

SECTION 1: PRODUCT & COMPANY IDENTIFICATION

1.1 Product Identifiers

Product Name: NANOMYTE® BE-70E

Product Description: Sublimed Sulfur electrode sheet

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

Identified Uses: Laboratory chemicals; Synthesis of substances; R&D

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

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

Skin irritation (Category 2), H315

Eye irritation (Category 2A), H319

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

Carcinogenicity (Category 2B), H351

Hazardous to the aquatic environment, acute hazard (Category 3), H402

2.2 Label Elements

GHS Label Elements, including precautionary statements

Pictogram(s): 

Signal Word: Warning

Hazard Statement(s):

H228 Flammable solid

H315 Causes skin irritation

H319 Causes serious eye irritation

H335 May cause respiratory irritation

H351 Contains a component suspected of causing cancer

H402 Harmful to aquatic life

Precautionary Statement(s):

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P264 Wash skin thoroughly after handling.

P280 Wear protective gloves, protective clothing, & eye protection

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

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

NANOMYTE® BE-70E (Sublimed Sulfur electrode sheet)

- P332 + P313 If skin irritation occurs: 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.

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

Combustible dust [Sublimed Sulfur, Carbon Black]

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

| Component Name | Synonyms | Formula | CAS # | Concentration |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------------------------|------------|---------------|
| Sulfur, sublimed | Sulphur, Brimstone | S | 7704-34-9 | 70% |
| Hazard Classification: Flammable solid (Category 2, H228); Skin irritation (Category 2, H315); Eye irritation (Category 2A, H319); Specific target organ toxicity - single exposure (Category 3, Respiratory system, H335); Hazardous to the aquatic environment, acute hazard (Category 3, H402) | | | | |
| Poly(vinylidene fluoride) | PVDF | (C ₂ H ₂ F ₂) _x | 24937-79-9 | 10% |
| Hazard Classification: None | | | | |
| Carbon Black | Carbon, C | C | 1333-86-4 | 20% |
| Hazard Classification: Carcinogenicity (Category 2B, H351) | | | | |
| Aluminum Foil Sheet | Aluminium | Al | 7429-90-5 | (substrate) |
| Hazard Classification: 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:

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

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 the labelling (see 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

Flammable. Containers may explode when heated. Dust can form an explosive mixture in air. Fine dust dispersed in air may ignite. Hazardous combustion products: Sulphur oxides, Carbon oxides, Hydrogen fluoride, Aluminum oxide

5.3 Advice for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

5.4 Other Information

No Data Available

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. Evacuate personnel to safe areas.

6.2 Environmental Precautions

Do not let product enter drains. See Section 12 for additional ecological information. Do not flush into surface water or sanitary sewer system.

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. Remove all sources of ignition.

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. Appropriate personal protective equipment should be used at all times. For precautions see Section 2.2

7.2 Conditions for Safe Storage (including any incompatibilities)

Store sealed, in a dry and well-ventilated place. Avoid contamination with incompatible materials (see Section 10.5)
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 | |
|-----------------|--------------------------------------------------------------------------------------------------|-------|------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Carbon Black | 1333-86-4 | TWA | 3.50 mg/m ³ | OSHA Permissible Exposure Limit (PEL) | |
| | | | TWA | 3.50 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 | 3.50 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

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Keep away from food and beverages. Remove all soiled and contaminated clothing immediately.

Personal Protective Equipment

Eye / Face Protection:

Safety glasses with side-shields conforming to EN166 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.

Recommendation: Nitrile rubber, 0.11mm thick (full or 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.

Body Protection:

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory Protection:

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of Environmental Exposure

Do not let product enter drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

| | |
|----------------------------|------------------------------------------|
| Physical State: | Solid (cast electrode sheet) |
| Color: | Black |
| Odor: | Rotten eggs |
| Odor Threshold: | No Data Available |
| pH: | No Data Available |
| Melting Point / Range: | 113 °C (235.4 °F) [sulfur] |
| Boiling Point / Range: | 445 °C (833.0 °F) [sulfur] |
| Flash Point: | 168 °C (334.4 °F) [sulfur] |
| Evaporation Rate: | Not applicable |
| Flammability (solid, gas): | No Data Available |
| Upper Explosion Limit: | 46.0% [sulfur] |
| Lower Explosion Limit: | 3.3% [sulfur] |
| Vapor Pressure: | No Data Available |
| Vapor Density: | Not applicable |
| Specific Gravity: | 2.07 [sulfur]; 0.1 - 0.12 [carbon black] |
| Relative Density: | No Data Available |
| Water Solubility: | Insoluble |
| Partition Coefficient: | No Data Available |
| Auto-ignition Temperature: | 235 °C (455 °F) [sulfur] |
| Decomposition Temperature: | No Data Available |
| Viscosity: | Not applicable |

9.2 Other Safety Information

No Data Available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

None known, based on information 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 moisture, heat, flames, sparks, and incompatible products. Avoid dust formation.

10.5 Incompatible Materials

Strong oxidizing agents, chlorates, nitrates, amines, bases, strong acids, strong alkaline

10.6 Hazardous Decomposition Products

Sulfur oxides, Carbon oxides, Hydrogen fluoride; Hazardous polymerization does not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute Toxicity

| Component | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|--------------|---------------------|------------------------|------------------------|
| Sulfur | > 3,000 mg/kg (Rat) | > 2,000 mg/kg (Rat) | 9.23 mg/l (Rat, 4 hrs) |
| Carbon Black | > 8,000 mg/kg (Rat) | > 3,000 mg/kg (Rabbit) | No data available |
| PVDF | > 6,000 mg/kg (Rat) | No data available | No data available |

Skin corrosion/irritation

No Data Available

Serious eye damage/eye irritation

Slight irritation [sulfur]

Respiratory or skin sensitization

Patch test (human): negative [sulfur]

Germ cell mutagenicity

Ames test: Not mutagenic

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)

Acute inhalation toxicity – Irritation symptoms in the respiratory tract [sulfur]

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

None known

Aspiration hazard

No Data Available

Additional Information

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

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

| Component | Green Algae | Freshwater Fish | Water Flea |
|--------------|---------------------|---------------------------------------------|---------------------------|
| Sulfur | Not Listed | Oncorhynchus mykiss: LC50 > 180 mg/L – 96hr | EC50: > 5 g/L – 48hr |
| Carbon Black | 10,000 mg/l - 72 hr | Zebra Fish: LC50 > 1,000 mg/L – 96 hr | EC50: > 5,600 mg/L – 24hr |

12.2 Persistence and Degradability

The methods for determining biodegradability are not applicable to inorganic substances.

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

Harmful to aquatic organisms. Avoid releasing into waterways and environment.

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 as unused product, clean residue from packaging (do not allow in drains), & dispose of properly.

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. (Sulfur & 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. (Sulfur & 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. (Sulfur & Carbon mixture)

14.4 Additional Transport Information

HS Code: 2802.00 **Schedule B:** 2802.00.0000
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)

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 Components

| <u>Component</u> | <u>CAS #</u> |
|---------------------------|--------------|
| Sulfur | 7704-34-9 |
| Poly(vinylidene fluoride) | 249347-79-9 |
| Carbon Black | 1333-86-4 |

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

Components: Sulfur (CAS #7704-34-9); 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 –