Safety Data Sheet
according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: March 22, 2023

1 – Identification

Product identifier

· **Trade name: Carbon Fiber, PAN-based**
· **CAS Number:** 7440-44-0

· **Recommended use:** Industrial uses, raw material for production of carbon fiber-reinforced plastics

Details of the supplier of the Safety Data Sheet
· **Manufacturer/Supplier:**
Asbury Carbons, Inc.
PO Box 144, 405 Old Main Street
Asbury, NJ 08802 USA
+1 908-537-2155
· **Emergency telephone number:**
ChemTel 800-255-3924 (North America)
+1 (813)248-0585 (International)

2 - Hazards Identification

Classification of the substance or mixture:
Combustible Dust - May form combustible dust concentrations in air

Label Elements
GHS label elements
This product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms:** none required
- **Signal word:** Warning
- **Hazard statements:** May form combustible dust concentrations in air.
- **Precautionary statements:**
Prevent dust accumulations to minimize explosion hazard.
Keep away from all ignition sources including heat, sparks and flame.

Other hazards
Carbon fibers themselves are not classified as hazardous.

However, in processing carbon fiber-reinforced materials (e.g. sawing, grinding, milling) fibrous particles can be released, which fulfill the WHO criteria for respirability, i.e. these fragments can penetrate the alveoli. Such fibers are classified under Technical Regulation for Hazardous Substances (TRGS) 905 as a category 3 carcinogenic substance (suspected carcinogenic substances). For this reason, suitable measures to minimize exposure must be implemented (enclosure and extraction). Assessment of the possible exposure at the workplace must be carried out by the user.

May produce an allergic reaction. Carbon fibers are electrically conductive and may cause a short circuit in electrical equipment. Improve level of electrical protective measure. IP54 is demanded.

3 – Composition/Information on Ingredients

Chemical characterization: Substances

CAS No., Description:	7440-44-0	Carbon fiber, non-graphitic	91-100%
	n/a	Impurities	0-9%

4 – First Aid Measures

Description of first aid measures

· **After inhalation:** Provide fresh air. Dust may cause irritation.

· **After skin contact:**

Gently wash with plenty of soap and water. Fibers may cause skin irritation. Take off immediately all contaminated clothing. Remove by taping skin with adhesive surface material, such as Scotch® clear cellophane tape. In all cases of doubt, or when symptoms persist, seek medical advice.

· **After eye contact:**

May cause irritation to eyes. In case of contact with eyes, rinse immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently consult an ophthalmologist. In all cases of doubt, or when symptoms persist, seek medical advice.

· **After swallowing:**

May cause irritation to mucous membranes Do NOT induce vomiting. In all cases of doubt, or when symptoms persist, seek medical advice.

·**Most important symptoms and effects, both acute and delayed:** None

·**Indication of any immediate medical attention and special treatment needed:** None

5 – Fire Fighting Measures

Extinguishing media

· **Suitable extinguishing agents:** Foam. Carbon dioxide (CO_2). Extinguishing powder water spray.
· **For safety reasons unsuitable extinguishing agents:** High power water jet.
· **Special hazards arising from the substance or mixture**

In case of fire may be liberated: Carbon dioxide (CO_2), Sulphur dioxide (SO_2), Carbon monoxide, Hydrocyanic acid (HCN). (Fires of solids, mainly organic nature, which normally burn down under glow forming.)

Advice for firefighters

· **Protective equipment:**

Do not inhale explosion and combustion gases. In case of insufficient ventilation, wear suitable respiratory equipment. [EN 12021]

6 – Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Wear personal protection equipment (refer to section 8). Avoid dust formation. Wear personal protection equipment (refer to section 8). [DIN EN 469, EN 12021]

· **Environmental precautions** None
· **Methods and material for containment and cleaning up**

Because the dust is electrically conductive and may become airborne, clean up with a vacuum. If an electrical appliance is used, take the steps necessary to avoid the risk of electrical shock.

· **Reference to other sections**

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

Handling

· **Precautions for safe handling:**

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Avoid contact with eyes and skin. Ensure adequate ventilation of the storage area. May produce an allergic reaction. Carbon fibers are electrically conductive and may cause a short circuit in electrical equipment. Improve level of electrical protective measure. IP54 is demanded.

·**Information about protection against explosions and fires:**
Dust should be exhausted directly at the point of origin. Further remarks: section 9 (Other information)

·**Advice on general occupational hygiene**
Ensure adequate ventilation of the working area.

Conditions for safe storage, including any incompatibilities

· **Requirements to be met by storerooms and receptacles:**
Keep in a dry place. Keep container tightly closed in a cool, well-ventilated place. Store in correctly labelled containers.

· **Information about storage in one common storage facility:** Do not store together with oxidizing agents

· **Further information about storage conditions:** none

8 – Exposure Controls/ Personal Protection

Control parameters

· **Additional advice on limit values:**
If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.
Worker, industry and Worker, professional: DNEL/DMEL (inhalation): 10 mg/m³

Exposure controls

· **Engineering controls:** "Dust: 10 mg/m³ (inhalable); 1.25 mg/m³ (alveolar) [TRGS 900]"
Procedures to check the limit monitoring: [DIN EN 481].

