

SECTION 1: PRODUCT & COMPANY IDENTIFICATION

1.1 Product Identifiers

Product Name: NANOMYTE® MEND 1000-UVP (Part B)

CAS Number: A CAS number has not been assigned to this material

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

This product is intended for use as a self-healing coating for 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 Numbers

Manufacturer: +1 (732) 868-3142 (9am to 6pm EST / UTC -0500)

U.S. Poison Control Center: +1 (800) 222-1222

ChemTel (North America): +1 (800) 255-3924 (during transportation only)

ChemTel (International): +1 (813) 248-0585 (during transportation only – collect calls accepted)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225

Aspiration hazard (Category 1), H304

Skin irritation (Category 2), H315

Skin sensitization (Category 1), H317

Eye irritation (Category 2A), H319

Acute toxicity, Inhalation (Category 4), H332

Respiratory sensitization (Category 1), H334

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

Reproductive toxicity (Category 2), H361

Specific target organ toxicity - repeated exposure (Category 2), H373

Chronic aquatic toxicity (Category 2), H411

2.2 GHS Label elements, including precautionary statements

Pictogram(s): 

Signal Word: Danger

Hazard Statement(s):

H225 Highly flammable liquid and vapor

H304 May be fatal if swallowed and enters airways

H315 Causes skin irritation

H317 May cause an allergic skin reaction

H319 Causes serious eye irritation

H332 Harmful if inhaled

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled

H335 May cause respiratory irritation

- H336 May cause drowsiness or dizziness
- H361 Suspected of damaging fertility or the unborn child
- H373 May cause damage to organs through prolonged or repeated exposure
- H411 Toxic to aquatic life with long lasting effects

Precautionary Statement(s):

- P202 Do not handle until all safety precautions have been read and understood
- 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
- P264 Wash hands thoroughly after handling
- P271 Use only outdoors or in a well-ventilated area
- P273 Avoid release to the environment
- P280 Wear protective gloves/protective clothing/eye protection/face protection
- P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
- P303 + P361 + P353 IF ON SKIN (or hair): Immediately remove all contaminated clothing. Rinse skin with water/shower.
- P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308 + P313 IF exposed or concerned: Get medical advice/attention
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P331 Do NOT induce vomiting
- P332 + P313 IF SKIN irritation occurs: Get medical advice/attention
- P337 + P313 IF eye irritation persists: Get medical advice/attention.
- P362 Take off contaminated clothing and wash before reuse
- P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
- P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up
- P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Repeated exposure may cause skin dryness or cracking (n-Butyl Acetate)

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

Component Name	Formula	CAS #	Concentration
Toluene	C ₇ H ₈	108-88-3	> 40%
n-Butyl Acetate	C ₆ H ₁₂ O ₂	123-86-4	
1,2,4-trimethylbenze	C ₉ H ₁₂	95-63-6	
1,6-Hexamethylene Diisocyanate Homopolymer (HDIH)	(C ₈ H ₁₂ N ₂ O ₂) _x	28182-81-2	> 30%
Trade Secret Ingredients	n/a	n/a	> 10%
Residual Diisocyanate Monomer Content	n/a	n/a	< 0.1%

SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid Measures

General Advice:

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

After Inhalation:

If breathed in, remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. Call a POISON CENTER or doctor/ physician if you feel unwell.

After Skin Contact:

Immediately remove all contaminated clothing. Rinse skin with copious amounts of water / shower. Seek medical attention if irritation develops.

After Eye Contact:

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice / attention.

After Ingesting:

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Call a POISON CENTER or doctor/physician IF you feel unwell.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

The most important known symptoms and effects are described in section 2 and/or in section 11.

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed

No further information available

SECTION 5: FIREFIGHTING MEASURES

5.1 Suitable Extinguishing Media

Use water spray, foam, dry chemical, or CO2

5.2 Special Hazards Arising from the Substance or Mixture

Carbon oxides - nature of all decomposition products not known

5.3 Advice for Firefighters

Wear full protective clothing and self-contained breathing apparatus approved for firefighting. Do not breathe smoke, gases, or vapors generated.

