SAFETY DATA SHEET
valid for the whole range of our cut and milled carbon fibers
in accordance with regulation (EC) No 1907/2006 – REACH

1 – PRODUCT AND COMPANY IDENTIFICATION

Product name
Carbon fibers (CF)
milled, cut or chopped carbon fibers

Relevant uses
rubber belts, thermosetting composites, textile yarns, paints, non-wovens, ablative and friction materials

Uses advised against
None

Company name
APPLY CARBON S.A.

Address
ZA Lanveur
F–56440 LANGUIDIC FRANCE

Telephone number
+33 2 97 65 10 89

2 – HAZARDS IDENTIFICATION

Main product risks
Electricity conducting material. Airborne fibers can short circuit electrical equipment. The build-up of fine dust can lead to a risk of explosion. Our carbon fibers are NOT ATEX, NOT hazardous.

Human health risks
Fine dust may irritate skin, eyes and mucous membranes. No case of disease reported.

Environmental risks
Known as a non-polluting product, but which may cause electrical short circuits when dispersed.

Specific risks
None

Supplemental hazard risks
Contains traces of Bisphenol-A–(Epichlorhydrin) and Epoxy resin that may produce an allergic reaction : EUH 208.

This product is an ARTICLE that is not classified as dangerous according to the decree of 07/12/2009, or regulations (EC) n°1272/2008 (CLP), 67/548/EEC and 1999/45/EC.

3 – COMPOSITION / COMPONENT INFORMATION

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>≥ 92% of carbon (in graphite form)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard or chemical name</td>
<td>Carbon fiber on basis polyacrylonitrile (Carbon)</td>
</tr>
<tr>
<td>CAS number</td>
<td>7440–44–0</td>
</tr>
<tr>
<td>EINECS/ELINCS number</td>
<td>Polymer (231–153–3)</td>
</tr>
<tr>
<td>GHS/CLP or hazard symbols</td>
<td>Not applicable</td>
</tr>
<tr>
<td>R–phrase</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Substance of Very High Concern (SVHC)</td>
<td>None or below 0.1%</td>
</tr>
<tr>
<td>CMR</td>
<td>None or below 0.1%</td>
</tr>
<tr>
<td>Other components</td>
<td>Sizing (Epoxy or polyether resins) ≤ 1.8 %</td>
</tr>
</tbody>
</table>
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4 – FIRST AID MEASURES

General advice Dust may be irritating. Change clothing.
Eye contact Rinse thoroughly with plenty of water for at least 15 min and seek medical advice.
Skin contact Wash thoroughly with water and soap.
Inhalation Remove subject to fresh air. Seek medical attention if symptoms persist.
Ingestion Rinse mouth and drink water. No medical treatment required.

5 – FIRE-FIGHTING MEASURES

Suitable extinguishing media All usual extinguishing products appropriate for the surrounding fire are allowed. Avoid full water jet.
Specific hazards Not flammable or combustible under normal uses.
Risk of formation of toxic pyrolysis products (CO).
Special protective equipment for firefighters Wear full-face, self-contained breathing apparatus to avoid inhalation of fumes or decomposition products.
Specific methods None

6 – ACCIDENTAL RELEASE MEASURES

Individual precautions Use an individual protection equipment.
Environmental precautions Avoid worsening the dispersion. Prevent entry into waterways, sewers, basements or confined areas.
Cleaning methods Avoid dust formation. Clean up with sweep or vacuum.

7 – HANDLING AND STORAGE

Handling precautions Dust can form an explosive mixture with air. Keep away from sources of ignition – no smoking. Avoid the dispersion of discharging loose fibres into open air. Wash thoroughly after handling.
No electrical appliances or protect them in sealed or pressurised cases. Insulating varnish may be applied to electronic boards and electrical terminals.
Technical measures Electrical conducting material – do not cut the carbon fibre unnecessarily.
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DO NOT ALLOW CONTACT WITH ELECTRIC CURRENT SOURCES.

Storage
Store in a cool (<50°C), dry and well-ventilated area.

8 – EXPOSURE CONTROLS / INDIVIDUAL PROTECTION

Engineering measures
Ensure adequate ventilation on workstation to avoid dust accumulation.

Control parameters
See local regulations. VME for total dust: 10 mg/m³.
Long-term exposure for carbon fibers: 0.5 mg/m³ or 0.5 RFP/ml
(respirable fiber-shaped particles).

Personal protective equipment:

  Respiratory protection
Use appropriate certified breathing apparatus in the event of high
concentrations (poor ventilation, fine dust production). Filter
apparatus FFP2 or FFP3.

  Skin/hand protection
Gloves and protective clothing. Avoid skin contact.

  Eye protection
Safety glasses with side shields or face protection.

