

CREATED
UPDATED 2003/07/09

Material Safety Data Sheet

1. Chemical Product and Company Identification

Product name : Carbon Fiber "TORAYCA" Sizing Type "5"

Name of supplier : TORAY Industries, Inc.

Address :

2-1, NIHONBASHI-MUROMACHI 2-CHOME, CHUO-KU, TOKYO 103-8666 JAPAN

Sales Department :

Carbon Fibers Department

Manager of Sales Department : General Manager of Carbon Fibers Department

Telephone number : +81-3-3245-5750

FAX number : +81-3-3245-5817

Emergency phone No. : ACM Tehnology Department(+81-3-3245-5762)

Technical Department :

ACM Tehnology Department

Manager of Technical Department : General Manager of ACM Technology Department

Phone No. : +81-3-3245-5745

Product No.(MSDS No.) : I3E-C005-3

2. Composition/Information on Ingredients

Chemical name :

Carbon Fiber (Graphite Fiber), Resin Sizing

Substance/Mixture : Mixture

Common chemical name

Carbon Fiber(Carbon)

Composition : 98% min

Chemical formula(Constitutional/Structural formula)

C

CAS No. : 7440-44-0(Carbon)

: 308063-67-4(Carbon Fiber)

TSCA : 7440-44-0(Carbon)

Common chemical name

Resin Sizing

Composition : 2% max

Chemical formula(Constitutional/Structural formula)

Not opened to public

CAS No. : Registered

TSCA : Registered

Note :

Though the main content of carbon fiber is carbon, 0-2% of oxygen and 0-7% of nitrogen are contained.

3. Hazards Identification

Adverse human health effects :

No case of disease which is caused by Carbon Fiber is reported.

The long and repeated touch to short fiber including particles or fly can cause the itch and the skin irritation.

A resin sizing component contains Bisphenol A epoxy resin.

This compound is identified to have an allergenic and a sensitizing effects by the Ministry of the Labor, Japan. (Notice No.182-2 from a chief of Labor Standard Bureau)

It is necessary to take the countermeasure to secure safety in accordance with the Notice.

R43-May cause sensitization by skin contact.

A resin sizing component contains liquid Bisphenol A epoxy resin.

This compound has the mutagenicity by the investigation of The Ministry of the Labor, Japan.

Since the content of Bisphenol A epoxy resin which is the component of resin sizing is less than 1%, it does not correspond to the official notice from the Ministry of Labor, Japan.

(Notice No.312-2 from a chief of Labor Standard Bureau)

However, it is recommended to take the countermeasure to secure safety in accordance with the guideline, "The Policy to prevent the health hazard by the chemical material which toxicity is verified, "as attached to the above notice.

No silicosis case by carbon fiber is reported on inhalation test with mouse.

Environmental effects :

1. Carbon Fiber is electrically conductive, and it can cause the short-circuiting of electrical equipments.
2. Carbon Fiber fly can also cause the electrical equipment trouble.

Physical and Chemical hazards :

Not corresponding to the fire law of Japan.

Class name of hazardous chemicals for MSDS in Japan :

Not corresponding to class standard.

4. First-Aid Measures

Inhalation :

Move a victim to fresh air space and wash inside mouth with water.

Then, seek medical advice.

When breathing is difficult, let a victim inhale oxygen by a qualified person and get medical treatment.

Skin contact :

S28-After contact with skin, wash immediately with plenty of water and soap.

Eye contact :

S26-In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Have the victim remove contact lenses if he is wearing them and continue rinsing.

Ingestion :

Do not induce vomiting.

Seek medical advice.

5. Fire-Fighting Measures

Extinguishing Media :

S43-In case of fire, use water mist, foam, dry powder, CO₂,

Dry chemical powder, carbon dioxide or dry sand should be used for small fires.

Specific fire-fighting measures :

Apply water from a safe distance to cool and protect surrounding area.

Protection of fire-fighters :

Since gas such as carbon monoxide can generate by combustion, the fire fighters should wear suitable protection tools.

6. Accidental Release Measures

Measures for Handling Personnel :

No special measures requested.

Measures for environmental effects :

No special measures requested.

Measures when handling spilled substances :

Carefully sweep up and remove.

7. Handling and Storage

Handling :

Preventive measures :

Exposure control for handling personnel :

S20-When using do not eat or drink.

S21-When using do not smoke.

S24-Avoid contact with skin.

S25- Avoid contact with eyes.

Wash hands and the part of the body you touch the product and remove the product completely before you eat, drink or smoke.

Protective measures against fire & explosion :

S33-Take precautionary measures against static discharges.

Safety treatments :

Prevent deposition of dust.

Safety Measures/Incompatibility :

Wear suitable protective tools, protective clothing, long sleeve clothing or trousers.

Storage :

Recommendation for storage :

Keep bobbins in cool and dark place. Low humidity is recommended.

Incompatible storage condition :

Keep away from trash or water in order to avoid contamination.

8. Exposure Control/Personal Protection

Engineering measures :

Local ventilator should be used where dust and fly are generated by cutting or processing Carbon Fiber.

