

1. Chemical Product and Company Identification

Trade Name: NYACOL® Nyagraph – All Grades
 Chemical Name: Acid-treated natural graphite flake
 Synonyms: None.
 Product Code: Nyagraph
 Use: Fire barrier additive for polymer systems
 Manufacturer: Nyacol Nano Technologies, Inc.
 Megunko Road, P.O. Box 349, Ashland, MA 01721 U.S.A.
 508-881-2220
 Emergency Telephone: CHEMTREC: 800-424-9300
 E-Mail Contact: info@nyacol.com

2. Composition / Information on Ingredients

<u>Component</u>	<u>CAS RN</u>	<u>Exposure Limits</u>	<u>Percent By Weight</u>
Natural Graphite	7782-42-5	2 mg/m ³ respirable (ACGIH TLV) 15 mppcf (OSHA PEL)	>75
Sulfuric Acid	7664-93-9	1 mg/m ³ (ACGIH TLV) 1 mg/m ³ (OSHA PEL)	10 - 20
Silica (Quartz) / Mica	14808-60-7	0.05 mg/m ³ respirable (ACGIH TLV) Mica - 20 mppcf (OSHA PEL) Quartz (respirable) - 250 mppcf/ (%SiO ₂ +2) (OSHA PEL)	<5

<u>Component</u>	<u>EINECS #</u>	<u>RTECS #</u>	<u>REACH #</u>
Natural Graphite	231-955-3	MD9659600	Not registered by NNT.
Sulfuric Acid	231-639-5	WS5600000	Not registered by NNT.
Silica (Quartz) / Mica	238-878-4	VV7330000	Not registered by NNT.

3. Hazard Identification

Emergency Overview: CAUTION! May be harmful if inhaled. May cause irritation to skin, eyes, and respiratory tract. Contains silica (quartz) which can cause cancer (depending upon duration and period of exposure).

Potential Health Effects / Health Hazard Identification

Acute Exposure: High concentrations of graphite dusts may be irritating to the eyes, mucous membranes, respiratory tract, and skin.

Chronic Exposure: Inhalation of high concentrations of graphite dusts over prolonged periods may cause pneumoconiosis. Symptoms can include cough, shortness of breath and decreased pulmonary function. Pre-existing pulmonary disorders such as emphysema may possibly be aggravated by prolonged exposure to high concentrations of graphite dusts.
 Inhalation of high concentrations of crystalline silica dusts over prolonged periods of time may cause silicosis and has also been linked to an increased incidence of lung cancer. The symptoms are similar to those above for pneumoconiosis.

Other Hazards

Known Synergists: None known.

Fire / Explosion Hazard: Graphite dusts are electrically conductive. Accumulations of dust may cause shorting of electrical circuits. Care should be taken to seal electrical circuits and switches that may be affected. Dusts should not be emitted to the atmosphere where they may settle on and cause shorting of outside electrical equipment. Graphite forms an explosive mixture with air, and may be spontaneously combustible in air.

Corrosion Hazard: Not available.

4. First Aid Measures

Eye Contact:	Flush with water for at least 15 minutes. Seek medical attention if irritation develops or persists.
Skin Contact:	Wash thoroughly with mild soap and water. Dermatitis should be treated symptomatically by a physician.
Ingestion:	Not expected to be an important route. If material is ingested, vomiting may be induced. Never give anything by mouth to an unconscious person.
Inhalation:	Remove from exposure. Begin rescue breathing (using universal precautions) if breathing has stopped.
First Aid Facilities:	Eye wash station. Syrup of Ipecac.

5. Firefighting Measures

Flammability:	Bulk material is non-combustible. Dusts are combustible.
Extinguishing Media:	Use water, CO ₂ , dry chemical or foam to extinguish.
Protective Equipment:	Wear standard full firefighter turn-out gear (full bunker gear) and respiratory protection (SCBA).
Special Exposure Hazard:	Material volume expands up to 200-300 times when exposed to heat.