Hygiene measures
Wash face and hands before eating, drinking or smoking and do
it in separate areas. Use barrier skin cream or baby cleaning milk
to wash hands and face.

9 – PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>solid</td>
</tr>
<tr>
<td>Form</td>
<td>short fiber (filament)</td>
</tr>
<tr>
<td>Colour</td>
<td>black or charcoal grey</td>
</tr>
<tr>
<td>Odour</td>
<td>none</td>
</tr>
<tr>
<td>pH</td>
<td>not applicable</td>
</tr>
<tr>
<td>Boiling point</td>
<td>not applicable</td>
</tr>
<tr>
<td>Melting point</td>
<td>&gt; 2760 °C or 5000 °F</td>
</tr>
<tr>
<td>Vapour pressure/ Vapour density</td>
<td>not applicable</td>
</tr>
<tr>
<td>Specific gravity (filament)</td>
<td>1.6 to 2.0 g/cm³</td>
</tr>
</tbody>
</table>
| Bulk density (short fibers)    | 0.1 to 0.5 kg/dm³ depending on whether the fiber is cut,
|                                | chopped or milled ; depending on its length and the sizing type. |
| Flash point                    | no information available                        |
| Viscosity                      | no information available                        |
| Flammability                   | not applicable                                  |
| Autoignition temperature       | not applicable                                  |
| Oxidizing properties           | none                                            |
| Decomposition temperature      | > 650°C in air, > 290°C in preparation          |
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Solubility in water and solvents used
insoluble fibre – sizing agent soluble in chlorinated solvents, acetone, DMF
Partition coefficient (n-octanol/water)
no information available

10 – STABILITY AND REACTIVITY

Stability
Stable.
Conditions to avoid
See section 7. Avoid contact with heat, flame, spark.
Hazardous reactions
Reactions with strong oxidizing agents.
Risk of dust explosion if accumulation of fine dust in the air.
Hazardous decomposition products
Oxides of carbon (CO, COx).

11 – TOXICOLOGICAL INFORMATION

Acute toxicity
Product presumed non toxic.
Local effects
Carbon fibers and dust may cause mechanical irritation of the eyes, skin, nose and throat.
The filament is not breathable (IARC). None carbon fibers with diameter below 3.5 µm (≥ 7 µm) and length below 80 µm, therefore they are not considered as “respirable fiber–shaped particles” (RFP ≤ 3.5 µm diameter).

12 – ECOLOGICAL INFORMATION

Ecotoxicity
This material is not classified as dangerous for the environment.
Ecological data are not available.
Persistence and degradability
Non–polluting, stable product.
Mobility in soil
No information available.
Bioaccumulation
No information available.
PBT/vPvB
These products are not classified as PBT or vPvB.

13 – DISPOSAL CONSIDERATIONS

Waste disposal
Dispose of wastes in a suitable place according to local regulations – do not incinerate. Incineration may cause carbon fibre particles to be dispersed into the air which may damage electrical equipment.
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Treatment of contaminated packaging

Packaging that cannot be cleaned should be disposed of as for product.

14 – TRANSPORT INFORMATION

Carbon products are not classified as hazardous in terms of national and international transport regulations – no specific transport label required (not ADR). Not CLP-classified nor GHS classified.

15 – REGULATORY INFORMATION

These products are not submitted to regulations (EC) n°1272/2008 (CLP), 67/548/EEC, nor n°1999/45/EC. This MSDS has been established in accordance with REACH regulations (EC) N°1907/2006 and N°453/2010. All our products don’t contain substances of very high concern (SVHC, REACH: EC 1907/2006 & 453/2010) or substances submitted to authorization (ANNEX XIV, REACH) or substances in current GADSL.

These products comply with TSCA (USA), DSL/NDSL (Canada), EINECS/ELINCS (Europe), IECSC (China), ENCS (Japan), KECL (Korea) and AICS (Australia) regulations.

16 – OTHER INFORMATION

We believe that the information contained in this safety data sheet is correct to the best to our knowledge. However, the information contained in this sheet is not exhaustive. This safety data sheet does not anticipate all the circumstances in which the product may be used, nor all the physical and mental characteristics of each individual responsible for its transport or transformation. It is the duty of the user to test and use this product safely, in accordance with the laws and regulations in force. Unless otherwise stated in writing, we accept no responsibility for complaints or damage caused related to the use of this product. For all additional information, please contact the QSE Department of Apply Carbon.

Apply Carbon transforms the carbon fibers only by cutting, chopping or milling, at very various lengths, to meet the very large needs of its customers.

Apply Carbon sometimes also mixes different carbon fibers for specific applications or customers requirements.

All the information given in this Material Safety Data Sheet are excerpt from these of its carbon fibers suppliers (TORAYCA, TOHO–TENAX, CYTEC...).