

MWCNTs N-Methyl-2-pyrrolidinone Dispersion

US Research Nanomaterials, Inc.

Material Safety Data Sheet

acc. to OSHA and ANSI

1 Identification of substance:

- **Trade name:** MWCNTs N-Methyl-2-pyrrolidinone Dispersion
- **Stock number:**
- **Manufacturer/Supplier:**
US Research Nanomaterials, Inc.
3302 Twig Leaf Lane
Houston, Texas 77084, USA
www.us-nano.com

2 Composition/Data on components:

- **Chemical characterization:**
Description: (CAS#)

MWCNTs (CAS# 99685-96-8), 3wt%
N-Methyl-2-pyrrolidinone (CAS# 872-50-4), 97wt%
- **Identification number(s):**
- **EINECS Number:** 215-609-9 (MWCNTs); 212-828-1 (N-Methyl-2-pyrrolidinone)

3 Hazards identification

- **HMIS Classification**

Health hazard: 2
Flammability: 2
Physical hazards: 0

- **NFPA Rating**

Health hazard: 2
Fire: 2
Reactivity Hazard: 0

Potential Health Effects

- **Inhalation** May be harmful if inhaled. May cause respiratory tract irritation.
- **Skin** May be harmful if absorbed through skin. May cause skin irritation.

- **Eyes** May cause eye irritation.

4 First aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5 Fire fighting measures

Conditions of flammability

May be combustible at high temperature.

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

6 Accidental release measures

Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7 Handling and storage

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Avoid all possible sources of ignition (spark or flame). Do not store above 24°C (75.2°F). Preferably refrigerate.

Hygroscopic. Light sensitive.

8 Exposure controls and personal protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash

stations and safety showers are proximal to the work-station location.

Personal Protection: Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

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.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

Exposure Limits:

TWA: 25 STEL: 75 (ppm) [United Kingdom (UK)] TWA: 103 STEL: 309 (mg/m³) [United Kingdom (UK)] TWA: 10 from AIHA TWA: 40 (mg/m³) from AIHA Consult local authorities for acceptable exposure limits.

9 Physical and chemical properties:

Appearance:

Black liquid.

Odor:

Amine like.

Solubility:

Miscible with Castor Oil. Miscible with water, lower alcohols, ketones, ethyl acetate, chloroform and benzene. Moderately soluble in aliphatic hydrocarbons and dissolves many organic and inorganic compounds.

Specific Gravity:

1.026 @20C/4C

Molecular Weight: 99.14 g/mole

Boiling Point:

202 C (396F)

Melting Point:

-24C (-11.2F)

Vapor Density (Air=1):

2.7

Vapor Pressure (mm Hg):

0.06 @ 20C (68F)

Evaporation Rate (BuAc=1):

No information found.

10 Stability and reactivity

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

no data available

Conditions to avoid

Exposure to moisture.

Materials to avoid

Reactive with oxidizing agents, reducing agents, acids, alkalis. Slightly reactive to reactive with moisture.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - no data available

11 Toxicological information

Toxicological Data:

Oral rat LD50: 3914 mg/kg; skin rabbit LD50: 8000 mg/kg.

Routes of Entry: Absorbed through skin. Eye contact. Inhalation.

Chronic Effects on Humans:

MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. May cause damage to the following organs: blood, kidneys, lymphatic system, Urinary system, bone marrow.

12 Ecological information:

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

13 Disposal considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

14 Transport information

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15 Regulations

Federal and State Regulations:

Pennsylvania RTK: N-Methyl-2-pyrrolidinone Minnesota: N-Methyl-2-pyrrolidinone
Massachusetts RTK: N-Methyl-2-pyrrolidinone New Jersey: N-Methyl-2-pyrrolidinone New
Jersey spill list: N-Methyl-2-pyrrolidinone TSCA 8(b) inventory: N-Methyl-2-pyrrolidinone
TSCA 4(a) final test rules: N-Methyl-2-pyrrolidinone TSCA 8(a) IUR: N-Methyl-2-pyrrolidinone
TSCA 12(b) one time export: N-Methyl-2-pyrrolidinone SARA 313 toxic chemical notification
and release reporting: N-Methyl-2-pyrrolidinone

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).

DSCL (EEC): R36- Irritating to eyes. S2- Keep out of the reach of children. S46- If swallowed, seek medical advice immediately and show this container or label.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 2

Reactivity: 0

Personal Protection: j

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

Health: 2

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment: Gloves. Lab coat. Not applicable. Safety glasses.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.