

Material Safety Data Sheet

NANOMYTE[®] MEND-RT Part B

SECTION 1: PRODUCT & COMPANY IDENTIFICATION

1.1 Product Identifiers

Product Name: NANOMYTE[®] MEND-RT Part B

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

This product is intended for use as a coating on plastics, metals, and other surfaces.

1.3 Details of the Supplier of the Safety Data Sheet

Company: NEI Corporation
Address: 400 Apgar Drive, Unit E
Somerset, NJ 08873 – USA
Phone: +1 (732) 868-3141
Fax: +1 (732) 868-3143
Email: productinfo@neicorporation.com

1.4 Emergency Telephone Number (during transportation only)

ChemTel (North America): +1 (800) 255-3924 [Contract #MIS0008013]
ChemTel (International): +1 (813) 248-0585 (collect calls accepted)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture

Emergency Overview

Flammable. Toxic gases/fumes may be given off during burning or thermal decomposition. Closed container may forcibly rupture under extreme heat or when contents have been contaminated with water. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. Vapors or mist may be a fire and explosion hazard when exposed to high temperature or ignition. Vapors may travel to areas away from work site before igniting/flashing back to vapor source. Ground containers and equipment before transferring to avoid static sparks. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling solvents may be harmful or fatal. Causes respiratory tract irritation. May cause allergic respiratory reaction. Harmful if inhaled. Respiratory sensitizer. Lung damage and respiratory sensitization may be permanent. Causes skin irritation. May cause allergic skin reaction. Skin sensitizer. Animal tests and other research indicate that skin contact with diisocyanates can play a role in causing isocyanate sensitization and respiratory reaction. Causes eye irritation. May cause lung damage. May affect nervous system. May cause brain damage.

HMIS Classification

Health Hazard: 2
Flammability Hazard: 2
Physical Hazard: 1

NFPA Rating

Health Hazard: 2
Flammability Hazard: 2
Reactivity Hazard: 1

2.2 Label Elements

GHS Label Elements, including precautionary statements

Pictogram(s):



Signal Word: Danger

Hazard Statement(s):

H226 Flammable liquid and vapor (Category 3)

- H315 Causes skin irritation (Category 2)
 H317 May cause an allergic skin reaction (Category 1)
 H320 Causes eye irritation (Category 2B)
 H332 Harmful if inhaled (Category 4)
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled (Category 1)
 H335 May cause respiratory irritation (Category 3)
 H372 Causes damage to organs through prolonged or repeated exposure (Category 1)

Precautionary Statement(s):

- P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
 P233 Keep container tightly closed.
 P240 Ground/bond container and receiving equipment.
 P241 Use explosion-proof electrical/ventilating/lighting/.../equipment.
 P242 Use only non-sparking tools.
 P243 Take precautionary measures against static discharge.
 P260 Do not breathe dust/fume/gas/mist/vapors/spray.
 P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
 P264 Wash skin and hands thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.
 P272 Contaminated work clothing should not be allowed out of the workplace.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P285 In case of inadequate ventilation wear respiratory protection.
 P312 Call a POISON CENTER or doctor/physician if you feel unwell.
 P314 Get medical advice/attention if you feel unwell.
 P362 Take off contaminated clothing and wash before reuse.
 P363 Wash contaminated clothing before reuse.
 P501 Dispose of contents/container to appropriate waste area for proper disposal
- P302+P352 IF ON SKIN: wash with plenty of soap and water.
 P303+ P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.
 P304+P340 IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.
 P304+P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P332+P313 IF SKIN irritation occurs: Get medical advice/attention.
 P333+P313 IF SKIN irritation or rash occurs: Get medical advice/attention.
 P337+P313 IF eye irritation persists: Get medical advice/attention.
 P342+P311 IF experiencing respiratory symptoms: call a POISON CENTER or doctor/physician.
 P370+P378 In case of fire: Use dry chemical, CO₂, foam, or water spray for extinction.
 P403+P235 Store in a well-ventilated place. Keep cool.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS**3.1 Substances**

Formula: 1,6-Hexamethylene Diisocyanate-based Polyisocyanate, mixed with organic solvents

COMPONENT NAME	CAS #	CONCENTRATION
Homopolymer of Hexamethylene Diisocyanate	28182-81-2	60-100%
n-butyl acetate	123-86-4	3-7%
Petroleum Solvent	64742-95-6	1-5%
1,2,4-Trimethylbenzene	95-63-6	1-5%
Hexamethylene-1,6-Diisocyanate	822-06-0	0.1-1%
NEI Proprietary Nanoparticles	Proprietary	< 1 %

SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid Measures

After Inhalation:

Move to an area free from further exposure. Get medical attention immediately. Administer oxygen or artificial respiration as needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours. Extreme asthmatic reactions can be life threatening.