5.4 Other Information

Under fire conditions, material may decompose to form flammable and/or explosive mixtures in air. Use water spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

Use personal protective equipment. Ensure adequate ventilation. Avoid breathing vapors, mist, or gas. Keep unprotected persons away. Eliminate all sources of ignition or overheating. Beware of vapors accumulating to form explosive concentrations. Notify management. Control source of the leak. Contain the spill to prevent spread into drains, sewers, water supplies, or soil. Ventilate area and wash spill site after material pickup is complete.

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

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to Other Sections

For personal protection, see section 8. For disposal see Section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Appropriate personal protective equipment should be used at all times. Provide good ventilation or extraction. Avoid prolonged or repeated breathing of vapor. Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after

handling. Use explosion-proof equipment. Keep away from heat, sparks, flames and other sources of ignition – no smoking. Take measures to prevent the buildup of electrostatic charge. For precautions see section 2.2.

7.2 Conditions for Safe Storage (including any incompatibilities)

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Residual vapors might explode on ignition. Do not apply heat, cut, drill, and grind or weld on or near this container. Storage class (TRGS 510): Flammable liquids

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	CAS #	Value	OSHA (PEL)	ACGIH (TLV)	NIOSH (REL)
Toluene	108-88-3	TWA	200 ppm	20 ppm (75 mg/m ³)	100 ppm (375 mg/m ³)
n-Butyl Acetate	123-86-4	TWA	150 ppm 710 mg/m ³	150 ppm	150 ppm 710 mg/m ³
1,2,4-Trimethylbenze	95-63-6	TWA	n/a	25 ppm	25 ppm 125 mg/m ³

Notes: PEL – Permissible Exposure Limit; TLV – Threshold Limit Values; REL – Recommended Exposure Limits

8.2 Exposure Controls

Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Keep away from food and beverages. Provide good ventilation or extraction. Safety shower and eye bath recommended. Wash hands before breaks & after workday.

Personal Protective Equipment

Respiratory Protection:

Where risk assessment shows air-purifying respirators are appropriate, use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

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

Toxic to aquatic life with long lasting effects. Prevent further leakage or spillage and do not let product enter drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties (of components with known values)

Components:	<u>Toluene</u>	<u>n-Butyl Acetate</u>	<u>1,2,4-TriMB</u>	<u>HDIH</u>
Form:	Liquid	Liquid	Liquid	Liquid
Color:	Colorless	Colorless	Colorless	Light yellow
Odor:	Sweet, pungent	Fruity	Aromatic	Odorless
pH (20 °C):	No Data Available	6.2 at ca.5 g/l	No data available	No data available
Melting Point / Range:	-95 °C (-139 °F)	-78 °C (-108.4 °F)	-44 °C (-47.2 °F)	No Data Available

(cont.)	Toluene	n-Butyl Acetate	1,2,4-TriMB	HDIH
Freezing Point / Range:	-59.4 °C (-74.9 °F)	-107 °C (-160.6 °F)	-60.6 °C (-77 °F)	No Data Available
Boiling Point / Range:	111 °C (232 °F)	126.1 °C (259 °F)	169.4 °C (337 °F)	No Data Available
Flashpoint:	4 °C (39.2 °F)	23 °C (73 °F)	44.4 °C (112 °F)	170 °C (338 °F)
Evaporation Rate:	No Data Available	No Data Available	No Data Available	No Data Available
Flammability (solid, gas):	No Data Available	No Data Available	No Data Available	No Data Available
Upper Explosion Limit:	7.1 % (V)	7.6 % (V)	6.4 % (V)	No Data Available
Lower Explosion Limit:	1.1 % (V)	1.7 % (V)	0.9 % (V)	No Data Available
Vapor Pressure:	2.8 kPa (@ 20 °C)	1.2 kPa (@ 20 °C)	1 mmHg (@ 56°F)	< 0.001 hPa (< 0.001 mmHg) at 20 °C
Vapor Density:	3.2 (Air = 1)	4.0 (Air = 1)	4.1 (Air = 1)	No Data Available
Relative Density:	0.87 g/mL @ 20 °C (68 °F)	0.88 g/cm ³ @ 25 °C (77 °F)	0.876 g/cm ³ @ 20 °C (68 °F)	1.130 g/cm ³ @ 20 °C (68 °F)
Water Solubility:	0.52 g/l @ 20 °C - insoluble	5.3 g/l @ 20 °C - soluble	0.057 g/l @ 25 °C - slightly soluble	Insoluble
Auto-ignition Temperature:	480 °C (896 °F)	370 °C (698 °F)	500 °C (932 °F)	No Data Available
Decomposition Temperature:	No Data Available	No Data Available	No Data Available	No Data Available
Viscosity:	0.590 cP (@ 20 °C)	0.685 cP (@ 25 °C)	No Data Available	No Data Available
Explosive Properties:	No Data Available	> 22°C (vapor / air)	No Data Available	No Data Available

