



Material Safety Data Sheet

BTY-175 Carbon Nanotubes Conductive Additive

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1 – Identification of Substance

Trade Name: Carbon Nanotubes Conductive Additives
Chemical Family: Carbon
Synonyms: Carbon nanotubes; carbon black
CAS Number: 1333-86-4
Manufacturer/Supplier: Blue Nano
17323 Connor Quay Ct, Cornelius, NC 28031, U.S.
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Email: bluenano@BlueNanoInc.com

2 - Composition / Information on Ingredients

Component	CAS Number	Amount (%)
Carbon nanotubes	1333-86-4	>40%
Carbon black	1333-86-4	>40%
Nickel	7440-02-0	<0.1%

3 - Hazards Identification: Potential health effects

Eye contact	Causes eye irritation
Skin contact	No known hazards; may cause skin irritation
Inhalation	Dust is irritating to the respiratory tract
Ingestion	Ingestion of large amounts may cause gastrointestinal irritation
Health effects	Mucus membranes and respiratory tract
Information pertaining to particular dangers for man and environment	R 36/37 Irritating to eyes and respiratory system

4 - First Aid Measures

After inhalation	Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
After skin contact	Get medical aid if irritation develops or persists. Flush skin with plenty of soap and water.
After eye contact	Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
After ingestion	If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.

5 - Fire Fighting Measures

Flash point	Not applicable
Explosion limits	Unknown
Extinguisher medium	Water, carbon dioxide, dry chemical or foam
Special procedures	None
Decomposition products	Carbon monoxide, carbon dioxide
Unusual hazards	Thermal decomposition or combustion may produce dense smoke
Suitable extinguishing agents	Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray.
Special hazards caused by the material, its products of combustion or resulting gases	In case of fire, the following can be released: carbon monoxide.
Protective equipment	Wear self-contained respirator. Wear fully protective impervious suit.

6 - Accidental Release Measures

Person-related safety precautions	Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation.
Measures for environmental protection	Do not allow material to be released to the environment.
Measures for cleaning/collecting	Ensure adequate ventilation.
Additional information	See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

7 - Handling and Storage

Information for safe handling	Keep container tightly sealed. Store in a cool, dry place in tightly closed containers. Ensure good ventilation at the workplace.
Information about protection against explosions and fires	Keep away from bright flashes of light. Flashes of light can cause spontaneous combustion.
Storage	Store in lightproof packaging.
Requirements to be met by storerooms and receptacles	No special requirements.
Information about storage in one common storage facility	Store away from oxidizing agents. Store away from halogens. Do not store together with acids.

8 - Exposure Controls / Personal Protection

Additional information about design of technical systems	Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
General protective and hygienic measures	The usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before breaks and at the end of work. Avoid contact with the eyes. Avoid contact with skin.
Breathing equipment	Use suitable respirator when high concentrations are present.
Protection of hands	Impervious gloves.
Eye protection	Safety glasses.
Body protection	Protective work clothing.

Components with limit values that require monitoring at the workplace:

Graphite	mg/m³
ACGIH TLV	2
Belgium TWA	2.5
Finland TWA	5
France VME	2
Germany MAK	6
Ireland TWA	5
Korea TLV	2
Netherlands MAC-TGG	2
Poland TWA	2
Sweden NGV	5 (dust)
Switzerland MAK-W	2.5
United Kingdom	5-LTEL
USA PEL	15 mppcf

9 - Physical & Chemical Properties

<i>General Information</i>	
Form	Powders
Color	Black
Odor	Odorless
<i>Value/Range Unit Method</i>	
Melting Point / Melting Range	3652 - 3697° C (subl/vac)
Boiling Point / Boiling Range	Not determined
Sublimation Temperature / Start	Not determined
Flash Point	Not applicable
Ignition Temperature	Not determined
Decomposition Temperature	Not determined
Danger of Explosion	Product does not present an explosion hazard
<i>Explosion Limits</i>	
Lower	Not determined
Upper	Not determined
Vapor pressure	Not determined
Density	~ 1.5 g/cm ³ (at 20° C)
Solubility in / miscibility with water	Insoluble

10 - Stability & Reactivity

Thermal decomposition / conditions to be avoided	Decomposition will not occur if used and stored according to specifications
Materials to be avoided	Oxidizing agents, acids, halogens, interhalogens, alkali metals
Dangerous products of decomposition	Carbon monoxide and carbon dioxide

11 - Toxicological Information

Primary irritant effect on the skin	Irritant to skin and mucous membranes.
Primary irritant effect on the eye	Irritating effect.
Sensitization	No sensitizing effects known.
Subacute to chronic toxicity	The inhalation of graphite, both natural and synthetic, has caused pneumoconiosis in exposed workers. The pneumoconiosis found is similar to coal worker's pneumoconiosis.
Additional toxicological information	To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 – Ecological Information

General notes	Do not allow this material to be released to the environment.
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13 – Disposal Considerations

Carbon nanotubes	Consult state, local or national regulations to ensure proper disposal. Specific care should be taken to insure that no carbon nanotubes are released into the environment.
Uncleaned packagings	Consult state, local or national regulations to ensure proper disposal. Specific care should be taken to insure that no carbon nanotube packaging is released into the environment.

14 – Transport Information

Classification	Not a hazardous material for transportation.
DOT regulations	None
Land transport ADR/RID (cross-border)	ADR/RID class
Maritime transport IDMG	IDMG class
Air transport ICAO-TI and IATA-DGR	ICAO/IATA class

15 - Regulations

Hazard Information:

This material is listed on the US Toxic Substances Control Act (TSCA) Inventory and the following chemical inventories: Canadian Domestic Substances List (DSL), European Inventory of Existing Commercial Chemical Substances (EINECS), Korean Existing Chemicals List (ECL), Australian Inventory of Chemical Substances (AICS), the Philippines Inventory of Chemicals and Chemical Substances (PICCS), and the Swiss Giftliste 1 Inventory of Notified New Substances. In addition, this substance is not regulated in Japan and excluded from the Japanese Chemical Substances Control Law according to the Japanese Ministry of Economy, Trade and Industry, formerly the Ministry of International Trade and Industry (MITI).

Hazard symbols	Eye irritant
Risk phrases	36/37 Irritating to eyes and respiratory system
Safety phrases	26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
National regulations	All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory.
Information about limitation of use	For use only by technically qualified individuals.

16 – Other Information

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 Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health Flammability Reactivity BASIS

100 Synthetic graphite powder

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

Health Flammability Reactivity BASIS

100 Synthetic graphite powder

Label Precautions:

Do not get in eyes, on skin or on clothing.

Do not breathe dust.

Wash thoroughly after handling.

Keep container closed.

Use with adequate ventilation.

Label First Aid:

If inhaled, remove to fresh air. If breathing difficulties persist, get medical attention. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. If irritation develops or persists, get medical attention.

Disclaimer:

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