



MATERIAL SAFETY DATA SHEET

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SECTION 1. ----- CHEMICAL IDENTIFICATION-----

| | |
|----------|--|
| Name | Carbon nanotubes, single walled, Applicable to NanoLab products PD1.5L1-5, PD1.5L1-5-S, PD1.5L1-5-COOH, PD1.5L1-5-NH2, & other functionalized forms. |
| Synonyms | Single wall carbon nanotubes, CNT, SWCNT, SWNT |

SECTION 2. ----- COMPOSITION/INFORMATION ON INGREDIENTS -----

| | |
|-------------|---|
| Composition | Carbon >95wt%, <5wt% Fe, Ni, Co, SiO ₂ |
| CAS # | 308068-56-6 |

SECTION 3. ----- HAZARDS IDENTIFICATION -----

GHS classification and elements, including precautionary statements per 29 CFR 1910 (OSHA HCS)

Warning Hazard statement(s)

| | | |
|------|--|----------------------------------|
| H319 | Eye irritation (Category 2A), | Causes serious eye irritation. |
| H335 | Respiratory system, specific target organ toxicity - single exposure (Category 3), | May cause respiratory irritation |

Precautionary statement(s)

| | |
|--------------------|--|
| P261 | Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. |
| P264 | Wash skin thoroughly after handling. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P280 | Wear eye protection/ face protection. |
| P304 + P340 + P312 | If inhaled, Move to fresh air and keep comfortable for breathing. |
| P305 + P351 + P338 | If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if possible. Continue rinsing. |
| P337 + P313 | If eye irritation persists: Get medical advice/ attention. |
| P403 + P233 | Store in a well-ventilated place. Keep container tightly closed. |
| P405 | Store locked up. |
| P501 | Dispose of contents/ container to an approved waste disposal plant |

SECTION 4. ----- FIRST-AID MEASURES-----

| | |
|-------------------------|---|
| If swallowed | Wash out mouth with water, provided person is conscious. Call a physician. |
| If inhaled | Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. |
| In case of skin contact | Wash skin with soap and water. |
| In case of eye contact | Flush eyes with copious amounts of water. |

SECTION 5. ----- FIRE FIGHTING MEASURES -----

| | |
|---------------------|--|
| Extinguishing media | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. |
| Firefighters | Wear self-contained breathing apparatus for firefighting if necessary. Wear protective clothing to prevent contact with skin and eyes. Combustion products include oxides of carbon. |



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SECTION 6. ----- ACCIDENTAL RELEASE MEASURES-----

See Section 8 for PPE. Avoid raising dust. Wet the area, collect the spilled powders. Place in a bag or container for waste disposal or incineration. After pickup is complete, ventilate the area and wash the spill site with water & soap.

SECTION 7. ----- HANDLING AND STORAGE-----

Refer to Section 8. For PPE. Keep containers tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non Combustible Solids

SECTION 8. ----- EXPOSURE CONTROLS/PERSONAL PROTECTION-----

PPE

| | |
|------------------------|---|
| Respiratory protection | For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. |
| Eye/face protection | Safety glasses with side-shields conforming to EN166. |
| Skin protection | Handle with chemical resistant gloves. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. |
| Body Protection | Wear impervious clothing, proportional to the concentration and amount of the dangerous substance in the workplace. |

Exposure controls: Mechanical exhaust or other ventilated enclosure, safety shower, eye rinse station

SECTION 9. ----- PHYSICAL AND CHEMICAL PROPERTIES -----

Many physical properties have not yet been measured, but are expected to be similar to graphite powder.

| | |
|-----------------------|---------------------------|
| Color | black, low density powder |
| Solubility | water insoluble |
| Oxidation temperature | 450C in air |
| Melting point | >3000C, vacuum |

SECTION 10. -----STABILITY AND REACTIVITY -----

| | |
|--------------------------|---------------------------------|
| Stability | Stable |
| Incompatibles | Strong oxidizing agents |
| Decomposition products | carbon monoxide, carbon dioxide |
| Hazardous polymerization | will not occur. |

SECTION 11. ----- TOXICOLOGICAL INFORMATION -----

No data available. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12. ----- ECOLOGICAL INFORMATION -----

| | |
|-------------------------------|-------------------|
| Toxicity | No data available |
| Persistence and degradability | No data available |
| Bioaccumulation | No data available |
| Mobility in soil | No data available |
| Other adverse effects | No data available |

SECTION 13. ----- DISPOSAL CONSIDERATIONS -----

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Do not dispose to the drain. Observe all federal, state and local environmental regulations.

SECTION 14. ----- TRANSPORT INFORMATION -----

| | |
|-------|----------------------------------|
| IATA | Not Regulated as dangerous goods |
| USDOT | Not Regulated as dangerous goods |



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SECTION 15. ----- REGULATORY INFORMATION -----

| | |
|-----------------------------|--|
| SARA 302 Components | This chemical is not subject to the reporting requirements of SARA Title III, Section 302. |
| SARA 313 Components | This chemical does not exceed the threshold reporting levels established by SARA Title III, Section 313. |
| SARA 311/312 | Hazards Acute Health Hazard |
| Massachusetts Right To Know | No components are subject to the Massachusetts Right to Know Act. |
| Pennsylvania Right To Know | Carbon Nanotubes CAS-No. 308068-56-6 |
| New Jersey Right To Know | Carbon Nanotubes CAS-No. 308068-56-6 |
| California Prop. 65 | This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm. |

SECTION 16. ----- OTHER INFORMATION -----

This product's safety information is provided to assist our customers in assessing compliance with health, safety, and environmental regulations.

The information contained herein is based on data available to us and is believed to be accurate, although no guarantee or warranty is provided by the company in this respect. Since the use of this product is within the exclusive control of the user, it is the user's obligation to determine the conditions of safe use of this product. Such conditions should comply with all Federal Regulations concerning the product.

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