

SECTION 1: PRODUCT & COMPANY IDENTIFICATION

1.1 Product Identifiers

Product Name: NANOMYTE® SP-10CE

Product Description: LATP-coated Lithium Manganese Nickel Oxide electrode sheet

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

Identified Uses: Laboratory chemicals, research & development, cathode material, lithium-ion batteries

1.3 Details of the Supplier of the Safety Data Sheet

Company: NEI Corporation

Address: 400 Apgar Drive, Unit E – Somerset, NJ 08873 – United States of America

Phone: +1 (732) 868-3141

Fax: +1 (732) 868-3143

Email: productinfo@neicorporation.com

1.4 Emergency Telephone Number

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

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

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture

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

Skin Sensitization (Category 1), H317

Carcinogenicity (Category 2), H351

2.2 Label Elements

GHS Label Elements, including precautionary statements

Pictogram(s):



Signal Word: Warning

Hazard Statement(s):

H317 May cause an allergic skin reaction

H351 Suspected of causing cancer

Precautionary Statement(s):

P202 Do not handle until all safety precautions have been read and understood.

P232 Protect from moisture.

P261 Avoid breathing dust / fume / gas / mist / vapors / spray.

P272 Contaminated work clothing should not be allowed out of the workplace.

P280 Wear protective gloves, protective clothing, & eye protection.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P308 + P313 IF EXPOSED OR CONCERNED: Get medical advice / attention.

P321 Specific treatment (see supplemental first aid instructions on this label).

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P363 Wash contaminated clothing before reuse

P501 Dispose of contents/ container to an approved waste disposal plant.

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

Combustible dust [Carbon Black]

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

Component Name	Synonyms	Formula	CAS #	Wt. %
LATP-coated Lithium Manganese Nickel Oxide	Spinel, LMNO	$\text{LiMn}_{1.5}\text{Ni}_{0.5}\text{O}_4$	12031-75-3	90%
Hazard Classifications: Skin sensitization (Category 1, H317); Carcinogenicity (Category 2, H351); contains < 0.1% LATP (CAS # 120479-61-0)				
Poly(vinylidene fluoride)	PVDF	$(\text{C}_2\text{H}_2\text{F}_2)_x$	24937-79-9	10%
Hazard Classifications: none				
Carbon Black	Super P	C	1333-86-4	10%
Hazard Classifications: Carcinogenicity (Category 2, H351)				
Aluminum Foil	Aluminium	Al	7429-90-5	(substrate)
Hazard Classifications: none				

SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid Measures

General Advice:

Move out of exposed area. Seek medical attention if irritation occurs. Show this SDS to the doctor in attendance.

After Inhalation:

If breathed in, move person into fresh air. If not breathing, give artificial respiration and seek medical attention.

After Skin Contact:

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

After Eye Contact:

Flush eyes with water as a precaution.

After Swallowing:

Never give anything by mouth to an unconscious person. Rinse mouth with water. Seek medical attention.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

The most important known symptoms and effects are described in Section 2.2 and/or in section 11.

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed

No Data Available

SECTION 5: FIREFIGHTING MEASURES

5.1 Suitable Extinguishing Media

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

5.2 Special Hazards Arising from the Substance or Mixture

Lithium oxides, Manganese oxides, Nickel oxides, Carbon oxides, Hydrogen fluoride

Development of hazardous combustion gases or vapors possible in the event of fire.

5.3 Advice for Firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Other Information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

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

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to Other Sections

For safe handling, see Section 7; 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. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed.

7.2 Conditions for Safe Storage (including any incompatibilities)

Store sealed, in a dry and well-ventilated place. Avoid exposure to moisture / humidity. Avoid contamination with oxidizing agents and other incompatible materials (see Section 10.5).

7.3 Specific End Uses

A part 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	CAS #	Value	Control Parameters	Basis	
Carbon Black	1333-86-4	TWA	3.5 mg/m ³	OSHA Permissible Exposure Limit (PEL)	
			TWA	3.5 mg/m ³	NIOSH Recommended Exposure Limit (REL)
			TWA	0.10 mg PAHs/m ³	NIOSH Recommended Exposure Limit (REL) (carbon black in the presence of PAHs)
Remarks:	Potential Occupational Carcinogen – Carbon black in presence of polycyclic aromatic hydrocarbons				
		TWA	3.0 mg/m ³	(ACGIH) Threshold Limit Value (TLV) (inhalable particulate matter)	
Remarks:	Bronchitis - Confirmed animal carcinogen with unknown relevance to humans				

8.2 Exposure Controls

Appropriate Engineering Controls

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 after use.

