Indigo Chemical

Version 1.0
Revision Date 4/26/2025

Safety Data Sheet

SECTION 1: IDENTIFICATION

Product Identifier: Arc-Discharge Fullerene Soot
Other Means of Identification: Unextracted soot, carbon soot containing fullerenes
Recommended Use: Research chemical; not for drug, food, or household use
Restrictions on Use: For laboratory/research use only
Manufacturer: Indigo Chemical LLC
Address: Indigo Chemical LLC, 167 Madison Avenue, Ste 205 #555, New York City, NY 10016, United States
Phone: N/A
Emergency Phone Number: In emergency, call 911
Info Contact: info@indigochem.com

SECTION 2: HAZARD(S) IDENTIFICATION

Classification: Eye Irritant (Category 2B), STOT-SE (Category 3, respiratory tract), Combustible Dust (OSHA-defined hazard)
Signal Word: Warning
Hazard Statements: H320: Causes eye irritation; H335: May cause respiratory irritation, Dust Hazard: May form combustible dust concentrations in air.
Pictogram:

Precautionary Statements: P261, P264, P271, P304+P340, P305+P351+P338
Other Hazards: Fine carbonaceous particles may form explosive dust-air mixtures. Prolonged or repeated inhalation of soot may cause respiratory tract irritation or lung inflammation.
Unknown Acute Toxicity: ~10–20% of mixture consists of carbonaceous material and trace impurities of unknown acute toxicity.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name: Fullerene (C_{60}/C_{70} mixture)
Synonym: Buckminsterfullerene
CAS#: 99685-96-8
Concentration: 5–20%

Chemical Name: Carbon black (amorphous carbon)
Synonym: Soot, carbonaceous matrix
CAS#: 1333-86-4
Concentration: 80-95%

SECTION 4: FIRST-AID MEASURES

Skin: Wash thoroughly with soap and water. Remove contaminated clothing and wash before reuse. Seek medical attention if irritation develops.
Eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention if irritation persists.
Inhalation: Move to fresh air. If breathing is difficult, administer oxygen if available. Seek medical attention if symptoms persist.
Ingestion: Rinse mouth with water. Do not induce vomiting unless instructed by medical personnel. Seek medical attention if feeling unwell.
Symptoms: May cause mild respiratory irritation, coughing, or mechanical eye irritation.
Special Treatment: Immediate medical attention is not typically required. Treat symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media: Use carbon dioxide (CO_2), dry chemical powder, or foam. Do not use water spray directly on dust clouds.
Hazards: Fine soot particles may form explosive dust-air mixtures. Carbon monoxide (CO) and carbon dioxide (CO_2) may be generated during combustion.
Protective Equipment: Wear self-contained breathing apparatus (SCBA) and full protective gear. Avoid stirring up dust during firefighting operations. Cool sealed containers with water spray if safe to do so.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Precautions: Avoid generation of airborne dust. Wear appropriate personal protective equipment (PPE) including N95 or P100 respirators, nitrile gloves, and safety goggles. Evacuate unnecessary personnel from the area.
Environmental: Prevent entry into sewers, surface water, or soil. Avoid environmental release of fine particles.
Cleanup: Avoid creating dust clouds. Sweep up material carefully using non-sparking tools. Place collected material into properly labeled, sealable containers. Ventilate the area after cleanup. Dispose of material according to local, regional, and national regulations.

SECTION 7: HANDLING AND STORAGE

Handling: Handle in a well-ventilated area. Avoid the generation and accumulation of airborne dust. Use non-sparking tools and explosion-proof equipment where applicable. Avoid contact with eyes, skin, and clothing. Do not eat, drink, or smoke while handling material. Wash thoroughly after handling.
Storage: Store in a cool, dry, well-ventilated area away from strong oxidizing agents. Keep container tightly closed when not in use. Protect from physical damage and sources of ignition. Avoid storage conditions that could generate static electricity.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Local exhaust ventilation is recommended to control airborne dust concentrations, particularly in areas where soot particles are generated. Explosion-proof equipment should be used where applicable to minimize dust accumulation and prevent potential ignition.