The ventilator for the entire operation area is needed.

Filter in ventilation is requested to prevent dust and fly from being discharged into open air.

Adopted value :

No data are available for carbon fiber. Reference values of carbon black and graphite are as follows.

1.LABOR SAFETY & HEALTH ACT(JAPAN)

2.9mg/m³(reference value by notice of by Min. of Labor Japan(1995))

2.OSHA

2.0mg/m³ as the total dust of first class dust by the Japanese regulation (reference value) etc.

3.ACGIH(U. S. A.)

10.0mg/m³ as the inhalation dust not classified to other categories, etc. (reference value)

Personal protective equipment :

Respiratory protection :

For most conditions, no respiratory protection should be needed, however, in dusty atmospheres, use an approved dust respirator.

Hand protection :

S37-Wear suitable gloves.

Eye protection :

Wear protective eyeglasses or chemical safety goggles.

Skin and body protection :

S36-Wear suitable protective clothing.

Keep protective clothing clean by cleaning.

Safety and Health measures :

Wash hands before breaks and at the end of work.

Do not eat, drink or smoke at work.

9. Physical and Chemical Properties

Physical properties :

Appearance : fiber shaped solid

Color : black

Odor : None
pH : Not Surveyed
Phase change temperature :
Boiling point : None
Melting point : Not Surveyed
Decomposition temperature : Not Surveyed
Flash point : Not Surveyed
Ignition temperature : Not Surveyed
Explosion : Not Surveyed
Vapour pressure : Not Surveyed
Vapour density : Not Surveyed
Density : From 1.6, to 2.0
Solubility :
Solubility in solvent :
Not Available
Solubility as solvent :
Not Applicable

10. Stability and Reactivity

Stability :

This material is stable. Hazardous decomposition and polymerization will not occur.
This product is considered a stable material under normal and anticipated storage and handling conditions.

Resin sizing sometimes changes under some environmental conditions.

Reactivity :

Oxidization slowly proceeds in the air of 240 degrees Centigrade or above, and the product may sometimes become red heat.

Incompatibility :

A strong oxidizing agent.

Decomposition products :

CO, CO₂, NO and the other non-identified poisonous gases may generate by combustion. Don't inhale th

11. Toxicological Information

Acute toxicity :

No data available for carbon fiber.

LD50 > 2000mg/kg (rat, oral) for sizing agent

Effects on skin, eyes and others :

Contact with dust or fly can cause skin pricking.

Allergenic and/or sensitizing effects :

Long term and repeated contact can cause the skin irritation.

A resin sizing component contains Bisphenol A epoxy resin.

This compound is identified to have an allergenic and a sensitizing effects by the Ministry of the Labor, Japan. (Notice No.182-2 from a chief of Labor Standard Bureau)

It is necessary to take the countermeasure to secure safety in accordance with the Notice.

R43-May cause sensitization by skin contact.

Chronic and/or long term toxicity :

No data available

Carcinogenic effects :

No data available

Mutagenic effects :

A resin sizing component contains liquid Bisphenol A epoxy resin.

This compound has the mutagenicity by the investigation of The Ministry of the Labor, Japan.

Since the content of Bisphenol A epoxy resin which is the component of resin sizing is less than 1%, it does not correspond to the official notice from the Ministry of Labor, Japan.

(Notice No.312-2 from a chief of Labor Standard Bureau)

However, it is recommended to take the countermeasure to secure safety

in accordance with the guideline, "The Policy to prevent the health hazard by the chemical material which toxicity is verified, "as attached to the above notice.

Teratogenic effects :

No data available

Others :

No silicosis case by carbon fiber is reported on inhalation test with mouse.

12. Ecological Information

Biodegradability :

No data available

Bioaccumulation :

No data available

13. Disposal Consideration

1. Scrap or waste of this product must be treated as industrial waste, separated from public waste.
2. Scrap or waste of this product must not be incinerated. Carbon Fiber can not be incinerated well by general incinerator, and the fibrous fragments which may be generated by insufficient incineration may cause the short-circuiting trouble of electrical equipments.

14. Transport Information

UN No./Packaging group :

No applicable number

Specific safety measures and conditions on transport :

Be careful of the fire, high humidity and pollution by other material.

15. Regulatory Information

TSCA

Carbon(Carbon Fiber) 7440-44-0

CAS

Carbon 7440-44-0

Carbon Fiber 308063-67-4

Industrial Safety and Health Raw, Japan; Bisphenol A Epoxy Resin

Pollutant Release and Transfer Register Raw, Japan;

Bisphenol A epoxy resin (out of the scope of the raw because the content is less than 1%)

Other regulatory information :

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

16. Other Information/References

Other information :

This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from its use. It are advised to make their own tests to determinate the safety and suitability of each such product or combination for their own purposes.

References :

- 1)"Safe handling about Carbon Fiber,"Reinforced Plastic, Vol.42, No.3(1996), Tanso-Seni-Kyokai
- 2) Labor Standard Bureau, Japan, Notice 182-2 (1996)
- 3) Labor Standard Bureau, Japan, Notice 312-2 (1993), Notice 341-2 (1994)