl-2-pyrrolidone

PRODUCT USE: Solvent

MANUFACTURER: Honeywell, Burdick & Jackson
1953 South Harvey Street
Muskegon, MI 49442

FOR MORE INFORMATION CALL:

(Monday-Friday, 8:00am-5:00pm)

1-800-368-0050

IN CASE OF EMERGENCY CALL:

(24 Hours/Day, 7 Days/Week)

1-800-707-4555 or Chemtrec 1-800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
N-Methylpyrrolidone	872-50-4	100%

Trace impurities and additional material names not listed above may also appear in Section 15 toward the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Combustible Liquid. Mildly toxic by ingestion and inhalation.

POTENTIAL HEALTH HAZARDS

SKIN: Can cause itching, redness, scaling and hives. Quickly absorbed through the skin and is capable of transporting other dissolved toxins into the body.

EYES: Can cause irritation.

INHALATION: Can cause respiratory tract irritation, headache, nausea, dizziness and drowsiness.

INGESTION: Can cause dizziness, drowsiness, nausea, vomiting, cramps, and chills.

DELAYED EFFECTS: Liver and Kidney damage can occur.

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Ingredients found on one of the OSHA designated carcinogen lists are listed below.

<u>INGREDIENT NAME</u>	<u>NTP STATUS</u>	<u>IARC STATUS</u>	<u>OSHA LIST</u>
No ingredients listed in this section.			

4. FIRST AID MEASURES

SKIN: Remove contaminated clothing. Rinse skin thoroughly. Contact a physician.

EYES: Rinse thoroughly with water. Contact a physician.

INHALATION: Move victim from exposure area to fresh air. If not breathing, administer artificial respiration according to your level of training. Get professional medical assistance.

INGESTION: Contact a physician immediately. Do not induce vomiting.

ADVICE TO PHYSICIAN: No Specific antidote. Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT:	187°F (88°C)
FLASH POINT METHOD:	Closed Cup
AUTOIGNITION TEMPERATURE:	346°C
UPPER FLAME LIMIT (volume % in air):	9.5%
LOWER FLAME LIMIT (volume % in air):	1.3%
FLAME PROPAGATION RATE (solids):	Not Applicable
OSHA FLAMMABILITY CLASS:	IIIA, Combustible Liquid

EXTINGUISHING MEDIA:

Carbon Dioxide, Dry Chemical, or Foam.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Heat will build pressure within containers and may cause containers to rupture.

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:

Wear full protective clothing and SCBA.

6. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE: (Always wear recommended personal protective equipment.)

Eliminate sources of ignition. Isolate the spill area. Stop leak in a safe and practical manner. (If leak cannot be stopped easily and safely, advise trained emergency response personnel of the situation.) Using inert

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material, dike the spilled solvent to prevent it from running into drains or waterways. Place absorbed material in a compatible leakproof container for disposition by persons trained in the handling of hazardous substances.

Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting requirements.

7. HANDLING AND STORAGE

NORMAL HANDLING: (Always wear recommended personal protective equipment.)

Protective chemical resistant or natural rubber gloves and apron are recommended. Goggles and/or face shield should be worn to guard against splashing. Keep away from heat and open flame. Avoid contact with skin, eyes and clothing. Contaminated clothing should be decontaminated using dedicated spill clean-up containers, plenty of water, and detergent prior to conventional laundering in home laundry facilities. This material is incompatible with acids, oxidizers, explosives, and plastics. Provide adequate ventilation (local or general exhaust) when handling, storing, or transferring material.

STORAGE RECOMMENDATIONS:

Store full or partially full containers in an upright position, tightly closed in a cool, dry, well ventilated facility designed for flammable liquids. Store away (segregate) from acids, oxidizers, and explosives. Handle containers in a safe manner using proper equipment and avoiding damage to the containers. Combustible liquid and vapor. Once liquid solvent has been completely dispensed, containers which appear "empty" should be handled in the same manner as when they were "full" of liquid solvent.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Provide general or local exhaust ventilation systems to maintain airborne concentrations below exposure levels. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION:

Where liquid contact with exposed skin is possible, wear solvent resistant impervious personal protective equipment (gloves, face shields, etc.). Contaminated clothing should be laundered at the work site.

EYE PROTECTION:

Wear safety glasses. Contact lenses should not be worn. Where splashing or dripping is likely to occur, use chemical resistant goggles and/or face shield.

RESPIRATORY PROTECTION:

Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29

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CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. 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.

ADDITIONAL RECOMMENDATIONS:

Provide for safety showers and eyewash stations .

EXPOSURE GUIDELINES

<u>INGREDIENT NAME</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>OTHER LIMIT</u>
N-Methylpyrrolidone	None Established	None Established	10 ppm, skin ** 1998

* = Limit established by Honeywell International, Inc.

