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.

NANOMYTE® SE-50 (Polymer-Ceramic Composite Solid Electrolyte)

Updated: 22-July-2022 (v2.0)
2.3 Other Hazards (not otherwise classified)

Contains a component that may form explosive peroxides.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>Synonyms</th>
<th>CAS #</th>
<th>Wt. Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymer-Ceramic</td>
<td>n/a</td>
<td>n/a*</td>
<td>53 – 56%</td>
</tr>
<tr>
<td>Hazard Classification: none</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bis(trifluoromethane)sulfonamide lithium salt | "LiTFSI" | 90076-65-6 | 30 – 32% |

**Hazard Classification:** 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% |

**Hazard Classification:** 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

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 (NOx), 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

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

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

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymer-ceramic</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>“LiTFSI”</td>
<td>210 mg/kg (rat, female)</td>
<td>400 mg/kg (rabbit)</td>
<td>No data available</td>
</tr>
<tr>
<td>“TEGDME”</td>
<td>3,640 - 4,160 mg/kg (rat, female)</td>
<td>&gt; 6,900 mg/kg (rat, male)</td>
<td>No data available</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Green Algae (EC50)</th>
<th>Freshwater Fish (LC50)</th>
<th>Water Flea (EC50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymer-ceramic</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>&quot;LiTFSI&quot;</td>
<td>178 mg/l – 72 hours</td>
<td>88.4 mg/l – 96 hours (rainbow trout)</td>
<td>14 mg/l – 48 hours</td>
</tr>
<tr>
<td>&quot;TEGDME&quot;</td>
<td>8,996 mg/l – 72 hours</td>
<td>5,000 mg/l – 96 hours (zebra fish)</td>
<td>7,467 mg/l – 48 hours</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>UN number:</th>
<th>2923</th>
<th>Class: 8 (6.1)</th>
<th>Packing Group: II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name:</td>
<td>Corrosive solids, toxic, n.o.s.</td>
<td>(Bis(trifluoromethane)sulfonimide lithium salt)</td>
<td></td>
</tr>
<tr>
<td>Poison Inhalation Hazard:</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14.2 International Maritime Dangerous Goods (IMDG)

<table>
<thead>
<tr>
<th>UN number:</th>
<th>2923</th>
<th>Class: 8 (6.1)</th>
<th>Packing Group: II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name:</td>
<td>Corrosive solids, toxic, n.o.s.</td>
<td>(Bis(trifluoromethane)sulfonimide lithium salt)</td>
<td></td>
</tr>
<tr>
<td>EMS-No:</td>
<td>F-A, S-B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14.3 International Air Transport Association (IATA)

<table>
<thead>
<tr>
<th>UN number:</th>
<th>2923</th>
<th>Class: 8 (6.1)</th>
<th>Packing Group: II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name:</td>
<td>Corrosive solids, toxic, n.o.s.</td>
<td>(Bis(trifluoromethane)sulfonimide lithium salt)</td>
<td></td>
</tr>
</tbody>
</table>

14.4 Additional Transport Information

<table>
<thead>
<tr>
<th>HS Classification #:</th>
<th>3909.50</th>
<th>Schedule B #:</th>
<th>3909.50.1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Excepted Quantities:</td>
<td>30g (net) / 0.5kg (gross) [E2]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Limited Quantities:</td>
<td>5kg (Y844)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ground Limited Quantities:</td>
<td>1kg (net) / 30kg (gross)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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:

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

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

<table>
<thead>
<tr>
<th>Health Hazard</th>
<th>Flammability Hazard</th>
<th>Physical Hazard</th>
<th>Health Hazard</th>
<th>Flammability Hazard</th>
<th>Reactivity Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

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 –