

SECTION 1: PRODUCT & COMPANY IDENTIFICATION

1.1 Product Identifiers

Product Name: NANOMYTE® BE-150E
Product Description: Silicon Graphite Electrode Sheet

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

Identified Uses: Laboratory chemicals, research & development, 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
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 solids (Category 2), H228
Acute toxicity, Oral (Category 4), H302
Serious eye damage (Category 1), H318
Causes serious eye irritation (Category 2A), H319
Specific Target Organ Toxicity – Single exposure, Respiratory system (Category 3), H335
Carcinogenicity (Category 2B), H351
Short-term (acute) aquatic hazard (Category 1), H400

2.2 Label Elements

GHS Label Elements, including precautionary statements

Pictogram(s): 

Signal Word: Danger

Hazard Statement(s):

H228 Flammable Solid
H302 Harmful if swallowed
H318 Causes serious eye damage
H319 Causes serious eye irritation
H335 May cause respiratory irritation
H351 Suspected of causing cancer
H400 Very toxic to aquatic life

Precautionary Statement(s):

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261 Avoid breathing dust / fume / gas / mist / vapors / spray
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment
P280 Wear protective gloves, protective clothing, & eye protection
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.

P305 + P351 + IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
 P338 + P310
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

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 #	Weight %
Graphite	Carbon (C)	7782-42-5	65%
Hazards: Not a hazardous substance or mixture.			
Silicon	Si	7440-21-3	20%
Hazards: Flammable Solid (Category 2, H228)			
Carbon Mixture	Carbon (C)	n/a	6%
Hazards: Eye irritation (Cat. 2A, H319); Specific Target Organ Toxicity – Single Exposure, Respiratory (Cat. 3, H335); Carcinogenicity (Category 2, H351)			
Poly(acrylic acid)	"PAA" (C ₃ H ₄ O ₂) _n	9003-01-4	4.5%
Hazards: Acute Toxicity (Cat. 4, H302); Eye Damage (Cat. 1, H318); Aquatic Acute Toxicity (Cat. 1, H400)			
Styrene-butadiene copolymer	"SBR" [CH ₂ CH(C ₆ H ₅)] _x	9003-55-8	4.5%
Hazards: Not a hazardous substance or mixture.			
Copper Foil Sheet	Cu	7440-50-8	(substrate)
Hazards: Not a hazardous substance or mixture.			

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. Consult a physician.

After Skin Contact:

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

After Eye Contact:

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

After Swallowing:

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

May cause skin irritation. May cause eye irritation. May be harmful if swallowed. May be irritating to the respiratory system. Overexposure may cause coughing, headache, and nausea. Inhalation of large amounts of silicon is expected to cause necrosis of tracheal epithelium, bronchitis and interstitial pneumonia.

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

Carbon oxides, silicon oxides

5.3 Advice for Firefighters

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

5.4 Other Information

Flammable solid. Irritating fumes / vapors may develop when material is mixed with other materials and exposed to elevated temperatures or open flame.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

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

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

Sweep up and shovel. Contain spillage and collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (Section 13). 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

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. Keep away from sources of ignition – no smoking. Take measures to prevent the build-up of electrostatic charge.

7.2 Conditions for Safe Storage (including any incompatibilities)

Store sealed, in a dry and well-ventilated place, away from heat. May be moisture sensitive.

Storage class (TRGS 510): 4.1B: Flammable solid hazardous materials

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	2.5 mg/m ³	USA. NIOSH Recommended Exposure Limits
		TWA	5 mg/m ³	USA. Occupational Exposure Limits (OSHA)
		TWA	2 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Also see specific listing for Graphite (synthetic).			
Silicon	7440-21-3	TWA	15 mg/m ³ (total dust)	OSHA Permissible Exposure Limit (PEL)
		TWA	5 mg/m ³ (respirable dust)	OSHA Permissible Exposure Limit (PEL)
		TWA	10 mg/m ³ (total dust)	NIOSH Recommended Exposure Limit (REL)
		TWA	5 mg/m ³ (respirable dust)	NIOSH Recommended Exposure Limit (REL)
Remarks	Does not occur free in nature, but is found in silicon dioxide (silica) & in various silicates.			
Carbon Black	1333-86-4	TWA	3.5 mg/m ³	USA. NIOSH Recommended Exposure Limits
		TWA	3.5 mg/m ³	USA. Occupational Exposure Limits (OSHA)
		TWA	3.0 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
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.

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 safety glasses. Use equipment for eye protection 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.

