



TEIJIN CARBON AMERICA, INC.

SAFETY DATA SHEET

SDS NO. 0505 Rev F

EFFECTIVE DATE: 4/1/18

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

Product Identifier: Tenax®-J - continuous or chopped nickel coated carbon fiber with sizing (surface finish)

Company: Teijin Carbon America, Inc.
121 Cardiff Valley Road
Rockwood, TN 37854

Phone: (865) 354-4120

Fax: (865) 354-8409

Homepage: <http://www.tejincarbon.com>

Contacts: Mark Klemmer – ES&H Manager
mklemmer@tejincarbon.us

Emergency Phone #: **CHEMTREC (800) 424-9300**

Recommended Use: High conductivity composite or molding applications. High (EMI / RFI) shielding composite or molding applications. X-ray marking applications.

Uses advised against: None known

Method of operation: See product information.

2. HAZARD(S) IDENTIFICATION

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

Primary Routes of Exposure: Eye – Yes, Skin – Yes, Inhalation – Yes, Ingestion – No

HMIS Rating: Health – 2, Flammability – 0, Reactivity – 0, Special – NONE



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Hazard Classification: May cause eye or skin irritation
Hazard Statement: H315, H319
Hazard Symbols: None
Signal Word: None
Health Hazards: See Section 11
Precautionary statement: Possible irritant to the skin, eyes and respiratory tract when processed due to nuisance dust generation. Fiber is electrically conductive. Some individuals may experience skin sensitization due to nickel exposure.



If the user operation generates dust, use ventilation to keep exposure of airborne nickel below the exposure limit. If ventilation alone cannot control exposure, use NIOSH approved respirators selected according to OSHA 29 CFR 1920.134. Maintain airborne nickel level as low as possible. Do not inhale fibers. Ventilation is normally required when handling or using this product to keep airborne nickel and / or fibers below the authorized limits.

Avoid repeated or continuous skin contact. Wear suitable gloves when handling. Wash skin thoroughly after handling. Launder clothing as needed.

Do not store near acids. As with other metals, nickel can react with acids to liberate hydrogen gas, which can form explosive mixtures in air.

Physical / Chemical Hazards: See Section 10 for additional information: 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.
Environmental hazards: No specific hazards known.
Other hazards: none

3. COMPOSITION/INFORMATION on INGREDIENTS

| <u>Name</u> | <u>CAS</u> | <u>% WT</u> | <u>OSHA PEL TWA</u> | <u>ACGIH TLV TWA</u> | <u>SARA</u> |
|--|------------|-------------|-------------------------|--------------------------|-------------|
| Carbon Fiber (derived from polyacrylonitrile) | 7440-44-0 | 36 - 76% | N/A | N/A | No |
| Nickel | 7440-02-0 | 20 - 60% | 1 mg / m ³ | N/A | No |
| Trade Secret Sizing Chemistry | N/A | < 4% | N/A | N/A | No |

4. FIRST AID MEASURES

General information: Some individuals experience nickel sensitivity. If skin irritation occurs rinse the affected area with soap and water, and seek medical attention.

Inhalation: Ensure supply of fresh air. Seek medical attention if breathing becomes difficult.

Skin contact: Consult a doctor if skin irritation persists.

Eye contact: In case of eye contact, rinse thoroughly with plenty of water and seek medical attention.

Ingestion: Seek medical care.
Rinse mouth out with water then give plenty of water to drink.
Induce the patient to vomit of his own accord only if fully conscious.