9.2 Other Information

None

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

Vapors may form explosive mixture with air

10.4 Conditions to Avoid

Heat, flames and sparks.

10.5 Incompatible Materials

Water, strong bases, strong oxidizing agents, metals, amines, alcohols, surface active materials, strong reducing agents, nitric acid

10.6 Hazardous Decomposition Products

No data available – in case of fire, see Section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects (of components with known values)

Acute Toxicity	Toluene	n-Butyl Acetate	1,2,4-TriMB
Oral LD50:	5,580 mg/kg (Rat)	10,760 mg/kg (Rat)	5 g/kg (Rat)
Inhalation LC50:	12,500 - 28,800 mg/m ³ (Rat - 4h)	21 mg/l (Rat - 4h)	18 gm/m ³ (Rat - 4 h)
Dermal LD50:	12,196 mg/kg (Rabbit)	14,112 mg/kg (Rabbit)	No Data Available
Skin corrosion/irritation	Skin – Rabbit (24h) Result: Skin irritation	Skin – Rabbit (4h) Result: No skin irritation	No Data Available

Serious eye damage/eye irritation

<u>Toluene</u>	<u>n-Butyl Acetate</u>	<u>1,2,4-TriMB</u>
Eyes – Rabbit Result: No eye irritation	Eyes – Rabbit Result: No eye irritation	No Data Available

Respiratory or skin sensitization

No Data Available	No Data Available	No Data Available
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Germ cell mutagenicity

Rat - Liver DNA damage	Ames test S. typhimurium Result: negative	in vitro assay S. typhimurium Result: negative
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Carcinogenicity

- IARC:** 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Toluene)
- ACGIH:** No component of this product (present at levels greater than or equal to 0.1%) is identified as a carcinogen or potential carcinogen by ACGIH.
- NTP:** No component of this product (present at levels greater than or equal to 0.1%) is identified as a known or anticipated carcinogen by NTP.
- OSHA:** No component of this product (present at levels greater than or equal to 0.1%) is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Toluene

Damage to fetus possible - Suspected human reproductive toxicant
 Reproductive toxicity - Rat - Inhalation
 Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).
 Experiments have shown reproductive toxicity effects in male and female laboratory animals.
 Developmental Toxicity - Rat - Oral
 Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

n-Butyl Acetate

No data available
 Developmental Toxicity - Rat - Inhalation
 No adverse effect has been observed in chronic toxicity tests.

Teratogenicity

No Data Available

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

Toluene: Eyes, Respiratory Tract, Central Nervous System
n-Butyl Acetate: Eyes, Respiratory Tract, Central Nervous System
1,2,4-trimethylbenzene: Eyes, Skin, Respiratory Tract, Central Nervous System

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

Toluene: Skin, Central Nervous System
n-Butyl Acetate: Defats skin
1,2,4-trimethylbenzene: Skin, Lungs, Respiratory Tract, Central Nervous System, Blood

Aspiration hazard

Toluene: May be fatal if swallowed and enters airways.
1,2,4-trimethylbenzene: Aspiration into the lungs may result in chemical pneumonitis.