Recommendations: Nitrile, 0.11mm thick (full & splash contact)

Recommendations are advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use. It should not be construed as offering an approval for any specific use scenario.

Skin and Body Protection

Complete suit protecting against chemicals. Impervious, flame retardant, antistatic protective clothing. 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. Discharge into the environment must be avoided.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Form: Solid (cast 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

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

Silicon reacts violently when heated with oxidizers such as potassium nitrate or potassium chlorate.

10.4 Conditions to Avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible Materials

Strong oxidizing agents, alkali carbonates, calcium, cobalt difluoride, manganese trifluoride, chlorates, nitrates

10.6 Hazardous Decomposition Products

Fire Conditions: Carbon oxides, silicon oxides (see Section 5)

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute Toxicity

Component	Oral LD50	Dermal LD50	Inhalation LC50
Graphite	> 2,000 mg/kg (Rat)	No data available	Rat – 4 hr – 2,000 mg/m ³
Silicon	3,160 mg/kg (Rat)	> 5,000 mg/kg (Rabbit)	No data available
Carbon Black	> 8,000 mg/kg (Rat)	> 3,000 mg/kg (Rabbit)	No data available
Poly Acrylic Acid	1,500 mg/kg (Rat)	> 2,000 mg/kg (Rabbit)	Rat – 4 hr – 5.1 mg/l
SBR	No data available	No data available	No data available

Skin corrosion/irritation

No Data Available

Serious eye damage/eye irritation

PAA: Corrosive (Rabbit – ECHA); Silicon: Mild eye irritation (Rabbit, eyes – 24 hr)

Respiratory or skin sensitization

No Data Available

Germ cell mutagenicity

No Data Available

Carcinogenicity

IARC: Group 2B: Possibly carcinogenic to humans based on sufficient experimental evidence on animals and inadequate evidence from epidemiological studies.

Other: No component of this product (present at levels greater than or equal to 0.1%) is identified as a known or anticipated carcinogen by ACGIH, NTP, or 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: MD9659600 [Graphite]; VW0400000 [Silicon]; FF5800000 [Carbon black]; WL6478000 [SBR]

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

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Component	Algae	Freshwater Fish	Water Flea
Graphite	100 mg/l – 72 hr	LC50 > 100 mg/L – 96 hr (zebra fish)	EC50: 100 mg/L – 48 hr
Silicon	No data available	No data available	No data available
Carbon Black	10,000 mg/l – 72 hr	LC50 > 1,000 mg/L – 96 hr (zebra fish)	EC50: > 5,600 mg/L – 24hr
Poly Acrylic Acid	EC50: 0.13 mg/l – 72 hr	27 mg/L – 96 hr (rainbow trout)	EC50: 47 mg/L – 48hr
SBR	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

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life. 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.

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)

UN number: 3178

Class: 4.1

Packing Group: III

Proper Shipping Name: Flammable solid, inorganic, n.o.s. (Silicon and Carbon mixture)

14.2 International Maritime Dangerous Goods (IMDG)

UN number: 3178

Class: 4.1

Packing Group: III

Proper Shipping Name: Flammable solid, inorganic, n.o.s. (Silicon and Carbon mixture)

14.3 International Air Transport Association (IATA)

UN number: 3178

Class: 4.1

Packing Group: III

Proper Shipping Name: Flammable solid, inorganic, n.o.s. (Silicon and Carbon mixture)

14.4 Additional Transport Information

Ground Limited Quantities: 5kg (max net per inner pkg) / 30kg (gross, outer pkg)

Air Excepted Quantities (EQ): 30g (max net per inner pkg) / 1kg (gross, outer pkg) [E1]

Air Limited Quantities (LQ): 10kg (Y443)

HS Code #: 8507.90

Schedule B #: 8507.90.8000

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

Fire Hazard; Chronic Health Hazard

Right to Know Components

Graphite (CAS #7782-42-5); Silicon (CAS #7440-21-3); Poly Acrylic Acid (CAS #9003-01-4); Styrene-butadiene copolymer (CAS #9003-55-8); Carbon Black (CAS #1333-86-4); Copper (CAS #7440-50-8)

CALIFORNIA PROPOSITION 65

This product contains a chemical known to the State of California to cause cancer (Carbon Black, CAS #1333-86-4)

Toxic Substances Control Act (TSCA) Chemical Substance Inventory

Graphite (CAS #7782-42-5); Silicon (CAS #7440-21-3); Styrene-butadiene copolymer (CAS #9003-55-8); Carbon Black (CAS #1333-86-4); Copper (CAS #7440-50-8)

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 –