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Revision Number 0

**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING****GHS product identifier****Product Name** Pb4100N**Other means of identification****Synonyms** None**Recommended use of the chemical and restrictions on use****Recommended Use** Additive into the following products:  
Energy storage devices (i.e., batteries, capacitors)  
Rubber components (seals, etc.)**Uses advised against** This product contains a chemical that is regulated by TSCA Section 5(e) Consent Order and a SNUR at 40CFR721.10663. See Section 15 for additional information.**Supplier's details****Supplier Address**  
Black Diamond Structures  
12310 Trail Driver  
Austin, Texas 78737  
TEL: 512-900-3824**Manufacturer Address**  
Molecular Rebar Design  
13477 Fitzhugh Rd  
Austin, TX 78736  
TEL: 512-394-0922**Emergency telephone number****Emergency Telephone Number** 512-394-0922**2. HAZARDS IDENTIFICATION****Classification**

This chemical is not considered hazardous according to the OSHA Hazard Communication Standard 2012 (29 CFR 1910.1200).

**GHS Label elements, including precautionary statements****Emergency Overview****Signal Word****Warning**

This product contains nanoparticles. Nanoparticles are particles which are <100 nanometers. Nanoparticles may or may not exhibit size-related properties that differ significantly from the properties of the bulk material. These size-related properties may affect absorption, inhalation, and toxicity of the material in animals, humans, and aquatic life.

**Appearance** Black.**Physical State** Liquid.**Odor** Odorless.**Precautionary Statements**

**Prevention**

- None

**General Advice**

- None

**Storage**

- None

**Disposal**

- None

**Hazard Not Otherwise Classified (HNOC)**

There is limited information on inhalation of aqueous suspensions of carbon nanotubes. Fine mists may contain inhalable respirable carbon nanotubes.

**Other information**

5% of the mixture consists of ingredient(s) of unknown toxicity.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

| Chemical Name   | CAS-No | Weight % | Trade secret |
|-----------------|--------|----------|--------------|
| Molecular rebar | -      | 1-5      | *            |

*\*The exact percentage (concentration) of composition has been withheld as a trade secret.*

**4. FIRST AID MEASURES****Description of necessary first-aid measures**

|                       |  |
|-----------------------|--|
| <b>General Advice</b> | Show this safety data sheet to the doctor in attendance.   |
| <b>Eye Contact</b>    | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician or Poison Control Center immediately.  |
| <b>Skin Contact</b>   | IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or Poison Control Center immediately. Wash contaminated clothing before reuse. |
| <b>Inhalation</b>     | IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician or Poison Control Center immediately.   |
| <b>Ingestion</b>      | IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.  |

**Most important symptoms/effects, acute and delayed**

**Most Important Symptoms/Effects** No information available.

**Indication of immediate medical attention and special treatment needed, if necessary**

**Notes to Physician** Treat symptomatically.

**5. FIRE-FIGHTING MEASURES****Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable Extinguishing Media** None

**Specific Hazards Arising from the Chemical**

Non-combustible

**Explosion Data****Sensitivity to Mechanical Impact**

None.

**Sensitivity to Static Discharge**

None.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**6. ACCIDENTAL RELEASE MEASURES****Personal precautions, protective equipment and emergency procedures****Personal Precautions**

Keep people away from and upwind of spill/leak. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.

**Environmental Precautions****Environmental Precautions**

Do not allow material to contaminate ground water system. Prevent product from entering drains. See Section 12 for additional Ecological Information.

**Methods and materials for containment and cleaning up****Methods for Containment**

Dike far ahead of liquid spill for later disposal.

**Methods for Cleaning Up**

Dam up. Soak up with inert absorbent material. Use personal protective equipment. Clean up promptly using a HEPA-filtered vacuum.

**7. HANDLING AND STORAGE****Precautions for safe handling****Handling**

Prevent formation of aerosols or mists. Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe dust/ fume/ gas/ mist/ vapors/ spray. Use only in area provided with appropriate exhaust ventilation.

