



TEIJIN CARBON AMERICA, INC.

MATERIAL SAFETY DATA SHEET

SDS NO. 0507 Rev F

EFFECTIVE DATE: 4/1/18

TEIJIN CARBON AMERICA, INC.
121 Cardiff Valley Road, Rockwood, TN 37854 USA

This product is considered non-hazardous in the form shipped. The below information is provided as a hazard classification of product end use. Per 29 CFR 1910.1200(b)(2): A manufacturer, distributor or importer must consider the hazards of a chemical during normal conditions of use or in a foreseeable emergency. The hazards related to normal processing (e.g. milling, chopping, grinding) must be considered in conducting the hazard classification. This document is provided to the end user in order for them to assess safe handling of this product within their process.

1. Product and Supplier Identification

Product Name: **TENAX®** Carbon fiber

Tenax®-E TPWF PEEK-HTA40
Tenax®-E TPWF PEEK-IMS65
Tenax®-E TPUD PEEK-IMS65
Tenax®-E TPUD PEEK-HTS45
Tenax®-E TPCL PEEK-HTA40
Tenax®-E TPWF PEEK-HTS40

Recommended Use: See product information, technical data sheet, or literature sheet

Uses advised against: None known

Method of operation: See product information, technical data sheet, or literature sheet.

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2. Hazard identification

Overview:

State of Hazard: In supplied form the product is not hazardous. When handled and processed can cause skin, eye and respiratory tract irritation

Appearance and Odor: solid in different forms, black no odor

Dust are electrically conductive and may create electrical short-circuits which could result in damage to and malfunction of electrical equipment and/or personal injury.

In the supplied form the product is not explosive however the processing and buildup of fine dust can lead to a risk of dust explosions. Warning: processing may create combustible dust concentrations in the air.

HMIS Rating:

Health-1	Flammability-0	Reactivity-0	PPE-See Section 8
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3. Composition/Information on Ingredients

<u>Name</u>	<u>CAS</u>	<u>% WT</u>
Carbon Fiber	7440-44-0	>=30%
PEEK Resin	29658-26-2	<=55%
E-Glass Fiber	65997-17-3	<=70%
Brass (mesh) (copper / zinc)	7440-50-8 / 7440-66-6	<=35% (55-90% / <45%)

Comment on component parts: No dangerous components. All chemicals in this product are included on the EINECS or ELINC

4. First Aid Measures

Potential Health Effects:

Acute

General protective measures: Avoid contact with eyes and skin. Personal protective equipment should be selected specifically for the working place, depending on concentration and quantity handled.

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Eye: Contact may cause mechanical irritation to the eyes. Dust from machining or grinding may cause mechanical irritation.

Skin: Contact may cause mechanical irritation to the skin. Dust from machining or grinding the product may cause mechanical irritation.

Inhalation: May cause irritation to the upper respiratory tract. Respiratory protection in the case of dust formation.

Ingestion: Unlikely under normal conditions of use.

Medical Conditions Aggravated by Exposure: Preexisting eye, skin or respiratory disorders may be aggravated by exposure to this product or the dust from machining or grinding.

Carcinogenic Information: None of the components present in this material at concentrations equal to or greater than 0.1% are listed or regulated by IARC, NTP, and OSHA as a carcinogen.

Treatment

Eye: In case of eye contact, immediately flush eyes with large amounts of water for at least 15 minutes, keeping the eyelids open.

Skin: In case of contact that causes irritation, immediately wash skin with soap and room temperature to cool running water. To avoid further irritation, do not rub or scratch irritated areas.

Inhalation: If large amounts of dust or fiber are inhaled, remove to fresh air. If breathing continues to be difficult get medical attention.

5. Fire Fighting Measures

Flash Point: N/A

Means of Extinction: In case of fire use water mist, foam, dry powder.

Special Hazards: At temperatures above ≥ 650 °C, hazardous decomposition and degradation products occurs.

Protection of fire fighters: Since gas, such as carbon monoxide can generate combustion, fire fighters should wear suitable protection. Avoid exposure through use of self-contained, positive-pressure breathing apparatus.

6. Accidental Release Measures

Procedures in case of accidental release: Avoid contact with skin, eyes or clothing (see section 8). Clean up material, put into a suitable container and dispose of in accordance with local waste regulations. Vacuum with industrial vacuum cleaner.

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7. Handling and Storage

Precautions for safe handling At all stages of the operation/processing, ensure extraction of fiber dust by adequate ventilation, especially in confined areas. Avoid skin contact by wearing appropriate protective clothing. General hygiene rules must be observed: Wash hands before breaks and at the end of work. Protect skin by using skincare ointment.

Precautions to be taken in handling and storage: Store in a cool, dry place. Maintain sealed against contamination.

