

## SECTION 1: PRODUCT & COMPANY IDENTIFICATION

### 1.1 Product Identifiers

Product Name: NANOMYTE® SE-50  
Product Description: Polymer-Ceramic composite solid electrolyte  
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

Identified Uses: Scientific research and development (solid electrolyte material for Li-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)

Acute toxicity, Oral (Category 3), H301  
Acute toxicity, Dermal (Category 3), H311  
Skin corrosion (Category 1B), H314  
Serious eye damage (Category 1), H318  
Reproductive toxicity (Category 1B), H360  
Specific target organ toxicity - repeated exposure (Category 2), H373  
Short-term (acute) aquatic hazard (Category 3), H402  
Chronic aquatic toxicity (Category 3), H412

### 2.2 GHS Label elements, including precautionary statements

Pictogram(s): 

Signal Word: Danger

#### Hazard Statement(s):

H301 + H311: Toxic if swallowed or in contact with skin  
H314: Causes severe skin burns and eye damage.  
H318: Causes serious eye damage.  
H360: May damage fertility or the unborn child  
H373: May cause damage to organs through prolonged or repeated exposure  
H412: Harmful to aquatic life with long lasting effects.

#### Precautionary Statement(s):

P260: Do not breathe dust / fume / gas / mist / vapors / spray.  
P264: Wash skin thoroughly after handling.  
P270: Do not eat, drink or smoke when using this product.  
P273: Avoid release to the environment.

- P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P301 + P310 + P330: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.
- P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304 + P340 + P310: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
- 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.
- P310: IF IN EYES: Immediately call a POISON CENTER or doctor/ physician.
- P314: Get medical advice/ attention if you feel unwell.
- P362: Take off contaminated clothing and wash before reuse.
- P405: Store locked up.
- P501: Dispose of contents/ container to an approved waste disposal plant.

## 2.3 Other Hazards (not otherwise classified)

Contains a component that may form explosive peroxides.

## SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

### 3.1 Substances

Component	Synonyms	CAS #	Wt. Percent
Polymer-Ceramic	n/a	n/a*	53 – 56%
<b>Hazard Classification:</b> none			
Bis(trifluoromethane)sulfonamide lithium salt	"LITFSI"	90076-65-6	30 – 32%
<b>Hazard Classification:</b> Acute toxicity, Oral (Cat. 3, H301); Acute toxicity, Dermal (Cat. 3, H311); Skin corrosion (Cat. 1B, H314) Serious eye damage (Cat. 1, H318); STOT RE (Cat. 2, H373); Chronic aquatic toxicity (Cat. 3, H412)			
Tetraethylene glycol dimethyl ether	"TEGDME"	143-24-8	14 – 17%
<b>Hazard Classification:</b> Reproductive toxicity (Category 1B; H360)			

For the full text of the Classification statements mentioned in this Section, see Section 2 & 16

\*This material is not registered in the CAS Registry database.

## 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:

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### After Eye Contact:

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

#### After Swallowing:

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralize.

#### 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

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#### 5.1 Suitable Extinguishing Media

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

#### 5.2 Hazardous Combustion Products

Carbon oxides, Nitrogen oxides (NO<sub>x</sub>), Sulfur oxides, Hydrogen fluoride, Lithium oxides. Ambient fire may liberate hazardous vapors.

#### 5.3 Advice for Firefighters

Wear self-contained breathing apparatus for firefighting. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### 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

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#### 6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

Use personal protective equipment at all times. Wear respiratory protection. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. 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. Discharge into the environment must be avoided.

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

Cover drains. Pick up and arrange disposal without creating dust. Dispose of as hazardous waste.

#### 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

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#### 7.1 Precautions for Safe Handling

Handle in a controlled environment, under inert gas. Appropriate personal protective equipment should be used at all times. Avoid contact with eyes and skin. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Avoid breathing dust. For additional precautions, see section 2.2.

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

Best stored under inert gas. Keep container tightly sealed, in a cool, dry, and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. This material is moisture and air sensitive. Protect from humidity and keep away from water. Keep away from oxidizing agents. Store in a locked cabinet or with access restricted to technical experts or their assistants. Forms explosive peroxides on prolonged storage. May form peroxides on contact with air.

#### 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

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#### 8.1 Control Parameters

##### Components with Workplace Control Parameters

Contains no substances with occupational exposure limit values.

#### 8.2 Exposure Controls

##### Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Keep away from food and beverages.

### 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.

#### 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. Discharge into the environment must be avoided.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on Basic Physical and Chemical Properties

Form: Solid (chunky polymer pieces)

Color: Off-white to yellowish

Odor: Odorless

pH (20 °C): No Data Available

Melting Point / Range: No Data Available

Boiling Point / Range: No Data Available

Flash Point: No Data Available

Evaporation Rate: No Data Available

Flammability: No Data Available

Upper Explosion Limit: No Data Available

Lower Explosion Limit: No Data Available

Vapor Pressure: No Data Available

Vapor Density: No Data Available

Relative Density: No Data Available

Water Solubility: No Data Available

Partition Coefficient: No Data Available

Auto-ignition Temperature: No Data Available

Decomposition Temperature: No Data Available

Viscosity: No Data Available

Explosive Properties: No Data Available

Oxidizing Properties: 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**

Violent reactions possible with strong oxidizing agents. Contains a component that reacts with air to form peroxides.

