MATERIAL SAFETY DATA SHEET
MSDS-3

Carbon Fiber "TORAYCA" Sizing Type "1"

MSDS No.: CFA-001

Toray Carbon Fibers America, Inc.
Date: Dec. 3, 1999

1. COMPANY / IDENTIFICATION
SECTION: ACM Technology Department, CFA
ADDRESS: 6 Hutton Center Dr., Ste. 1270; Santa Ana, CA 92707 USA
TEL No.: (714) 431-2320
FAX No.: (714) 424-0750

2. COMPOSITION / INFORMATION ON INGREDIENTS
CHEMICAL TYPE: Carbon (Carbon Fiber)✓
CAS Number: 7440-44-0
SUBSTANCE (): MIXTURE (): UN CLASS & UN NUMBER: N. A.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Comp. (%)</th>
<th>Chemical Formula</th>
<th>CAS No.</th>
<th>TSCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Fiber</td>
<td>&gt;94</td>
<td>Carbon Fiber</td>
<td>7440-44-0</td>
<td>Registered</td>
</tr>
<tr>
<td>Sizing Agent</td>
<td>&lt;2</td>
<td>Not open to public</td>
<td></td>
<td>Registered</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

3.1 CLASS NAME OF HAZARDOUS CHEMICALS FOR MSDS
Non-hazardous material

3.2 PHYSICAL & CHEMICAL HAZARDS
Explosive: N/A

3.3 ADVERSE HUMAN HEALTH EFFECTS
Acute Toxic Substance: No case of disease, which is caused by Carbon Fiber, has been reported. Short fiber, for example particles or fly, can cause the transient skin irritation.

3.4 ENVIRONMENTAL EFFECTS

3.4.1 Carbon fiber is electrically conductive, and it can cause the short-circuiting of electrical equipment.

3.4.2 Airborne Carbon Fiber can also disturb electrical equipment.
4. FIRST-AID MEASURES
   4.1 INHALATION
       Move to fresh air and wash inside mouth with water. If dizzy or unbalanced seek medical
       attention as soon as possible.
   4.2 SKIN CONTACT
       No special measures requested.
   4.3 EYE CONTACT
       Wash eyes with an excessive amount of water immediately for no less than 15 minutes. If
       contacts are being used, remove the lens and flush the eyes again with water for an additional
       5 to 10 minutes. If the eyes feel uncomfortable or have prickling feeling, seek medical
       attention as soon as possible.
   4.4 INGESTION
       Rinse mouth with fresh water. Then drink two or three glasses of water. Induce vomiting by
       touching the finger to the back of the throat. Then seek medical attention as soon as possible.

5. FIRE-FIGHTING MEASURES
   5.1 SPECIFIC HAZARDS WITH REGARD TO FIRE-FIGHTING MEASURES
       Apply water from a safe distance to cool and protect surrounding area.
   5.2 EXTINGUISHING MEDIA
       In case of fire, use water spray, foam, dry chemical powder or carbon dioxide.
       Dry chemical powder, carbon dioxide or dry sand should be used for small fires.

6. ACCIDENTAL RELEASE MEASURES
   6.1 MEASURES FOR HANDLING PERSONNEL
       No special measures requested
   6.2 MEASURES FOR ENVIRONMENTAL EFFECTS
       No special measures requested
   6.3 MEASURES WHEN HANDLING SPILLED SUBSTANCE
       N/A

7. HANDLING AND STORAGE
   7.1 HANDLING
       Exposure control for handling personnel: N/A
       Protective measures against fire & explosion: N/A
       Others: Touching Carbon Fiber directly can cause transient skin irritation. Hold the paper tube
       while handling bobbins.
7.2 STORAGE
Store bobbins in a cool, dark space. Low humidity is recommended.

