
Information and recommendations for patients

- Patients exposed only to N-Methylpyrrolidone vapor do not pose a significant risk of secondary contamination. Patients whose clothing or skin is contaminated with liquid N-Methylpyrrolidone (boiling point 202°C, 395.6°F, respectively) can secondarily contaminate rescue and medical personnel by direct contact or evaporation of N-Methylpyrrolidone.
 - N-Methylpyrrolidone is irritating when it comes in contacts with the skin, eyes, nose and throat and at high exposures may cause systemic effects.
 - There is no antidote to be administered to counteract the effects of N-Methylpyrrolidone. Treatment consists of supportive measures.
-

Substance information

N-Methylpyrrolidone (C₅H₉NO), CAS 872-50-4.

Synonyms: N-Methylpyrrolidinone, 1-Methyl-2-pyrrolidone, NMP.

N-Methylpyrrolidone is, at room temperature, a clear, colorless liquid with a boiling point of 202°C, 395.6°F, respectively. The liquid is poorly flammable. N-Methylpyrrolidone has a fish-like odor. It is miscible with water and common organic solvents. Carbon monoxide and nitrogen oxides may be released in a N-Methylpyrrolidone fire.

N-Methylpyrrolidone is a slightly volatile organic solvent for chemicals and resins in the microelectronics and pharmaceutical industries. It replaces other solvents, e.g. for paint stripping and lube oil extraction; it is used as a solvent for pesticides, coatings, adhesives, dyes, pigments, polymers, and polyurethane foam cleanup.

What immediate health effects can result from exposure to N-Methylpyrrolidone?

Most exposures to N-Methylpyrrolidone occur by inhaling the vapor. Exposure to small amounts usually irritate the eyes, skin, nose and throat and causes disturbance of the general well-being. High doses may cause central nervous depression and alterations of the liver, kidneys and the blood cells.

Are any future health effects likely to occur?

A single small inhalation exposure from which a person recovers quickly is not likely to cause delayed or long-term effects. Some people who have had serious inhalation exposures may develop airways effects.

Follow-up instructions

Keep this page and take it with you to your next appointment. Follow only the instructions checked below.

- () Call your doctor or the Emergency Department if you develop any unusual signs or symptoms within the next 24 hours, especially:
 - coughing, wheezing, difficulty breathing or shortness of breath
 - chest pain or tightness
 - increased pain or a discharge from exposed skin or eyes
 - headache, nausea, dizziness
- () No follow-up appointment is necessary unless you develop any of the symptoms listed above.
- () Call for an appointment with Dr. _____ in the practice of _____
When you call for your appointment, please say that you were treated in the Emergency Department at _____ Hospital by _____ and were advised to be seen again in _____ days.
- () Return to the Emergency Department/_____ Clinic on (date) _____ at _____ am/pm for a follow-up examination.
- () Do not perform vigorous physical activities for 1 to 2 days.
- () You may resume everyday activities including driving and operating machinery.
- () Do not return to work for _____ days.
- () You may return to work on a limited basis. See instructions below.
- () Avoid exposure to cigarette smoke for 3 days; smoke may worsen the condition of your lungs.
- () Drinking of alcoholic beverages is forbidden for at least three days; alcohol worsen your clinical conditions.
- () Avoid taking the following medications: _____

- () You may continue taking the following medication(s) that your doctor(s) prescribed for you: _____

- () Other instructions: _____

Signature of patient _____ Date _____
Signature of physician _____ Date _____

References

ACGIH: Documentation of the Threshold Limit Values and Biological Exposure Indices, N-Methylpyrrolidone, 7th ed., Cincinnati, US, 2007.

National Library of Medicine's TOXNET system: Haz-Map. N-Methyl-2-pyrrolidone, 2013.

National Library of Medicine's TOXNET system: Hazardous Substances Data Bank (HSDB): 1-Methyl-2-Pyrrolidone, HSN: 5022. 2013.

Buttgereit, F., Dimmeler, S., Neugebauer, E., Burmester, G.R.: Wirkungsmechanismen der hochdosierten Glucocorticoidtherapie, Dtsch. Med. Wschr. 1996; 121: 248-252.

CDC – NIOSH: International Chemical Safety Cards, N-Methylpyrrolidone, ICSC # 0513. Atlanta, US, 1997.

CDC – NIOSH: RTECS, 2-Pyrrolidinone, 1-Methyl-, RTECS #: UY5790000. Atlanta, US, 2009.

Diller, W.F.: Anmerkungen zum Unglück in Bhopal, Dtsch. Med. Wschr. 1985; 110: 1749-1751.

Goldfrank, L.R., Flomenbaum, N.E., Lewin, N.A., Weisman, R.S., Howland, M.A., Hoffman, R.S.: Toxicologic Emergencies, 8th ed., Appleton & Lange, Stamford, Connecticut, 2006; 1438-1439.

MEDLINE®/PubMed®: HSDB® - Hazardous Substances Data Bank. 1-Methyl-2-Pyrrolidinone. No.: 5022, 2013.

IFA – Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung. GESTIS Substance Database. N-Methyl-2-pyrrolidone. ZVG No.: 13700, 2012.

WHO - IARC: Monographs on the Evaluation of Carcinogenic Risks to Humans, Vol. 71, N-Methylpyrrolidone, p 829, Geneva, Switzerland, 1999.

Foncerrada G et al, Safety of Nebulized Epinephrine in Smoke Inhalation Injury, J Burn Care Res 2017;38:396–402

Walker PGF et al, Diagnosis and management of inhalation injury: an updated review, Critical Care (2015) 19:351

Olasveengen TM, Semeraro F, et. Al: European Resuscitation Council Guidelines 2021: Basic Life Support. Resuscitation 2021, 161: 98-114