

## SECTION 1: PRODUCT & COMPANY IDENTIFICATION

### 1.1 Product Identifiers

Product Name: NANOMYTE® BE-200E

Product Description: Graphite Electrode Sheet

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

Identified Uses: Anode material for 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 – 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

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1 Classification of the Substance or Mixture

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

Carcinogenicity (Category 2B), H351 [Carbon Black]

### 2.2 Label Elements

GHS Label Elements, including precautionary statements

Pictogram(s):



Signal Word: Warning

#### Hazard Statement(s):

H351 Contains a component suspected of causing cancer (carbon black)

#### Precautionary Statement(s):

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

P280 Wear protective gloves, protective clothing, & eye protection

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

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 #	Concentration
Graphite	n/a	C	7782-42-5	80 – 90%
Poly(vinylidene fluoride)	PVDF	(C <sub>2</sub> H <sub>2</sub> F <sub>2</sub> ) <sub>x</sub> -	24937-79-9	5 – 10%
Carbon Black	Super P	C	1333-86-4	5 – 10%
Copper foil	n/a	Cu	7440-50-8	(substrate)

## 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 as a precaution.

**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.

**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 Data Available

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**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**

Carbon oxides, hydrogen fluoride

**5.3 Advice for Firefighters**

Wear full protective clothing and self-contained breathing apparatus approved for firefighting.

**5.4 Other Information**

No data available

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**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.

**6.2 Environmental Precautions**

No special environmental precautions required.

**6.3 Methods and Materials for Containment and Cleaning Up**

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.

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**SECTION 7: HANDLING AND STORAGE**

**7.1 Precautions for Safe Handling**

Appropriate personal protective equipment should be used at all times. Provide appropriate exhaust ventilation at places where dust is formed. 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. For precautions see section 2.2.

**7.2 Conditions for Safe Storage (including any incompatibilities)**

Store sealed, in a dry and well-ventilated place.

**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
Graphite	7782-42-5	TWA	15.0 million particles per ft <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) – Table Z-3 Mineral Dusts
		TWA	2.500000 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
Remarks	Millions of particles per cubic foot of air, based on impinger samples counted by light-field techniques. mppcf x 35.3 = million particles per cubic meter = particles per cc			
Carbon Black	1333-86-4	TWA	3.5 mg/m <sup>3</sup>	OSHA Permissible Exposure Limit (PEL)
		TWA	3.5 mg/m <sup>3</sup>	NIOSH Recommended Exposure Limit (REL)
		TWA	0.1 mg PAHs/m <sup>3</sup>	NIOSH Recommended Exposure Limit (REL) (carbon black in the presence of PAHs)
		TWA	3.5 mg/m <sup>3</sup>	(ACGIH) Threshold Limit Value (TLV) (inhalable particulate matter)

**8.2 Exposure Controls**

**Appropriate Engineering Controls**

Handle in accordance with good industrial hygiene and safety practice.

**Personal Protective Equipment**

Respiratory Protection:

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Eye / Face Protection:

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 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.

Skin and Body Protection:

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., 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**

No special environmental precautions required.

**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: No data available
- 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**

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**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**

No Data Available

**10.5 Incompatible Materials**

Strong oxidizing agents

**10.6 Hazardous Decomposition Products**

Under fire conditions: Carbon oxides, hydrogen fluoride (see Section 5)

**SECTION 11: TOXICOLOGICAL INFORMATION**

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**11.1 Information on Toxicological Effects**

**Acute Toxicity**

Oral LD50:	> 2,000 mg/kg (Rat) – (OECD Test Guideline 423)	[Graphite]
	> 6,000 mg/kg (Rat)	[Fluoropolymer]
	> 8,000 mg/kg (Rat)	[Carbon Black]
Inhalation LC50:	2,000 mg/m <sup>3</sup> (Rat – male & female) - (OECD Test Guideline 403)	[Graphite]
Dermal LD50:	> 3,000 mg/kg (Rabbit)	[Carbon Black]
Other:	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**

**IARC:** Group 2B: Carbon black is *possibly carcinogenic* to humans based on sufficient experimental evidence on animals and inadequate evidence from epidemiological studies. No other component of this product (present at levels greater than or equal to 0.1%) is identified as a probable, possible, or confirmed human carcinogen by IARC.

- 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**

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**

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

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**SECTION 12: ECOLOGICAL INFORMATION**

**12.1 Toxicity**

Toxicity to Fish:	LC50 – Danio rerio (zebra fish) > 1,000 mg/l - 96 h	[Carbon Black]
Toxicity to daphnia and other aquatic invertebrates:	EC50 – Daphnia magna (Water flea) > 5,600 mg/l - 24 h	[Carbon Black]
Toxicity to algae:	EC50 - Desmodesmus subspicatus (green algae) 10,000 mg/l - 72 h	[Carbon Black]

**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

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**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.

**13.2 Waste Treatment Methods – Contaminated Packaging**

Dispose of properly as you would with unused product.

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**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 Other**

HST Code / Schedule B #: 2504.90.0000

**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**

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**

Chronic Health Hazard [Carbon Black]

**The following product components are cited on the lists below:**

<u>Component</u>	<u>CAS #</u>	<u>List Citations</u>
Graphite	7782-42-5	NJ, PA Right to Know
Poly(vinylidene fluoride)	24937-79-9	NJ, PA Right to Know
Carbon Black	1333-86-4	MA, NJ, PA, MN, LA, CA Right to Know

**CALIFORNIA PROPOSITION 65**

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

<u>Component</u>	<u>CAS #</u>
Carbon Black	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.

**HMIS Classification**

Health Hazard:	0
Flammability Hazard:	0
Physical Hazard:	0

**NFPA Rating**

Health Hazard:	0
Flammability Hazard:	0
Reactivity Hazard:	0

**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 –**