**10.4 Conditions to Avoid**

Avoid moisture

**10.5 Incompatible Materials**

Strong acids, Oxidizing agents, Oxygen

**10.6 Hazardous 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	Dermal LD50	Inhalation LC50
Polymer-ceramic	No data available	No data available	No data available
"LiTFSI"	210 mg/kg (rat, female)	400 mg/kg (rabbit)	No data available
"TEGDME"	3,640 - 4,160 mg/kg (rat, female)	> 6,900 mg/kg (rat, male)	No data available

**Skin corrosion/irritation**

Contains a component that causes severe skin burns

**Serious eye damage/eye irritation**

Contains a component that causes serious eye damage

**Respiratory or skin sensitization**

No Data Available

**Germ cell mutagenicity**

No Data Available

**Carcinogenicity**

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by EPA, IRAC, NTP, OSHA or ACGIH.

**Reproductive Toxicity**

May damage fertility; may damage unborn child

**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)**

Oral – May cause damage to organs through prolonged or repeated exposure (central nervous system, peripheral nervous system)

**Aspiration Hazard**

No Data Available

**Additional Information (of components)**

**Lithium Salt:** Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. May cause shortness of breath, cough, headache, or nausea.

**RTECS:** SB0400000 (TEGDME); Nausea, headache, vomiting

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

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1 Toxicity

Component	Green Algae (EC50)	Freshwater Fish (LC50)	Water Flea (EC50)
Polymer-ceramic	No data available	No data available	No data available
"LiTFSI"	178 mg/l – 72 hours	88.4 mg/l – 96 hours (rainbow trout)	14 mg/l – 48 hours
"TEGDME"	8,996 mg/l – 72 hours	5,000 mg/l – 96 hours (zebra fish)	7,467 mg/l – 48 hours

### 12.2 Persistence and Degradability

LiTFSI Biodegradability: Aerobic - Exposure time 28 d (Result: 9 % - Not readily biodegradable)

TEGDME Biodegradability: Aerobic - Exposure time 36 d (Result: 99 % - Inherently biodegradable)

### 12.3 Bioaccumulative Potential

LiTFSI Bioaccumulation: Cyprinus carpio (Carp) – 8 Weeks @ 25 °C

### 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

Discharge into the environment must be avoided. Harmful to aquatic life with long lasting effects.

## 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 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: 2923                      Class: 8 (6.1)                      Packing Group: II  
 Proper Shipping Name: Corrosive solids, toxic, n.o.s. (Bis(trifluoromethane)sulfonimide lithium salt)  
 Poison Inhalation Hazard: No

### 14.2 International Maritime Dangerous Goods (IMDG)

UN number: 2923                      Class: 8 (6.1)                      Packing Group: II                      EMS-No: F-A, S-B  
 Proper Shipping Name: Corrosive solids, toxic, n.o.s. (Bis(trifluoromethane)sulfonimide lithium salt)

### 14.3 International Air Transport Association (IATA)

UN number: 2923                      Class: 8 (6.1)                      Packing Group: II  
 Proper Shipping Name: Corrosive solids, toxic, n.o.s. (Bis(trifluoromethane)sulfonimide lithium salt)

### 14.4 Additional Transport Information

**HS Classification #:** 3909.50      **Schedule B #:** 3909.50.1000

Air Excepted Quantities: 30g (net) / 0.5kg (gross) [E2]

Air Limited Quantities: 5kg (Y844)

Ground Limited Quantities: 1kg (net) / 30kg (gross)

**SECTION 15: REGULATORY INFORMATION**

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

**OSHA HAZARDS (HCS)**

Toxic by ingestion, target organ effect, toxic by skin contact, corrosive, aquatic toxicity

**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

The following product components are cited on the lists below:

<u>Component</u>	<u>CAS #</u>	<u>List Citations</u>
Bis(trifluoromethane)sulfonimide lithium salt	90076-65-6	PA, NJ Right to Know
Tetraethylene glycol dimethyl ether	143-24-8	PA, NJ Right to Know

**CALIFORNIA PROPOSITION 65**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**Toxic Substances Control Act (TSCA) Chemical Substance Inventory**

Bis(trifluoromethane)sulfonimide lithium salt (CAS #90076-65-6); Tetraethylene glycol dimethyl ether (CAS #143-24-8)

**15.2 Chemical Safety Assessment**

A chemical safety assessment was not carried out for this product

**SECTION 16: OTHER INFORMATION**

**Full Text of H-Statements referred to under Section 3**

Cat.: Category STOT RE: Specific target organ toxicity, repeated exposure

**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: 3  
 Flammability Hazard: 0  
 Physical Hazard: 1

**NFPA Rating**

Health Hazard: 3  
 Flammability Hazard: 0  
 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.

– END OF SDS –