Personal Protective Equipment (PPE): To prevent inhalation of fine dust particles, N95 or P100 respirators should be worn. Nitrile gloves are recommended to avoid skin contact, while safety goggles or face shields should be worn to protect the eyes from soot irritation. Additionally, workers should wear appropriate protective clothing to prevent direct contact with the material.

Work Hygienic Practices: It is important to avoid eating, drinking, or smoking while handling the material and to wash thoroughly after handling. Ensure proper hygiene practices in the laboratory and clean up any accumulated dust to minimize prolonged exposure.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Form: Fine black powder (carbonaceous particles containing fullerenes)
Odor: Odorless (may smell faintly aromatic)
pH: Not applicable
Melting Point: ~280 °C
Boiling Point: Decomposes
Flash Point: Not applicable
Flammability: Dust hazard possible
Vapor Pressure: Negligible
Density: ~1.65 g/cm³
Solubility: Insoluble in water; soluble in toluene
Partition Coefficient: log Kow ~6.67
Decomposition Temp: >500 °C

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Stable under normal conditions of use and storage.
Stability: Stable under recommended storage conditions.
Conditions to Avoid: Heat, sparks, open flames, and other sources of ignition.
Incompatible Materials: Strong oxidizing agents, such as concentrated acids or peroxides.
Hazardous Decomposition Products: Carbon monoxide (CO), carbon dioxide (CO_2), fine soot particles may be released during combustion or decomposition.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure Routes: Inhalation, skin, and eye contact are the primary routes of exposure.
Symptoms: May cause mild respiratory irritation, coughing, or mechanical eye irritation. Prolonged or repeated exposure may cause respiratory tract irritation or lung inflammation.
Toxicity:

- **Oral LD50**: >15,000 mg/kg (rat) (data for carbon black, one of the main components).
- **Carcinogenicity**: Not listed by NTP or IARC. However, carbon black (a primary component) is classified as a Group 2B carcinogen (possibly carcinogenic to humans) by IARC.
- **Target Organs**: Respiratory system (dust inhalation may cause irritation).
- **Additional Information**: Exposure to fine dust particles over extended periods may contribute to lung disease or respiratory issues.
- **Acute Toxicity**: Minimal, with low risk when handled appropriately.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Low toxicity to aquatic organisms based on component information (carbon black).
Mobility: Low mobility in soil; unlikely to leach into groundwater.
Biodegradation: Not readily biodegradable.
Bioaccumulation: High potential for bioaccumulation due to its carbon content and long persistence in the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of in accordance with local, regional, and national regulations. Avoid environmental release of fine dust particles. Collect material carefully to prevent generation of airborne dust. For cleanup, use non-sparking tools, and place collected material in properly labeled, sealable containers. If necessary, triple rinse containers before disposal. Ensure that disposal methods do not lead to environmental contamination.

SECTION 14: TRANSPORT INFORMATION

UN Number: Not regulated
Shipping Name: Not hazardous
Hazard Class: Not applicable
Packing Group: Not applicable
Marine Pollutant: No
Precautions: Avoid airborne dust. Use proper protective equipment during handling and transport to minimize exposure to dust particles.

SECTION 15: REGULATORY INFORMATION

SARA 355: Not listed
SARA 313: Not listed
CAA 112 HAPs: Not listed
TSCA: Listed (C60 fullerene is included in the TSCA inventory)
California Proposition 65: This product does not contain any substances known to the State of California to cause cancer, birth defects, or other reproductive harm.
OSHA Hazard Communication Standard: This material is considered hazardous under OSHA criteria due to dust hazards and possible respiratory irritation.

SECTION 16: OTHER INFORMATION

SDS Preparation Date: April 26, 2025

Disclaimer: The information in this SDS is based on the current state of knowledge and is provided in good faith. However, no warranty, either expressed or implied, is made regarding the accuracy or completeness of the information. Users are responsible for assessing the suitability of this information for their particular use and for taking appropriate precautions.