**Conditions for safe storage, including any incompatibilities****Storage**

Keep containers tightly closed in a dry, cool and well-ventilated place.

**Incompatible Products**

Strong oxidizing agents.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION****Control parameters****Exposure Guidelines**

Little is known about the occupational exposure to nanoparticles which means that regulatory bodies have not identified any exposure guidelines. Refer to "Approaches to Safe Nanotechnology" by the National Institute Occupational Safety and Health (NIOSH) for hazard assessment and risk management techniques.

**Other Exposure Guidelines**

NIOSH proposes a recommended exposure limit (REL) of 1 ug/m<sup>3</sup> elemental carbon as an 8 hr. Time Weighted Average respirable mass airborne concentrations for carbon nanotubes.

**Appropriate engineering controls**

|                             |                     |
|-----------------------------|---------------------|
| <b>Engineering Measures</b> | Showers             |
|                             | Eyewash stations    |
|                             | Ventilation systems |

#### **Individual protection measures, such as personal protective equipment**

|                                 |   |
|---------------------------------|---|
| <b>Eye/Face Protection</b>      | Safety glasses with side-shields. If splashes are likely to occur, wear: Goggles. |
| <b>Skin and Body Protection</b> | Long sleeved clothing. Chemical resistant gloves.                                 |
| <b>Respiratory Protection</b>   | Use type P95 (US) or type P1 (EU EN 143) particulate respirator.                  |

|                         |  |
|-------------------------|--|
| <b>Hygiene Measures</b> | Handle in accordance with good industrial hygiene and safety practice. |
|-------------------------|--|

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### **Information on basic physical and chemical properties**

|                       |           |                       |                           |
|-----------------------|-----------|-----------------------|---------------------------|
| <b>Physical State</b> | Liquid.   | <b>Appearance</b>     | Black.                    |
| <b>Odor</b>           | Odorless. | <b>Odor Threshold</b> | No information available. |

| <b><u>Property</u></b>                        | <b><u>Values</u></b> | <b><u>Remarks/ - Method</u></b> |
|---|----------------------|---------------------------------|
| <b>pH</b>                                     | 4 - 7                | None known                      |
| <b>Melting Point/Range</b>                    | No data available    | None known                      |
| <b>Boiling Point/Boiling Range</b>            | 100 °C               | None known                      |
| <b>Flash Point</b>                            | No data available    | None known                      |
| <b>Evaporation rate</b>                       | No data available    | None known                      |
| <b>Flammability (solid, gas)</b>              | No data available    | None known                      |
| <b>Flammability Limits in Air</b>             |                      |                                 |
| upper flammability limit                      | No data available    |                                 |
| lower flammability limit                      | No data available    |                                 |
| <b>Vapor Pressure</b>                         | No data available    | None known                      |
| <b>Vapor Density</b>                          | No data available    | None known                      |
| <b>Specific Gravity</b>                       | ~ 1g/cm <sup>3</sup> | None known                      |
| <b>Water Solubility</b>                       | No data available    | None known                      |
| <b>Solubility in other solvents</b>           | No data available    | None known                      |
| <b>Partition coefficient: n-octanol/water</b> | No data available    | None known                      |
| <b>Autoignition Temperature</b>               | No data available    | None known                      |
| <b>Decomposition Temperature</b>              | No data available    | None known                      |
| <b>Viscosity</b>                              | No data available    | None known                      |

|                             |               |
|-----------------------------|---------------|
| <b>Flammable Properties</b> | Not flammable |
|-----------------------------|---------------|

|                             |                   |
|-----------------------------|-------------------|
| <b>Explosive Properties</b> | No data available |
| <b>Oxidizing Properties</b> | No data available |

### **Other information**

|                        |                   |
|------------------------|-------------------|
| <b>VOC Content (%)</b> | No data available |
|------------------------|-------------------|

## **10. STABILITY AND REACTIVITY**

### **Reactivity**

No data available.