After Skin Contact:

Immediately remove contaminated clothing and shoes. In case of skin contact, wash affected areas with soap and water. Use lukewarm water if possible. Wash contaminated clothing before reuse. For severe exposures, immediately get under safety shower and begin rinsing. Get medical attention if irritation develops and persists.

After Eye Contact:

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use lukewarm water if possible. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Then remove contact lenses, if easily removable, and continue eye irrigation for not less than 15 minutes. Get medical attention if irritation develops.

After Swallowing:

Do NOT induce vomiting. Wash mouth out with water. Do not give anything by mouth to an unconscious person. Get medical attention.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

Refer to 4.3 – Notes to physician

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed

NOTES TO PHYSICIAN

Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision.

Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn.

Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound.

Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

SECTION 5: FIREFIGHTING MEASURES

5.1 Suitable Extinguishing Media

Dry chemical, carbon dioxide (CO₂), Foam, water spray for large fires

5.2 Special Hazards Arising from the Substance or Mixture

During a fire, isocyanate vapors and other irritating, highly toxic gases may be generated by combustion or thermal decomposition.

5.3 Advice for Firefighters

Wear NFPA compliant structural firefighting protective equipment, including self-contained breathing apparatus and NFPA compliant helmet, hood, boots and gloves. Avoid contact with product. Decontaminate equipment and protective clothing prior to reuse.

5.4 Further Information

Unusual Fire/Explosion Hazards

Closed container may forcibly rupture under extreme heat or when contents are contaminated with water (CO₂ formed). Use cold-water spray to cool fire-exposed containers to minimize the risk of rupture. Large fires can be extinguished with large volumes of water applied from a safe distance, since reaction between water and hot diisocyanate can be vigorous. Flammable Liquid. Vapors may spread long distances and ignite. Vapors or mist may be a fire and explosion hazard when exposed to high temperature or ignition. Vapors are heavier than air and may travel a considerable distance to a source of ignition and flashback. Vapors or fumes may form explosive mixture with air.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

Use personal protective equipment. Ensure adequate ventilation. Keep unprotected persons away. Eliminate sources of ignition or overheating. Ventilate area and wash spill site after material pickup is complete.

For personal protection, see section 8.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and Materials for Containment and Cleaning Up

Absorbent material, such as vermiculite. Residual material on surfaces can be neutralized using ZEP Commercial Heavy-Duty Floor Stripper available at most retail stores. Other neutralizing products may also be used, including a mixture of 90% Fantastic Heavy Duty All Purpose Cleaner and 10% household ammonia. Residual surface contamination can be checked using Swpe test kits, available from Colorimetric Laboratories, Inc. (CLI) at 1-847-803-3737.

6.4 Reference to Other Sections

For disposal see Section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Do not breathe vapors, mists, or dusts. Use adequate ventilation to keep airborne isocyanate levels below the exposure limits. Wear respiratory protection if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash thoroughly after handling. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. Ground and bond containers and equipment before transferring to avoid static sparks.

7.2 Conditions for Safe Storage (including any incompatibilities)

Store between -34°C and 50°C (-29°F and 122°F)

7.3 Specific End Uses

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters

Components with workplace control parameters:

Component Name	ACGIH TLV (TWA)	Remarks
Homopolymer of Hexamethylene Diisocyanate	0.5 mg/m ³	Recommended TWA
n-butyl acetate	150 ppm	n/a
1,2,4-Trimethylbenzene	25 ppm	n/a
Hexamethylene-1,6-Diisocyanate	0.005 ppm	n/a
NEI Proprietary Nanoparticles	1.0 mg/m ³	As a raw material

8.2 Exposure Controls

Appropriate Engineering Controls

Handle under properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute. Safety shower and eye bath recommended.

Handle in accordance with good industrial hygiene and safety practice. Keep away from food and beverages. Remove all soiled and contaminated clothing immediately. Wash hands before breaks and end of workday.

Personal Protective Equipment

Respiratory Protection:

Where risk assessment shows air-purifying respirators are appropriate, use a full-face particle respirator type suitable for working with isocyanates, as a backup or in addition to engineering controls. Be aware of the TWA exposure limits.

Eye / Face Protection:

Face shield and/or safety glasses should be worn. Use eye protection equipment that is tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Hand Protection:

Handle with chemical resistant gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands after use.