** = Workplace Environmental Exposure Level (AIHA).

*** = Biological Exposure Index (ACGIH).

OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Clear
PHYSICAL STATE:	Liquid
MOLECULAR WEIGHT:	99.13
CHEMICAL FORMULA:	C ₅ H ₉ NO
ODOR:	Amine like odor
SPECIFIC GRAVITY (water = 1.0):	1.028
SOLUBILITY IN WATER (weight %):	100%
pH:	Not Applicable
BOILING POINT:	202°C
MELTING POINT:	-24.4°C
VAPOR PRESSURE:	<1 mm Hg @ 20°C
VAPOR DENSITY (air = 1.0):	3.4
EVAPORATION RATE:	>1
% VOLATILES:	~100
FLASH POINT:	187°F (88°C)

COMPARED TO: Butyl Acetate = 1

(Flash point method and additional flammability data are found in Section 5.)

10. STABILITY AND REACTIVITY

NORMALLY STABLE? (CONDITIONS TO AVOID):

Stable at room temperatures in closed containers under normal and recommended storage and use conditions.

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INCOMPATIBILITIES:

Oxidizers, and strong acids.

HAZARDOUS DECOMPOSITION PRODUCTS:

Incomplete combustion can generate carbon monoxide, and other toxic vapors.

HAZARDOUS POLYMERIZATION:

Not expected to occur

11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS:

Oral-Rat LD₅₀ : 3914 mg/kg

Oral-Mouse LD₅₀ : 5130 mg/kg

Dermal Approximate LD₅₀ (rabbit): 4000-8000 mg/kg, intact skin 2000-4000 mg/kg, abraded skin

Dermal Irritation (rabbit): slight irritation, Primary Dermal Irritation Index of 0.5/8.0.

Eye (rabbit): severe irritation

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:

SUBCHRONIC: In a repeated dose study in which mice were fed dietary concentrations of 0, 1,000, 2,500, or 7500 ppm over a 3-month period, concentrations of 2500 and 7500 produced toxic effects of the liver. The study concluded that 1000 ppm was a NOAEL level.

CHRONIC: Rats were exposed to vapor concentrations of 0, 40 (10 ppm), or 400 mg/m³ (100 ppm) 6 hr/d, 5 d/wk for 2 years. No life-shortening toxic or carcinogenic effect was observed at any level. The body weight of males exposed to 400 mg/m³ was reduced slightly, while a NOEL was determined to be 40 mg/m³.

OTHER DATA:**Reproductive/Developmental Toxicity:**

Three developmental/reproductive studies by inhalation in rats showed toxicological effects in the offspring, with a fourth study giving indications of behavioral problems, making that the endpoint of concern. These studies would indicate an inhalation NOEL of approximately 400 mg/m³ for reproductive/developmental effects in rats.

For rats exposed dermally, the fetal and maternal NOAEL is reported to be 237 mg/kg/day. Developmental effects were observed at 750 mg/kg/day.

Mutagenicity:

Ames Test: Negative

Mouse Micronucleous Test: Negative, after single oral doses up to 3800 mg/kg.

Chinese Hamster Bone Marrow Test: Negative, after single oral doses up to 3800 mg/kg.

12. ECOLOGICAL INFORMATION

No data reported.

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13. DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? No.

If yes, the RCRA ID number is: Not Applicable.

OTHER DISPOSAL CONSIDERATIONS:

While this material is not specifically defined or listed by RCRA rules, it is recommended that disposition of material be done in accordance with Federal, Regional, State, Provincial and/or local rules and regulations.

See section 15 for specific regulatory information.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. TRANSPORT INFORMATION

US DOT HAZARD CLASS: Not Regulated

US DOT ID NUMBER: Not Regulated

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS: Listed

OTHER TSCA ISSUES: None

SARA TITLE III/CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

INGREDIENT NAME

SARA/CERCLA RQ (lb)

SARA EHS TPQ (lb)

No ingredients listed in this section.

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.

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SECTION 311 HAZARD CLASS: Acute. Fire.

SARA 313 TOXIC CHEMICALS:

The following ingredients are SARA 313 "Toxic Chemicals". CAS numbers and weight percents are found in Section 2.

INGREDIENT NAME

N-Methylpyrrolidone

COMMENT

STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

INGREDIENT NAME

No ingredients listed in this section.

WEIGHT %

COMMENT

ADDITIONAL REGULATORY INFORMATION:

WHMIS CLASSIFICATION (CANADA):

Class B, Division 3

FOREIGN INVENTORY STATUS:

EC # - 2128281

EINECS # - 2128281

16. OTHER INFORMATION

CURRENT ISSUE DATE: June, 2000

PREVIOUS ISSUE DATE: July, 1999 January, 1996, June, 2000

CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:

Conversion to ANSI Standard. Additional Toxicity data in Sections * & 11.. New header and footer information.

NFPA Classification

Health:	2
Flammability:	1
Reactivity:	0

OTHER INFORMATION: None