Advice to doctor: Treat symptomatically



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5. FIRE FIGHTING MEASURES

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| Flash Point: | N/A |
| LEL: | N/A |
| UEL: | N/A |
| Suitable extinguishing media: | Water, Foam, or Dry powder |
| Extinguishing media that must not be used: | Full water jet |
| Special exposure hazards arising from the substance or preparation itself or combustion products: | Carbon monoxide (CO); Nitrogen oxides (NOx). At high temperatures nickel oxide may be formed. |
| Special protective equipment for firefighters: | Do not inhale combustion gases. Use self-contained breathing apparatus. |
| Additional information: | Fire residues and contaminated firefighting water must be disposed of in accordance with local regulations. |

6. ACCIDENTAL RELEASE MEASURES

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| Personal precautions: | N/A |
| Environmental precautions: | N/A |
| Methods for cleaning up: | Take up mechanically. Dispose of material in accordance with local regulations. |

7. HANDLING AND STORAGE

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| Advice on safe handling: | No special measures necessary if used correctly. |
| Advice on protection against fire and explosion: | Dust may form an explosive mixture with air when processed. Keep away from sources of ignition and refrain from smoking in the vicinity. |
| Requirements for storage rooms and vessels: | No special measures necessary. |
| Advice on storage compatibility: | Do not store together with oxidizing agents or near acids. |
| Further information on storage conditions: | Store in a dry place. Recommended storage temperature: < 50°C, relative humidity: < 85% Electrical equipment and control cabinets in or near areas where carbon fibers are used should be protected against infiltration or contact with airborne particles or filaments. Carbon fiber is electrically conductive and may cause an electrical short. |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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| Additional advice on system design: | Ensure adequate ventilation at workstations. The effectiveness and design of ventilation systems and their implementation to control dust should be considered. Proper routine housekeeping should be instituted to ensure dust does not accumulate on surfaces. |
| Respiratory protection: | Breathing apparatus in the event of high concentrations, filter N95. Short- term: filter apparatus, filter N95 |
| Hand protection: | Butyl rubber, > 120 min (EN 374) |
| Eye protection: | Safety glasses |
| Skin protection: | Mechanical irritation accompanied by itching or dermal effects may occur from exposure to material. Protective apparel that consists of a light weight, well ventilated, fabric may |



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prevent the transfer of dust. Consider taping at the wrist and ankle areas to control contact with exposed areas. A PPE hazard analysis should be conducted.

General protective measures:

Avoid contact with eyes. Do not inhale dust.

Hygiene measures:

Wash hands before breaks and after work. Use barrier skin cream if needed.

Delimitation and monitoring of the environmental exposition:

Not determined

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
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| Form: | Fine Fiber |
| Color: | Nickel metallic |
| Odor: | Odorless |
| pH Value [1%]: | N/A |
| pH value: | N/A |
| Boiling point [°C]: | N/A |
| Flash point [°C]: | N/A |
| Flammability [°C]: | N/A |
| Lower explosion limit: | N/A |
| Upper explosion limit: | N/A |
| Oxidizing properties: | None |
| Vapor pressure [kPa]: | N/A |
| Density at 20°C [g/ml]: | 2.5 – 3.0 |
| Bulk density [kg/m³]: | N/A |
| Solubility in water: | Insoluble |
| Partition coefficient [noctanol/water]: | N/A |
| Viscosity: | N/A |
| Relative vapor density in air: | N/A |
| Evaporation speed: | N/A |
| Melting point: | carbon ~3500 °C, nickel ~1450 °C |
| Autoignition temperature: | N/A |
| Decomposition temperature: | carbon >650 °C in air, preparation > 290°C |
| Electrically Conductive: | Yes |

10. STABILITY AND REACTIVITY

Hazardous reactions:

Avoid reactions with strong oxidizing agents. Accumulation of fine dust may increase the risk of a dust explosion. The fine dust of carbon fiber may create additional dust explosion risk. A process hazard analysis is recommended to determine what, if any, risks are present.

Hazardous decomposition products:

No hazardous decomposition products will be formed during normal usage of nickel coated carbon fiber. Complete or partial combustion may generate COx, NOx, and / or other trace chemicals. Under high temperatures nickel oxide may be formed.