Personal Protective Equipment

Eye / Face Protection:

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin Protection:

Handle with 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.

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.

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).

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:	Solid (electrode sheet)
Color:	Black
Odor:	Odorless
pH:	No data available
Melting point/range:	> 290 °C / 554 °F (LMNO)
Specific Gravity:	No data available
Relative Density:	No data available
Viscosity (20 °C):	No data available
Boiling Point:	No data available
Flashpoint:	No data available
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:	No data available
Vapor Density:	No data available
Water Solubility:	No data available
Evaporation Rate:	No data available

9.2 Other Information

No Data Available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No Data Available

10.2 Chemical Stability

Stable under recommended storage conditions (see Section 7.2)

10.3 Possibility of Hazardous Reactions

No Data Available

10.4 Conditions to Avoid

Avoid exposure to humidity & moisture

10.5 Incompatible Materials

Strong oxidizing agents, Chlorates, Nitrates

10.6 Hazardous Decomposition Products

Other Decomposition Products: No Data Available (in the event of fire: see Section 5)

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute Toxicity

Component	Oral (LD50)	Inhalation (LC50)	Dermal (LD50)
Lithium Manganese Nickel Oxide	No data available	No data available	No data available

(cont.)

Component	Oral (LD50)	Inhalation (LC50)	Dermal (LD50)
Carbon Black	> 8,000 mg/kg (Rat)	No data available	No data available
PVDF	No data available	No data available	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

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification. Limited evidence of carcinogenicity in animal studies.

- IARC: Carbon black is possibly carcinogenic to humans (Group 2B). No other component of this product is identified as a probable, possible, or confirmed human carcinogen by IARC.
- ACGIH: Carbon black is a confirmed animal carcinogen with unknown relevance to humans (A3). No other component of this product is identified as a probable, possible, or confirmed human carcinogen by ACGIH.
- NTP: No component of this product is identified as a known or anticipated carcinogen by NTP.
- OSHA: No component of this product is identified as a carcinogen or potential carcinogen by OSHA.

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

Additional Information

RTECS: FF5800000 (carbon black)

Diarrhea, vomiting, and neuromuscular effects such as tremor, clonus, and hyperactive reflexes may occur as a result of repeated exposure to lithium ion. Large doses of lithium ion have caused dizziness and prostration, and can cause kidney damage if sodium intake is limited. Dehydration, weight loss, dermatological effects, and thyroid disturbances have been reported. Central nervous system effects that include slurred speech, blurred vision, sensory loss, ataxia, and convulsions may occur.

Men exposed to manganese dusts showed a decrease in fertility. Chronic manganese poisoning primarily involves the central nervous system. Early symptoms include languor, sleepiness and weakness in the legs. A stolid mask-like appearance of the face, emotional disturbances such as uncontrollable laughter and a spastic gait with tendency to fall in walking are findings in more advanced cases. High incidence of pneumonia has been found in workers exposed to the dust or fume of some manganese compounds.

The chemical, physical, and toxicological properties of this product have not been thoroughly investigated.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Component	Green Algae (IC50)	Freshwater Fish (LC50)	Water Flea (EC50)
Lithium Manganese Nickel Oxide	No data available	No data available	No data available
Carbon Black	10,000 mg/l – 72 h	1,000 mg/l – 96 h	5,600 mg/l – 24 h
PVDF	No data available	No data available	No data available

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

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

13.2 Waste Treatment Methods – Contaminated Packaging

Dispose of properly as you would with unused product.

SECTION 14: TRANSPORT INFORMATION

14.1 Department of Transportation (DOT - US)

Not dangerous goods

14.2 International Maritime Dangerous Goods (IMDG)

Not dangerous goods

14.3 International Air Transport Association (IATA)

Not dangerous goods

14.4 Additional Transport Information

Not classified as dangerous in the meaning of transport regulations.

HST Code / Schedule B #: 2825.90.9000

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

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Right to Know Hazardous Substances

<u>Component</u>	<u>CAS #</u>	<u>List Citations</u>
Lithium manganese nickel oxide	12031-75-3	NJ, PA Right to Know
Poly(vinylidene fluoride)	249347-79-9	NJ, PA Right to Know
Carbon Black	1333-86-4	NJ, PA, MA, MN, LA, CA Right to Know

CALIFORNIA PROPOSITION 65

WARNING! This product contains a chemical known in the State of California to cause cancer

Carbon Black (CAS #1333-86-4)

Toxic Substances Control Act (TSCA) Chemical Substance Inventory

Components: Poly(vinylidene fluoride), CAS #249347-79-9; Carbon Black, CAS #1333-86-4

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.

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.

– END OF SDS –