Additional Information

Toluene (RTECS: XS5250000)
 Lung irritation, chest pain, pulmonary edema, Inhalation studies on toluene have demonstrated the development of inflammatory and ulcerous lesions of the penis, prepuce, and scrotum in animals., Central nervous system
 Stomach - Irregularities - Based on Human Evidence

n-Butyl Acetate (RTECS: AF7350000)
 Repeated dose toxicity - Rat - male and female - inhalation (vapour) - NOAEL : 2.4 mg/l

1,2,4-trimethylbenzene (RTECS: DC3325000)
 Irritation eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude

(weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)

HDIH – No further information available

To the best of our knowledge, the chemical, physical, & toxicological properties have not been thoroughly investigated.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity (of components with known values)

Toluene

Toxicity to fish (LC50):	Oncorhynchus mykiss (rainbow trout) - 7.63 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates (EC50):	Daphnia magna (Water flea) - 8.00 mg/l - 24 h Immobilization EC50 - Daphnia magna (Water flea) - 6 mg/l - 48 h
Toxicity to algae (EC50):	Chlorella vulgaris (Fresh water algae) - 245.00 mg/l - 24 h Pseudokirchneriella subcapitata (green algae) - 10.00 mg/l - 24 h

n-Butyl Acetate

Toxicity to fish (LC50):	Flow-Through Test - Pimephales promelas (fathead minnow) - 18 mg/l - 96h
Toxicity to daphnia and other aquatic invertebrates (EC50):	Static Test - Daphnia (water flea) - 44 mg/l - 48 h
Toxicity to algae (EC50):	Static Test - Desmodesmus subspicatus (Scenedesmus subspicatus) - 674.7 mg/l - 72 h

1,2,4-trimethylbenze

Toxicity to fish (LC50):	Salmo gairdneri - 100 - 180 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates (EC50):	Static Test - Daphnia magna (Water flea) - > 500 mg/l - 48 h
Toxicity to algae (EC50):	No Data Available

12.2 Persistence and Degradability

Toluene: Readily biodegradable in water. Biodegradable in soil. Low potential for adsorption in soil.

n-Butyl Acetate: Aerobic - Exposure time 28 d | Result: 83% - Readily biodegradable

12.3 Bioaccumulative Potential

Toluene: Leuciscus idus (Golden orfe) - 3 d - 0.05 mg/l | Bioconcentration factor (BCF): 90

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

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life with long lasting effects.

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. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated Packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

14.1 Department of Transportation (DOT - US)

UN number: 1866 Class: 3 Packing Group: II
Proper Shipping Name: Resin Solution

14.2 International Maritime Dangerous Goods (IMDG)

UN number: 1866 Class: 3 Packing Group: II
Proper Shipping Name: Resin Solution

14.3 International Air Transport Association (IATA)

UN number: 1866

Class: 3

Packing Group: II

Proper Shipping Name: Resin Solution

14.4 Other

HS Code (first 6 digits) / HTS-US #: 3208.90.0000

SECTION 15: REGULATORY INFORMATION

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

<u>Component Name</u>	<u>CAS #</u>
Toluene	108-88-3
1,2,4-trimethylbenzene	95-63-6

SARA 311/312 Hazards

<u>Component Name</u>	<u>CAS #</u>	<u>Hazards</u>
"HDIH"	28182-81-2	Acute Health Hazard, Chronic Health Hazard
Toluene	108-88-3	Fire Hazard, Acute Health Hazard, Chronic Health Hazard
n-Butyl Acetate	123-86-4	Fire Hazard, Chronic Health Hazard
1,2,4-trimethylbenzene	95-63-6	Fire Hazard, Acute Health Hazard

The following product components are cited on the lists below:

<u>Component</u>	<u>CAS #</u>	<u>List Citations</u>
"HDIH"	28182-81-2	NJ, PA Right to Know
Toluene	108-88-3	MA, NJ, PA Right to Know
n-Butyl Acetate	123-86-4	MA, NJ, PA Right to Know
1,2,4-trimethylbenzene	95-63-6	MA, NJ, PA Right to Know

CALIFORNIA PROPOSITION 65

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

<u>Component</u>	<u>CAS #</u>
Toluene	108-88-3

15.2 Chemical Safety Assessment

A chemical safety assessment was not carried out for this product

SECTION 16: OTHER INFORMATION

REACH Number

A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

HMIS Classification

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

NFPA Rating

Health Hazard:	2
Flammability Hazard:	2
Reactivity Hazard:	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 Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.