

**616H10 - Carbon Fiber Webbing**

Material number 616H10

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**1. Product and company identification****Product identifier**

Trade name: 616H10 - Carbon Fiber Webbing

**Relevant identified uses of the substance or mixture and uses advised against**General use: Article: carbon-fibers for orthopedic procedures.  
Reserved for industrial and professional use.**Details of the supplier of the safety data sheet**Company name: Otto Bock Health Care  
Street/POB-No.: 3820 W. Great Lakes Drive  
Postal Code, city: Salt Lake City, UT 84120  
USAWWW: [www.ottobockus.com](http://www.ottobockus.com)

Telephone: +1 (801) 956-2400

Telefax: +1 (801) 956-2401

Dept. responsible for information:

Quality Department,  
Telephone: +1 (801) 954-2304 (7 AM – 3 PM, Mountain Time), Email:  
[USRegulatory@ottobock.com](mailto:USRegulatory@ottobock.com)**Emergency phone number****CHEMTREC, Telephone: +1 (800) 424-9300****2. Hazards identification****Emergency overview**Appearance: Form: solid  
Color: black

Odor: odorless

Classification: This material is classified as not hazardous.

Precautionary statements:

Avoid breathing dust.

**Regulatory status**

While this material is not considered hazardous by the U.S. OSHA Hazard Communication Standard (29 CFR 1910.1200) and SIMDUT in Canada, this MSDS contains valuable information critical to the safe handling and proper use of the product.

**Hazards not otherwise classified**

Processing, e.g. by cutting, sawing or grinding, can produce particles and dust. For risks which have to be observed thereby, see chapter 7: Handling, chapter 8: Exposure controls / personal protection and chapter 11: Toxicology.

The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

see section 11: Toxicological information

### 3. Composition / Information on ingredients

Chemical characterization: Carbon fibers >95%

Hazardous ingredients:

CAS No.	Designation	Content	Classification
CAS 25068-38-6	Bisphenol A epoxy resin (molecular-weight < 700)	< 1 %	Skin Irritation - Category 2. Eye Irritation - Category 2A. Sensitization - skin - Category 1. Aquatic toxicity - chronic - Category 2.

### 4. First aid measures

General information: For mechanical processing: dust formation.

In case of inhalation: In case of troubles after inhalation of dust: Provide fresh air. Seek medical attention.

Following skin contact: Remove residues with soap and water. In case of skin irritation, consult a physician.

After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. In case of troubles or persistent symptoms, consult an ophthalmologist.

After swallowing: Never give anything by mouth to an unconscious person. Repeatedly drink water. Seek medical aid in case of troubles.

#### Most important symptoms/effects, acute and delayed

Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

#### Information to physician

Treat symptomatically.

### 5. Fire fighting measures

Flash point/flash point range:

no data available

Auto-ignition temperature: no data available

Suitable extinguishing media:

Water fog, foam, dry chemical powder, carbon dioxide.

Extinguishing media which must not be used for safety reasons:

High power water jet.

#### Specific hazards arising from the chemical

In case of fire may be liberated: halogen oxides, carbon monoxide and carbon dioxide.  
Danger of formation of toxic pyrolysis products.

Protective equipment and precautions for firefighters:

Wear self-contained breathing apparatus. Wear protective equipment.

Additional information: Cool endangered containers with water spray and, if possible, remove from danger zone.

Do not breathe fumes.

Do not allow fire water to penetrate into surface or ground water.

**6. Accidental release measures**

Personal precautions: Handle in accordance with good industrial hygiene and safety practice.  
At processing: Do not breathe dust. Ensure adequate ventilation, especially in confined areas.

Environmental precautions: Discharge into the environment must be avoided.

Methods for clean-up: Take up mechanically, placing in appropriate containers for disposal.

**7. Handling and storage**

**Handling**

Advices on safe handling: For mechanical processing:  
Provide adequate ventilation. Avoid generation of dust.  
Wear suitable protective clothing. The use of local exhaust ventilation is recommended.  
When using do not eat, drink or smoke.

Precautions against fire and explosion:  
Fine dust: danger of dust explosion.  
Carbon Fiber is electrically conductive. It can cause short circuits within electrical equipment, if material dusts penetrate into the ambient air.  
Avoid generation of dust.

**Storage**

Requirements for storerooms and containers:  
Store at room temperature. (< 50 °C)  
Protect from moisture contamination. (< 85 °C)

Hints on joint storage: Do not store together with oxidizing agents.  
Keep away from food, drink and animal feedingstuffs.

**8. Exposure controls / personal protection**

**Exposure guidelines**

Occupational exposure limit values:

Type	Limit value
USA: ACGIH: TWA	10 mg/m <sup>3</sup>
USA: ACGIH: TWA	3 mg/m <sup>3</sup>
USA: OSHA: TWA	15 mg/m <sup>3</sup>
USA: OSHA: TWA	5 mg/m <sup>3</sup>

**Engineering controls**

For mechanical processing:  
Provide adequate ventilation. The use of local exhaust ventilation is recommended.  
See also information in chapter 7, section storage.

**Personal protection equipment (PPE)**

Eye/face protection For mechanical processing:  
Tightly sealed goggles according to OSHA Standard - 29 CFR: 1910.133 or ANSI Z87.1-2010

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**Skin protection** For mechanical processing: Wear suitable protective clothing.  
 protective gloves according to OSHA Standard - 29 CFR: 1910.138.  
 Glove material: Butyl caoutchouc (butyl rubber) - Breakthrough time: >120 min.

