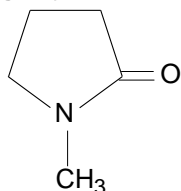


N-Methyl-2-pyrrolidone

Technical Data Sheet

August 1999

Formula: C₅H₉NO
Molecular Weight: 99.1
Product Numbers:
 VG - Value Grade 556994
 Std - Standard Grade 584384
 EL - Electronic Grade 584919
CAS Registry Number: ... 872-50-4



Description

N-Methyl-2-pyrrolidone is a colorless to slightly yellow liquid, with a faint amine odor. NMP is miscible with water and conventional organic solvents. It is the cyclization product of 4-Methyl-Aminobutyric acid.

N-Methyl-2-pyrrolidone is available in 3 different grades, each geared to the specific requirement of their end use:

VG - Value Grade
Std - Standard Grade
EL - Electronics Grade

Safety

Care should be used when handling NMP. Skin contact should be avoided. Contact can result in irritation; prolonged contact can result in redness and dermatitis. Butyl rubber or FEP Teflon gloves are recommended when handling NMP. A good skin cream should be used after washing the affected area. As with all solvents, the workplace should be well ventilated and safety goggles must be worn.

Always refer to the Material Safety Data Sheet (MSDS) for detailed information on safety.

Applications

Electronic Grade: For higher end, low impurity level applications:

- lithium ion batteries
- photoresist stripper

Product Specifications	Value			Test Method
	VG	Std	EL ¹⁾	
Assay, % minimum	97.0	99.5	99.8	G.C.
Water, % maximum	1.0	0.05	0.05	K.F.
Color, APHA maximum	150	50	50	Pt/Co
γ - Butyrolactone, % maximum	2.0	—	—	G.C.
Foreign matter	none	none	none	

EL – Electronics Grade meets additional specifications. These include:

Total amines, ppm maximum ²⁾	50
Chloride, ppm maximum	0.5
Phosphate, ppm maximum	1
Aluminum, ppb maximum	100
Antimony, ppb maximum	100
Arsenic, ppb maximum	100
Boron, ppb maximum	100
Calcium, ppb maximum	100
Chromium, ppb maximum	100
Copper, ppb maximum	100
Gold, ppb maximum	100
Iron, ppb maximum	100
Lead, ppb maximum	100
Magnesium, ppb maximum	100
Manganese, ppb maximum	100
Nickel, ppb maximum	100
Potassium, ppb maximum	100
Sodium, ppb maximum	100
Tin, ppb maximum	100
Titanium, ppb maximum	100
Zinc, ppb maximum	100

¹⁾ NMP EL meets SEMI standards for the electronics industry

²⁾ Total of Methylamine, Dimethylamine and Trimethylamine by IC

Physical Properties

Freezing point, °C	– 23.6
Boiling point, °C	204.3
Density @ 25 °C, g/cm ³	1.028
Flash point, °C	91

- epoxy deflashing
- wafer degreasing
- coating developer

Standard Grade:

- petrochemical applications
- extraction/recovery of acetylene and butadiene
- dehydration of natural gas
- pesticides

- pigment dispersions
- synthetic plastic elements
- dyeing fibers and leather
- synthesis medium for high molecular weight polymers
- synthetic fiber spinning medium
- lube oil processing

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Value Grade: An economical alternative to NMP Standard for cleaning and stripping applications:

- paint strippers
- solvent/cleaner for polymeric residues
- substrate wetting agent for baked-on coatings
- metal finishing
- immersion cleaning

Packaging

Available in 5,000 gallon tank trucks and 462 lb (net weight) non-returnable drums.

Storage and Handling

NMP has an almost unlimited shelf life in sealed containers when properly stored in a protected storage area in original unopened containers or protected from moisture. It is neither explosive nor spontaneously flammable in air. However, it is combustible. When ignited, NMP will sustain a fire. All types of fire extinguishers are effective against NMP fires.

For more information, consult the technical brochure "N-Methyl Pyrrolidone: Handling and Storage."

Always refer to the Material Safety Data Sheet (MSDS) for detailed information on handling and disposal.

For specific information on the use of N-Methyl-2-Pyrrolidone call the BASF NMP Hot Line 1-800-828-NM2P or 1-800-828-6627.

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