8. EXPOSURE CONTROL / PERSONAL PROTECTION
8.1 CONTROL PARAMETERS
No data are available for the product

<table>
<thead>
<tr>
<th>Content</th>
<th>Carbon Fiber</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABOR SAFETY &amp; HEALTH ACT(JAPAN) ppm (mg/m³)</td>
<td>2.9mg/m³ (reference value by “Kokujii” by Min. of Labor Japan (1995))</td>
</tr>
<tr>
<td>OSHA ppm (mg/m³)</td>
<td>2.0mg/m³ as the total dust of first class dust by the Japanese regulation (reference value) etc.</td>
</tr>
<tr>
<td>ACGIH ppm (mg/m³)</td>
<td>10.0mg/m³ as the “kyuunyusei” dust not classified to other categories, etc. (reference value)</td>
</tr>
</tbody>
</table>

8.2 ENGINEERING MEASURES
Local extract ventilation is recommended where dust and fly are generated by cutting or processing Carbon Fiber. Filter in ventilation is requested to prevent dust and fly from being discharged into open air.

8.3 PERSONAL PROTECTIVE EQUIPMENT
8.3.1 Respiratory protection: Adequate respirator is requested to keep from inhaling dust and fly particles.
8.3.2 Eye protection: Adequate protective goggles are requested to keep eyes from dust and fly.
8.3.3 Hand, skin and body protection: Adequate protective gloves are requested to keep skin from dust and fly.

9. PHYSICAL & CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Appearance : Black fiber</th>
<th>Odor : None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density : 1.6~2.0</td>
<td>Boiling point : N/A</td>
</tr>
<tr>
<td>Melting point : N/A</td>
<td>Vapor pressure : N/A</td>
</tr>
</tbody>
</table>
Vapor density: N/A

Solubility(%) : In soluble
in water: N/A
in others: N/A

Volatility: N/A
Others: N/A

10. PHYSICAL HAZARD (STABILITY & REACTIVITY)

<table>
<thead>
<tr>
<th>Flash point: None</th>
<th>Spontaneous ignition temperature: None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explosion limit (%): None</td>
<td>Combustibility: Not Spontaneous</td>
</tr>
<tr>
<td>Upper: None</td>
<td>Reactivity with water: None</td>
</tr>
<tr>
<td>Lower: None</td>
<td>Dust explosion: N/A</td>
</tr>
</tbody>
</table>

Flammability: N/A
Oxidizibility:
Oxidized by strong oxidizer,
Stable for other chemicals
Self-reactivity: None

Oxidation can progress slowly and become red-hot when exposed to high temperatures greater than 240°C in air.

11. TOXICOLOGICAL INFORMATION

Acute toxicity: N/A
Sub-chronic toxicity: N/A
Chronic toxicity: N/A
Carcinogenic effects: No silicosis case is reported on inhalation test with mouse.
Mutagenic effects: N/A
Irritant properties: Contact with fly or dust can cause skin pricking.
Teratogenic effects: N/A

12. ECOLOGICAL INFORMATION

Biodegradability: N/A
Bioaccumulation: N/A
Fish toxicity: N/A

13. DISPOSAL CONSIDERATION

13.1 In case of disposal, this product must be treated as industrial waste, separated from public waste.
13.2 This product should not be incinerated. Carbon fiber can not be incinerated well by a general incinerator, and the fibrous fragments, which may be generated by insufficient incineration, may cause the short-circuiting of electrical equipment.

14. TRANSPORTATION INFORMATION
N/A

15. REGULATORY INFORMATION

<table>
<thead>
<tr>
<th>Regulatory/Classification</th>
<th>Reg. Info.</th>
<th>Substance Name</th>
<th>Allowed Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA (USA) No.</td>
<td>N/A</td>
<td>7440-44-0 Carbon Fiber</td>
<td>N/A</td>
</tr>
<tr>
<td>EINECS No.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>California Proposition 65</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FDA</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>UL</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>CAS</td>
<td>N/A</td>
<td>7440-44-0</td>
<td>N/A</td>
</tr>
<tr>
<td>OSHA</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

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