Safety Data Sheet
according to Commission Regulation (EU) 2020/878 of 18 June 2020

1 – Identification of the substance/mixture and of the company/undertaking

1.1: Product identifier

Trade name: Carbon Fiber, PAN-based
CAS Number: 7440-44-0
REACH Pre-Registration Number: 05-2116318770-49-0000

1.2: Relevant identified uses of the substance and uses advised against

Recommended use: Industrial uses.
Restrictions on use: Not intended for food and drug use.

1.3: Details of the supplier of the Safety Data Sheet

Manufacturer/Supplier:
Asbury Carbons, Inc.
Fregatweg 46 B-C
Limburg, Maastricht 6222 NZ

Chemtel: +(813)248-0585
Asbury: 011-31-040-7600610
Preparer: RTW
Email Address: rweir@asbury.com
Date Prepared: 2/23/2023 (replaces version 7/5/2018)

1.4: Emergency telephone number:

ChemTel 800-255-3924 (North America)
+1 (813)248-0585 (International)

2 - Hazards Identification

2.1: Classification of the substance

Combustible Dust - May form combustible dust concentrations in air

2.2: 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:**
  Keep away from all ignition sources including heat, sparks and flame.
  Prevent dust accumulations to minimize explosion hazard.

Additional information:

Read the label and safety data sheet before use. Prevent dust accumulations to minimize explosion hazard.

2.3: Other hazards:

May form explosible dust-air mixture if dispersed.

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

Substance: Carbon fiber, non-graphitic
CAS #: 7440-44-0
EC #: 231-153-3
REACH Pre-Registration number: 05-2116318770-49-0000

4 – First Aid Measures

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

4.2: Most important symptoms and effects, both acute and delayed

None

4.3: Indication of any immediate medical attention and special treatment needed

None

5 – Firefighting Measures

5.1: Extinguishing media

- **Suitable extinguishing media:** Foam. Carbon dioxide (CO2). Extinguishing powder water spray.
- **Unsuitable extinguishing media:** High power water jet.

5.2: Special hazards arising from the substance or mixture

- Can pose a dust explosion hazard if dispersed in air. Avoid ignition sources.
- Combustible dust Class ST1 - potential for weak explosion with milled fiber or dusts
- In case of fire may be liberated: Carbon dioxide (CO2), Sulphur dioxide (SO2), Carbon monoxide, Hydrocyanic acid (HCN). (Fires of solids, mainly organic nature, which normally burn down under glow forming.)

5.3: 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

6.1: 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]

6.2: Environmental precautions

Do not allow to enter sewers, surface or ground water.

6.3: 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.

6.4: 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

7.1: Precautions for safe handling:

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 can combine with air to form an explosive mixture.
- Combustible Dust Class ST1 - potential for weak explosion with milled fiber or dusts.
- 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.

7.2: Conditions for safe storage, including any incompatibilities

- Keep in a dry place. Keep container tightly closed in a cool, well-ventilated place. Store in correctly labelled containers.
- Do not store together with oxidizing agents

7.3: Specific end use(s)

See Section 1.2

Safety Data Sheet
according to Commission Regulation (EU) 2020/878 of 18 June 2020

8 – Exposure Controls/ Personal Protection

8.1: Control parameters

Components with limit values that require monitoring at the workplace:

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

8.2: 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].

General protective and hygienic measures:
- The usual precautionary measures for handling chemicals should be followed.
- Keep away from foodstuffs, beverages and feed.
- Wash hands before breaks and at the end of work.

Personal protective equipment:
- 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.

Environmental exposure controls: No relevant information available.

9 – Physical and Chemical Properties

9.1: Information on basic physical and chemical properties

Physical state: Solid (chopped fiber)
Color: Black
Odor: Odorless
Odor threshold: Not determined.

Melting / freezing point: ~ 3,500°C
Boiling point: Not determined.

Flammability:
Potential for weak explosion with milled fiber or dusts.
Combustible dust class ST1; Kst = <50 bar·m/s
Explosion limits: Lower: Not determined; Upper: Not determined.
Flash point: n/a (material is a solid)
Auto-ignition temperature: n/a (material is a solid)
Decomposition temperature: >650°C in air

pH-value: n/a (material is an insoluble solid)
Kinematic viscosity: n/a (material is an insoluble solid)
Solubility in / miscibility with water: Not miscible; insoluble.
Partition coefficient (n-octanol/water): Not determined.

Vapor pressure: n/a (material is a stable solid)
Relative density: 1.81
Vapor density: n/a (material is a stable solid)
Particle characteristics: Median particle size larger than one micron; not a nanoform class material

9.2: Other information:

Warning: may form combustible dust concentrations in air.
Combustible dust class ST1: K_{ST} <50 bar m/s

10 – Stability and Reactivity

10.1: Reactivity:

Can react with strong oxidizing agents

10.2: Chemical stability

Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure

10.3: Possibility of hazardous reactions:

May form combustible dust concentrations in air. See section 9
Reacts with strong oxidizing agents.

10.4: Conditions to avoid

To avoid thermal decomposition, avoid temperatures above 650 ºC.
Toxic fumes may be released if heated above the decomposition point.

10.5: Incompatible materials

Oxidizing agents

10.6: 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

11.1: 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)

Skin corrosion/irritation: Not an irritant. [Rat] (OECD 404)
Serious eye damage/irritation: Not an irritant. [Rabbit] (OECD 405)
Respiratory or skin sensitization: Based on available data, the classification criteria are not met.

Germ cell mutagenicity: Based on available data, the classification criteria are not met.
Carcinogenicity: Based on available data, the classification criteria are not met.
Reproductive toxicity: Based on available data, the classification criteria are not met.

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: Based on available data, the classification criteria are not met.

Probable route(s) of exposure: Inhalation, eye contact, skin contact

11.2: Information on other hazards

Endocrine disrupting properties: No known hazards

12 – Ecological Information

12.1: Toxicity

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

12.2: Persistence and degradability

Product is inert and not biodegradable.

12.3: Bioaccumulative potential

No known bioaccumulative hazards

12.4: Mobility in soil

Not water soluble.

12.5: Results of PBT and vPvB assessment

No listed substances present in this product.

12.6: Endocrine disrupting properties

No known hazards

12.7: Other adverse effects:

No further relevant information available.

Safety Data Sheet
according to Commission Regulation (EU) 2020/878 of 18 June 2020

13 – Disposal Considerations

13.1: 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. Do not dispose in sewers or waterways.

Uncleaned packaging: Dispose according to official regulations.

14 – Transport Information

14.1: UN-Number Not regulated

14.2: UN proper shipping name Not regulated

14.3: Transport hazard class(es) Not regulated

14.4: Packing group Not regulated

14.5: Environmental hazards Not a marine pollutant

14.6: Special precautions for user No further relevant information available

14.7: Maritime transport in bulk according to IMO instruments

Not a marine hazard, not hazardous in bulk

15 – Regulatory Information

15.1: Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH Substances of Very High Concern (SVHC): Product contains no listed substances

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

15.2: Chemical safety assessment

This document represents the results of our assessment.

Safety Data Sheet
according to Commission Regulation (EU) 2020/878 of 18 June 2020

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

SDS Prepared by:
ChemTel
1305 North Florida Avenue
Tampa, Florida USA 33602-2902
Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
Website: www.chemtel.com

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