· **Breathing equipment:**
If technical exhaust or ventilation measures are not possible or insufficient , respiratory protection must be worn. [EN 149]. Half-face mask or quarter facepiece: maximum use concentration for substances with exposure limits: FFP1 filter: up to a max of 4 times the exposure limit. FFP2 filter: up to a max of 10 times the exposure limit. FFP3 filter: up to a max of 30 times the exposure limit

· **Protection of hands:** PVC, NR (natural rubber, natural latex), NBR (Nitrile rubber), Butyl caoutchouc (butyl rubber)

· **Eye protection:** Avoid contact with eyes. Dust protection goggles.

· **Body protection:** Recommendation protective suit.

· **Limitation and supervision of exposure into the environment:** No relevant information available.

· **Risk management measures:** No relevant information available.

9 – Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance:	black fiber
Odor:	Odorless
pH-value:	Not applicable.
Melting point/Melting range:	~ 3,500°C
Boiling point/Boiling range:	Not determined.
Flash point:	Not determined
Flammability (solid, gaseous):	Not determined.
Auto-ignition temperature:	Not determined.
Decomposition temperature:	>650°C in air

Danger of explosion:
Potential for weak explosion with milled fiber or dusts
Class St 1* / <50 Kst (bar·m/s) *OSHA CPL 03-00-008 – Combustible Dust National Emphasis Program

Explosion limits
Lower: Not determined.
Upper: Not determined.

Oxidizing properties: Non-oxidizing.

Vapor pressure: Not determined.
Relative density: 1.81
Vapor density: Not applicable.
Evaporation rate: Not applicable.
Solubility in / Miscibility with Water: negligible (dispersible)
Partition coefficient (n-octanol/water): Not determined.
Viscosity: Not applicable.
Other information: No relevant information available.

10 – Stability and Reactivity

Reactivity: can react with strong oxidizing agents
Chemical stability: stable under normal ambient and anticipated storage and handling conditions of temperature and pressure
Thermal decomposition / conditions to be avoided: see SECTION 7
Possibility of hazardous reactions: can react with strong oxidizing agents
Incompatible materials: can react with strong oxidizing agents
Hazardous decomposition products:

Products of combustion and decomposition will depend on other materials present in the fire and the fire conditions. Burning will produce CO2, CO, and minute amounts of N2, HCN and H2O.

11 – Toxicological Information

Information on toxicological effects
Acute toxicity:

Based on available data the classification criteria are not met.
Acute toxicity (oral): LD50: > 2000 mg/kg bw/day [Rat] (OECD 423)
Acute toxicity (dermal): No data available
Acute toxicity (inhalative): No data available

Subacute oral toxicity (Rat) OECD 422 :
859 mg/kg bw/day (male)
1051 mg/kg bw/day (female premating)
994 mg/kg bw/day (female gestation)
1521mg/kg bw/day (female lactation)

LD/LC50 values that are relevant for classification:

CAS 7440-44-0: oral LD50 >2000 mg/kg, rat (source: OECD 423 / EU B.1)

Primary irritant effect:
· **On the skin:** Not an irritant. [Rat] (OECD 404)
· **On the eye:** Not an irritant. [Rabbit] (OECD 405)
· **Sensitization:** Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction:

Based on available data the classification criteria are not met.

Probable route(s) of exposure: dermal, Eye contact, Inhalation, ingestion
STOT-single exposure: Based on available data, the classification criteria are not met.
STOT-repeated exposure: Based on available data, the classification criteria are not met.
Aspiration hazard: No data available

12 – Ecological Information

Ecotoxicity:

Acute (short-term) fish toxicity: LC50: > 100 mg/l Exposure time: (96 h) Method: OECD 203
Acute Daphnia toxicity: EC50 > 100 mg/l Exposure time: (48 h) Method: OECD 202
Algae toxicity: EC50 > 100 mg/l Exposure time: (72 h) Method: OECD 201
Bacterial toxicity: > 1000 mg/l Exposure time: (3 h) Method: OECD 209

Persistence and degradability: No relevant information available.
Bioaccumulative potential: No relevant information available.
Mobility in soil: No relevant information available.
Other adverse effects: No relevant information available.

13 – Disposal Considerations

Waste treatment methods
Recommendation:
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

Uncleaned packaging:
Recommendation: Disposal must be made according to official regulations.

14 – Transport Information

UN-Number
DOT, ADR/RID/ADN, IMDG, IATA: Not regulated.

UN proper shipping name
DOT, ADR/RID/ADN, IMDG, IATA: Not regulated.

Transport hazard class(es)
DOT, ADR/RID/ADN, IMDG, IATA: Not regulated.

Packing group
DOT, ADR/RID/ADN, IMDG, IATA: Not regulated.

Environmental hazards
Marine pollutant: No

Special precautions for user: Not applicable.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.

15 – Regulatory Information

Canadian regulations - additional information:

"The ""minimum standards for non-respirable fibers"" in accordance with TRGS 521 point 4 apply."

Registration Status:

All components of this product are included on the inventories of, or are not required to be listed on the inventories of:
EU --> EINECS/ELINCS
USA --> TSCA
CAN --> DSL
JPN --> ENCS (Class 1 & 2)
CHN --> IECS
KOR --> KECI
AUS --> AICS
NZL --> NZIoC / HSNO
PHL --> PICCS
JP --> MITI

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16 – Other Information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Abbreviations and acronyms:
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
OSHA: Occupational Safety & Health Administration
Carc. 1A: Carcinogenicity – Category 1A
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

Sources
Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services
(ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

For other local and industry-specific regulatory declarations, please visit
https://asbury.com/resources/asbury-carbons-regulatory-statements/