### **Chemical stability**

Stable under recommended storage conditions.

### **Possibility of hazardous reactions**

None under normal processing.

**Hazardous Polymerization**

Hazardous polymerization does not occur.

**Conditions to avoid**

Do not allow to dry.

**Incompatible materials**

Strong oxidizing agents.

**Hazardous decomposition products**

None known based on information supplied.

**11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure****Product Information**

This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound is not well defined

**Inhalation**

May be harmful if inhaled. There is limited information on inhalation of aqueous suspensions of carbon nanotubes. Fine mists may contain inhalable respirable carbon nanotubes. Evidence from animal studies indicate inhaled nanoparticles may deposit deep in lung tissues possible interfering with lung function.

**Eye Contact**

May cause irritation.

**Skin Contact**

May cause irritation. May be harmful in contact with skin.

**Ingestion**

May be harmful if swallowed.

**Component Information**

No information available.

**Symptoms related to the physical, chemical and toxicological characteristics****Symptoms**

No information available.

**Delayed and immediate effects and also chronic effects from short and long term exposure****Sensitization**

No information available.

**Mutagenic Effects**

No information available.

**Carcinogenicity**

Contains no ingredients above reportable quantities listed as a carcinogen.

**Reproductive Toxicity**

No information available.

**STOT - single exposure**

No information available.

**STOT - repeated exposure**

No information available.

**Aspiration Hazard**

No information available.

**Numerical measures of toxicity - Product****Acute Toxicity**

5% of the mixture consists of ingredient(s) of unknown toxicity.

**12. ECOLOGICAL INFORMATION****Ecotoxicity**

The environmental impact of this product has not been fully investigated.

**Persistence and Degradability** No information available.

**Bioaccumulation** No information available.

**Other Adverse Effects**

No information available.

### 13. DISPOSAL CONSIDERATIONS

**Waste Disposal Methods** This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

**Contaminated Packaging** Do not re-use empty containers.

### 14. TRANSPORT INFORMATION

**DOT** Not regulated

**TDG** Not regulated

**MEX** Not regulated

### 15. REGULATORY INFORMATION

Molecular Rebar® is subject to SNUR regulations as per 40CFR721.10663.

**International Inventories**

|             |                |
|-------------|----------------|
| <b>TSCA</b> | Complies       |
| <b>DSL</b>  | Not determined |

**Legend**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**U.S. Federal Regulations**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

**SARA 311/312 Hazard Categories**

|  |    |
|--|----|
| <b>Acute Health Hazard</b>               | No |
| <b>Chronic Health Hazard</b>             | No |
| <b>Fire Hazard</b>                       | No |
| <b>Sudden Release of Pressure Hazard</b> | No |
| <b>Reactive Hazard</b>                   | No |

**Clean Water Act**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

**U.S. State Regulations****California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

This product does not contain any substances regulated by state right-to-know regulations.

**U.S. EPA Label Information**

EPA Pesticide Registration Number Not applicable

| 16. OTHER INFORMATION |               |   |              |   |                                 |
|-----------------------|---------------|---|--------------|---|---------------------------------|
| <b><u>NFPA</u></b>    | Health Hazard | 0 | Flammability | 0 | Instability 0                   |
| <b><u>HMIS</u></b>    | Health Hazard | 0 | Flammability | 0 | Physical Hazard 0               |
|                       |               |   |              |   | Physical and Chemical Hazards - |
|                       |               |   |              |   | Personal Protection X           |

|               |  |
|---------------|--|
| Prepared By   | Product Stewardship<br>23 British American Blvd.<br>Latham, NY 12110<br>1-800-572-6501 |
| Issuing Date  | 15-Oct-2015  |
| Revision Date | 15-Oct-2015  |
| Revision Note | Initial Release.   |

**General Disclaimer**

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**End of Safety Data Sheet**