6. Accidental Release Measures

Leaks and Spills:	Material is very slippery. Use care when cleaning spilled material. Remove ignition sources. Collect powdered material in the most convenient and safe manner, wet to avoid dust generation, deposit in sealed containers. Ventilate area after clean-up is complete.
Personal Protection:	See Section 8.

7. Handling and Storage

Handling:	Prior to working with this chemical, workers should be trained on its proper handling and storage.
Storage:	Store in tightly closed containers in a cool, well-ventilated area.

8. Exposure Controls/Personal Protection

Respiratory Protection:	Wear proper respiratory protection to limit exposure to acceptable levels.
Skin Protection:	Wear protective gloves and clothing to prevent skin contact.
Eye Protection:	Contact lenses should not be worn. Wear dust-proof chemical goggles and face shield unless full-face respiratory protection is worn.

9. Physical and Chemical Properties

Appearance:	Soft black solid
Odor:	Slight to none.
Physical State:	Solid
pH:	>6
Boiling Point:	Not applicable.
Melting Point:	3650°C (sublimes)
Flash Point:	Not applicable.
Vapor Pressure:	Not applicable.
Oxidizing Properties:	None.
Solubility in Water:	Insoluble
Density:	Not available.
Specific Gravity:	2 - 2.5
Volatile by Weight:	Not applicable.
Viscosity:	Not applicable.
Explosion Limits:	Not available.
Partition Coefficient:	Not applicable.
Evaporation Rate:	Not applicable.

10. Stability and Reactivity

Chemical Stability:	Material is stable in ambient conditions. Material will expand (up to 200 to 300 times) when exposed to temperatures above 150°C.
Conditions to Avoid:	Incompatibles.
Incompatibility with Other Materials:	Graphite is a strong reducing agent and reacts violently with oxidizers, such as fluorine, chlorine trifluoride, potassium peroxide.
Hazardous Decomposition Products:	Water, oxides of sulfur. Carbon dioxide and carbon monoxide may form when heated to decomposition.
Hazardous Polymerization:	Will not occur.

11. Toxicological Information

<u>Material</u>	<u>LD₅₀, Rat, Oral</u>
Expandable Graphite:	No information found.
Eye Effects:	See Section 3.
Skin Effects:	See Section 3.
Inhalation Effects:	See Section 3.
Ingestion Effects:	See Section 3.

12. Ecological Information

Ecotoxicity:	No information found.
Persistence:	No information found.

13. Disposal Considerations

Disposal Considerations:	Carbon (graphite) fibers are difficult to dispose of by incineration. Wastes should be packaged and disposed of in a landfill authorized for the disposal of wastes of this type in accordance with local, state and federal regulations.
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14. Transport Information

<u>Regulations</u>	<u>Shipping Name</u>	<u>Hazard Class</u>	<u>Packing Group</u>	<u>U.N. Number</u>
U.S. D.O.T.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

15. Regulatory InformationU.S. Federal Regulations

EPA TSCA Inventory:	All ingredients listed.
SARA Section 313:	Not applicable.
D.O.T. Regulations:	See Section 14.

U.S. State Regulations

California Proposition 65:	The crystalline silica component of this material has been identified as a "chemical known to the state of California to cause cancer."
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Canadian Regulations

Domestic Substance List:	All ingredients listed.
WHMIS:	Controlled D2A, E

16. Other Information

NFPA 704 Hazard Rating: Health – 1, Flammability – 0, Reactivity – 0
HMIS[®] Hazard Rating: Health – *3, Flammability – 0, Reactivity – 0
Protective Equipment – E; safety glasses, gloves, dust respirator
Recommended Use: Flame retardant additive
Work Alert: Workers using this product should read and understand this MSDS and be trained in the proper use of this material.
MSDS Prepared By: John G. Blumberg, Esq.
1100 East Hector Street, Suite 206
Conshohocken, PA 19428 U.S.A.
610-825-8823
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Supersedes: October 10, 2008

This MSDS has been prepared with data from Nyacol Nano Technologies, Inc.'s laboratories, raw material suppliers and government publications.

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