8. Exposure Control and Personal Protection

<u>Name</u>	<u>CAS</u>	<u>% WT</u>	<u>PEL</u>
Carbon Fiber	7440-44-0	0 - 75%	N/A
PEEK Resin	29658-26-2	25 - 65%	N/A
E-Glass Fiber	65997-17-3	<=70%	N/A
Brass (mesh) (copper / zinc)	7440-50-8 / 7440-66-6	<=35% (55-90% / <45%)	N/A

Note: processing may create dust concentrations in the air. OSHA PEL (as particulate/dust) 15mg/m³ (Total), 5mg/m³ (Respirable), NIOSH-Recommended Exposure Limit-REL (as particulate/dust) Total Dust as 10 mg/m³ (Total), 3 mg/m³ (Respirable), NIOSH-Recommended Exposure Limit-REL (as Respirable Fiber) 3 f/cc

Eye/face Protection: Avoid eye contact. Wear safety glasses with side shields, as necessary, when using this product and during machining and grinding operations.

Skin Protection: Clothing such as loose fitting long sleeved shirt, coveralls that covers to the base of the neck, long pants and gloves to protect against irritation. Skin irritation occurs primarily at pressure points (neck, wrist, between finger, etc.). Wear protective gloves

Respiratory Protection: Usually not required. If dust or fibers are generated during processing or when machining or grinding use of a NIOSH approved dust respirator may be needed.

Ventilation: Use local exhaust sufficient to control dust or fiber generation. Accumulation of fine dust may entail a risk of a dust explosion. Fine dust from carbon fiber or compound composite that is milled or chopped could create dust explosion risk. A process hazard analysis is recommended to determine what, if any risk are present. If exhaust ventilation is not available or is inadequate, use NIOSH approved respirator for dust.

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General Hygiene Recommendations: Use barrier skin cream. Wash hands before breaks and after work. Use vacuum equipment to remove fibers and dust from clothing and work areas. Do not use compressed air for cleaning.

9. Physical and Chemical Properties

Appearance and Odor: Solid in different forms, black no odor

Melting Point: Not Determined

Specific Gravity (water=1): Not Determined

pH: Not Determined

Percent VOC: Not determined

Solubility in water: Negligible

Decomposition temp. Not Determined

Inflammability and explosion limits

Upper Not applicable **Lower** Not applicable

Oxidizing properties: None

10. Stability and Reactivity

Reactivity/stability Product is not reactive and stable under normal conditions for transfer, storage and applications.

Conditions to avoid Do not heat up above decomposition temperature mentioned See Section 5.

Incompatible materials Accumulation of fiber dust may entail the risk of a dust explosion in the present in air.

11. Toxicological

Acute Toxicity: None

Effects on skin and eyes: Contact with fiber and/or dust can cause eye and skin irritation.

Chronic or long term toxicity: Not Determined

Mutagenicity: Not determined

Experiences made in practice: Fiber and dust abrasion can cause irritation.

Primary Route of Exposure

Eye-Yes	Skin-Yes	Inhalation-Yes	Ingestion-No
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12. Ecological Information

No data has been determined.

13. Disposal Considerations

Material for disposal should be placed in sealed containers to avoid potential human and environmental exposure. It is the responsibility of the generator to comply with all federal, state and local laws and regulations. Under US Resource, Conservation and Recovery Act (RCRA), it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets relevant waste classification.

14. Transportation Information

DOT: Not Regulated

IMDG: Not classified as a dangerous goods

IATA: Not classified as a dangerous good

15. Regulatory Information

TSCA: This product is an article as defined by TSCA. CAS-Carbon Fiber 7440-44-0

SARA Title III: Section 302/304 Extremely hazardous Substance: None
Section 311 Hazardous Categorization: None
Section 313 Toxic Chemicals: None

CERCLA Section 102(a) hazardous substance: None

RCRA Information: Currently this product is not listed in federal hazardous waste regulations 40CFR, 261.33. State or local regulations may apply if they are different from federal regulations. It is the responsibility of the user of the product to determine at the time of disposal, whether the product meets relevant classification and to assure proper disposal.

WHMIS (Canada): Classification-none

California Safe Drinking water and Toxic Enforcement Act of 1986 (Proposition 65): None

Ozone Depletion Information: This product does not contain or is not manufactured with ozone depleting substances as identified in Title VI, Clean Air Act "Stratospheric Ozone Protection" and the regulations set forth in 40 CFR, Part 82.

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VOC: None

Substances of Very High Concern - SVHC: There no substances contained which are named in the list SVHC (Candidate List of Substances of Very High Concern for authorization).

16. Other Information

REVISION HISTORY – SDS 0507 - TENAX®-E TPWF PEEK-HTA40, TENAX®-E TPUD PEEK-IMS65, TENAX®-E TPUD PEEK-HTS45, AND TENAX®-E TPCL PEEK-HTA40		
Revision	Effective	Summary of Changes
REV: A	1/5/15	Initial release.
REV: B	10/21/15	Added "Tenax®-E TPWF PEEK-IMS65."
REV: C	4/8/16	Section 1 - Added "Tenax®-E TPWF PEEK-HTS40." Section 3 – revised % Wt. for Carbon Fiber and PEEK Resin. Added data for E-Glass Fiber and Brass.
REV: D	8/16/16	Removed J. Carling from Contacts
REV: E	12/18/17	Reformatted SDS
REV: F	4/1/18	Company name changed April 1, 2018 from "Toho Tenax America, Inc." to "Teijin Carbon America, Inc." All references to company name were updated.