11. TOXICOLOGICAL INFORMATION

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| Acute oral toxicity: | Not determined |
| Acute dermal toxicity: | Irritant |
| Acute inhalational toxicity: | Irritant |
| Irritant effect on eye: | Not determined |
| Irritant effect on skin: | Mechanical skin irritation. |
| Sensitization: | Not determined |
| Sub-acute toxicity: | Not determined |



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| Chronic toxicity: | Not determined |
| Mutagenicity: | Not determined |
| Reproduction toxicity: | Not determined |
| Carcinogenicity: | IARC (2B), NTP and NIOSH have categorized powdered nickel metal as a possible human carcinogen and occupational carcinogen (by inhalation). |
| Experiences made in practice: | Mechanical abrasion on skin may cause irritation. |

12. ECOLOGICAL INFORMATION

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| Fish toxicity: | N/A |
| Daphnia toxicity: | N/A |
| Behavior in environment compartments: | Not determined |
| Behavior in sewage plant: | N/A |
| Bacteria toxicity: | N/A |
| Biological degradability: | N/A |
| COD: | Not determined |
| BOD 5: | Not determined |
| AOXadvice: | No dangerous components |
| General information: | Ecological data are not available. |

13. DISPOSAL CONSIDERATIONS

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| Product: | For recycling, consult manufacturer and / or waste disposal centers. |
| EU Waste Number: | 160306, 061399 |
| Contaminated packaging: | Packaging that cannot be cleaned should be disposed of as for product. Uncontaminated packaging may be taken for recycling. |
| EU Waste Number: | 150101, 150102 |

14. TRANSPORT INFORMATION

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| Classification according to DOT: | Non Hazardous – material is regarded as an “article” |
| Classification according to IMDG: | Not classified as "Dangerous Goods" – material is regarded as an “article” |
| Classification according to IATA: | Not classified as "Dangerous Goods" – material is regarded as an “article” |

15. REGULATORY INFORMATION

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| SARA Title III: | Section 302/304: Extremely Hazardous Substance: None Section 311: Hazardous Categorization: This product contains nickel, subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372. Section 313: Toxic Chemicals: N495 |
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| CERCLA Section 102(a) Hazardous Substance: | Nickel metal is identified as a hazardous substance on SARA Title III consolidated list for reporting purposes. |
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| RCRA Information: | Currently, the product is not listed in federal hazardous waste regulations 40 CFR, Part 261.33, paragraphs (e) or (f), i.e. chemical products that are considered hazardous if they become wastes. State or local hazardous waste regulations may also apply if they are different from the federal regulation. It is the responsibility of the user of the product to |
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determine at the time of disposal, whether the product meets relevant waste classification and to assure proper disposal.

U.S., EPA, TSCA Information: This product is an article as defined by TSCA and is not required to be listed in the TSCA inventory.

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.

Exposure Risk: Not determined

Chemical safety report: Not determined

Labeling: All chemicals in this product are included on the TSCA Inventory

Hazard symbols: None

R-phrases: R36/37/38 – Irritation to eyes, respiratory system and skin

S-phrases: S36/37/39 – Wear suitable protective clothing such as gloves, eye and face protection for nuisance dust and skin abrasion protection.

Special labeling:

Authorization, TITLE VII: N/A

Restrictions:

TITLE VIII: N/A

TRANSPORT REGULATIONS: IATADGR (2008).

16. OTHER INFORMATION

VOC (1999/13/CE): N/A

Customs Tariff: Not determined

European Union (2002/95/EC) RoHS / RoHS2:

These products do not contain any of the chemicals listed in the RoHS / RoHS2 regulations

| REVISION HISTORY – SDS 503 – Nickel Coated Carbon Fiber - Continuous Filament or Chopped with Sizing | | |
|---|-----------|--|
| Revision | Effective | Summary of Changes |
| REV: D | 4/26/15 | SDS format update |
| REV: E | 8/17/16 | Removed J. Carling from contacts. |
| 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. |