For mechanical processing:  
 Protective gloves according to (OSHA Standard - 29 CFR: 1910.138)  
 Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

**Respiratory protection:** For mechanical processing:  
 Half mask with particle filter 1 according to OSHA Standard - 29 CFR: 1910.134 or ANSI Z88.2.  
 according to OSHA Standard - 29 CFR: 1910.134 or ANSI Z88.2

**General hygiene considerations:**  
 Avoid generation of dust. Do not breathe dust.  
 Wash hands before breaks and after work.

**9. Physical and chemical properties**

**Information on basic physical and chemical properties**

Appearance:	Form: solid Color: black
Odor:	odorless
Odor threshold:	no data available
pH value:	no data available
Melting point/freezing point:	approx. 6332 °F
Initial boiling point and boiling range:	no data available
Flash point/flash point range:	no data available
Evaporation rate:	no data available
Flammability:	no data available
Explosion limits:	no data available
Vapor pressure:	no data available
Vapor density:	no data available
Density:	at 68 °F: 1.7 - 2 g/cm <sup>3</sup>
Water solubility:	at 68 °F: carbon fibers: insoluble
Partition coefficient: n-octanol/water:	no data available
Auto-ignition temperature:	no data available
Thermal decomposition:	Carbon fibers: > 650 °C Coating agent: > 290 °C
Ignition temperature:	662 °F

**10. Stability and reactivity**

**Reactivity:** No data available.

**Chemical stability:** Stable under recommended storage conditions.

**Possibility of hazardous reactions**  
 Fine dust: danger of dust explosion.  
 Carbon Fiber is electrically conductive. It can cause short circuits within electrical equipment, if material dusts penetrate into the ambient air.

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- Conditions to avoid: Avoid generation of dust.  
Keep away from heat.
- Incompatible materials: Strong oxidizing agents, strong acids, strong bases
- Hazardous decomposition products:  
In case of fire may be liberated: halogen oxides, carbon monoxide and carbon dioxide.  
Danger of formation of toxic pyrolysis products.
- Thermal decomposition: Carbon fibers: > 650 °C  
Coating agent: > 290 °C

## 11. Toxicological information

### Toxicological tests

- Toxicological effects: Acute toxicity (oral): Lack of data.  
Acute toxicity (dermal): Lack of data.  
Acute toxicity (inhalative): Lack of data.  
Skin corrosion/irritation: Lack of data.  
Eye damage/irritation: Lack of data.  
Sensitisation to the respiratory tract: Lack of data.  
Skin sensitisation: Lack of data.  
Germ cell mutagenicity/Genotoxicity: Lack of data.  
Carcinogenicity: Lack of data.  
Reproductive toxicity: Lack of data.  
Effects on or via lactation: Lack of data.  
Specific target organ toxicity (single exposure): Lack of data.  
Specific target organ toxicity (repeated exposure): Lack of data.  
Aspiration hazard: Lack of data.
- Other information: For mechanical processing:  
Possible in traces: formation of WHO-fibers  
Definition WHO-fibers: length (L) > 5 µm and diameter (D) < 3 µm and L:D > 3:1  
classification WHO-fibers: Causes concern for man owing to possible carcinogenic effects. Should be regarded as if they are carcinogenic to man.

### Symptoms

- For mechanical processing: mild irritant.  
May produce an allergic reaction.

## 12. Ecological information

### Ecotoxicity

- Effects in sewage plants: The insoluble part can be precipitated mechanically in suitable sewage treatment plants.

### Mobility in soil

no data available

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**Persistence and degradability**

Further details: no data available

**Additional ecological information**

General information: Discharge into the environment must be avoided.

**13. Disposal considerations****Product**

Recommendation: Incinerate according to applicable local, state and federal regulations.

**Contaminated packaging**Recommendation: Dispose of waste according to applicable legislation.  
Non-contaminated packages may be recycled.**14. Transport information****USA: Department of Transportation (DOT)**

Proper shipping name: Not restricted

**Sea transport (IMDG)**

Proper shipping name: Not restricted

Marine pollutant: no

**Air transport (IATA)**

Proper shipping name: Not restricted

**Further information**

No dangerous good in sense of these transport regulations.

**15. Regulatory information****National regulations - U.S. Federal Regulations**

Product: Article: Product does not require special labeling according to US / Canadian legislation.

Bisphenol A epoxy resin (molecular-weight < 700): TSCA Inventory: listed; EPA flags XU  
TSCA HPVC: not listed**National regulations - Great Britain**

Hazchem-Code: -

**16. Other information**

Text for labeling: See information supplied by the manufacturer.

# SAFETY DATA SHEET

in accordance with 29 CFR 1910.1200 and ANSI standard Z400.1-2010

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Version: 1

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Hazard rating systems:



NFPA Hazard Rating:

Health: 1 (Slight)

Fire: 1 (Slight)

Reactivity: 0 (Minimal)

HMIS Version III Rating:

Health: 1 (Slight)

Flammability: 1 (Slight)

Physical Hazard: 0 (Minimal)

Personal Protection: X = Consult your supervisor

HEALTH	1
FLAMMABILITY	1
PHYSICAL HAZARD	0
	X

Literature:

TRGS 905, 05/2008 Verzeichnis krebserzeugender, erbgutverändernder oder fortpflanzungsgefährdender Stoffe

Date of first version: 8/31/2007

### Department issuing data sheet

Contact person: see section 1: Dept. responsible for information

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.