Skin and Body Protection:

Complete suit protecting against chemicals, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Control of Environmental Exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Form:	Liquid
Color:	Clear, pale yellow
Odor:	Solvent-like
pH:	n/a
Melting point/range:	No Data Available
Specific Gravity:	No Data Available
Density (20 °C):	1.13 g/ml at 20°C
Viscosity (25 °C):	500 mPa.s at 25°C
Boiling Point:	104°C (estimated)
Flashpoint:	47°C (Pensky-Martens Closed Cup – ASTM D-93)
Ignition Temperature:	No Data Available
Auto-ignition Temperature:	No Data Available
Lower Explosion Limit:	No Data Available
Upper Explosion Limit:	No Data Available
Vapor Pressure:	5.2x10 ⁻⁹ at 20°C mm HG for polyisocyanate; 15 mm Hg at 20°C for a solvent.
Vapor Density:	No Data Available
Water Solubility:	Insoluble in water; reacts slowly with water to liberate carbon dioxide gas
Evaporation Rate:	No Data Available

9.2 Other Information

No Data Available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Contact with moisture, other materials that react with isocyanates, or temperatures above 350 F (177 C), may cause polymerization

10.2 Chemical Stability

Stable under recommended storage conditions (see Section 7.2)

10.3 Possibility of Hazardous Reactions

Contact with moisture, other materials that react with isocyanates, or temperatures above 350 F (177 C), may cause polymerization

10.4 Conditions to Avoid

Heat, flames and sparks

10.5 Incompatible Materials

Water, Amines, Strong bases, Alcohols, Copper alloys

10.6 Hazardous Decomposition Products

By Fire and High Heat: Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke, Hydrogen cyanide, Isocyanate, Isocyanic Acid, Other undetermined compounds

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Toxicity Data for the product: No data is available for the product. The individual components contribute to the toxicity. The MSDSs for the individual components should be referenced.

Acute Toxicity

Oral LD50: No Data Available

Inhalation LC50: No Data Available

Dermal LD50: No Data Available

Other Information: No Data Available

Skin corrosion/irritation

No Data Available

Serious eye damage/eye irritation

No Data Available

Respiratory or skin sensitization

No Data Available

Germ cell mutagenicity

No Data Available

Carcinogenicity

No Data Available

Reproductive toxicity

No Data Available

Teratogenicity

No Data Available

Specific target organ toxicity - single exposure (Globally Harmonized System)

No Data Available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

No Data Available

Aspiration hazard

No Data Available

Potential Health Affects

Inhalation: Refer to sections 2 & 4
Ingestion: Refer to sections 2 & 4
Skin: Refer to sections 2 & 4
Eyes: Refer to sections 2 & 4

Signs and Symptoms of Exposure

Inhalation: Refer to sections 2 & 4
Ingestion: Refer to sections 2 & 4
Skin: Refer to sections 2 & 4
Eyes: Refer to sections 2 & 4

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

The toxicological properties of this material have not been fully investigated. The individual components contribute to the toxicity. The MSDSs for the individual components should be referenced.

12.2 Persistence and Degradability

No Data Available

12.3 Bioaccumulative Potential

No Data Available

12.4 Mobility in Soil

No Data Available

12.5 Results of PBT and vPvB Assessment

PBT/vPvB assessment not available as chemical safety assessment not conducted

12.6 Other Adverse Effects

No Data Available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods**Product**

Waste disposal should be in accordance with existing federal, state and local environmental control laws. Incineration is the preferred method.

Contaminated Packaging

Empty containers retain product residue; observe all precautions for product. Do not heat or cut empty container with electric or gas torch because highly toxic vapors and gases are formed. Do not reuse without thorough commercial cleaning and reconditioning.

SECTION 14: TRANSPORT INFORMATION

14.1 UN Number

US (DOT) & IATA: UN 1866

14.2 UN Proper Shipping Name

US (DOT) & IATA: Resin solution

14.3 Transport Hazard Class / Label

US (DOT) & IATA: 3 / Flammable liquids

14.4 Packaging Group

US (DOT) & IATA: III

14.5 Environmental Hazards

No Data Available

14.6 Special Precautions for User

No Data Available

14.7 Other

HST Code / Schedule B #: 3208.90.0000

SECTION 15: REGULATORY INFORMATION**15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture****OSHA Hazards**

Hazardous

SARA 302 Components

None

SARA 313 Components

1,2,4-Trimethylbenzene

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard, Fire Hazard

Right To Know Components for Massachusetts, New Jersey, & Pennsylvania

<u>CAS Number</u>	<u>Chemical Compound</u>
28182-81-2	Homopolymer of Hexamethylene Diisocyanate
123-86-4	n-butyl acetate
64742-95-6	Petroleum solvent
95-63-6	1,2,4-Trimethylbenzene

CALIFORNIA PROPOSITION 65

Warning! This product contains chemical(s) known to the State of California to be Carcinogenic.

<u>CAS Number</u>	<u>Chemical Compound</u>
98-82-8	Cumene
100-41-4	Ethyl Benzene

15.2 Chemical Safety Assessment

A chemical safety assessment was not carried out for this product

SECTION 16: OTHER INFORMATION**16.1 Further Information**

NEI has attempted to provide current and accurate information to the best of its knowledge. NEI makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage, injury of any kind which may result from or arise out of the use of or reliance on the information by any person.

Employers should use this information only as a supplement to other information gathered by them and should make independent judgment 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 Datasheet, or in combination with any other product or process, is the responsibility of the user.

- END OF MSDS -