



GHS SAFETY DATA SHEET (SDS)

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: PART #1065 Kevlar® Carbon Hybrid Fabric (Yellow) – KEVLAR FIBERS

FIBRE GLAST DEVELOPMENTS CORP.
385 Carr Drive
BROOKVILLE, OH 45309

TELEPHONE: (937) 833-5200
FAX: (937) 833-6555
**FOR CHEMICAL EMERGENCY
CALL (800) 424-9300 24 HRS.**

RECOMMENDED USE: Standard Composite Manufacturing

SECTION 2– HAZARDS IDENTIFICATION

Product hazard category
Combustible dust

Label content

Pictogram : Not required

Signal word : Warning

Hazardous warnings : May form combustible dust concentrations in air.

**Hazardous prevention
Measures** : not required

Other Hazards

The hazards of this product are associated mainly with its processing., If small particles are generated during further processing, handling or by other means, may form combustible dust concentrations in air.

SECTION 3– COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS-No. | Concentration |
|-------------------|------------|---------------|
| Para-aramid fiber | 26125-61-1 | >85% |

SECTION 4 – FIRST AID MEASURES

| | |
|---|---|
| General advice | : No hazards which require special first aid measures. If symptoms persist, call a physician. If irritation occurs, flush area thoroughly with water. |
| Inhalation | : No applicable data available. |
| Skin Contact | : No applicable data available. |
| Eye Contact | : No applicable data available. |
| Ingestion | : No applicable data available. |
| Most important symptoms/effects, acute and delayed | : No applicable data available. |
| Protection of first-aiders | : No applicable data available. |
| Notes to physician | : No applicable data available. |

SECTION 5 – FIRE-FIGHTING MEASURES

| | |
|--|---|
| Suitable Extinguishing media | : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Unsuitable extinguishing media | : No applicable data available. |
| Specific hazards | : Hazardous decomposition products formed under fire conditions. |
| Special protective equipment for firefighters | : Wear self-contained breathing apparatus for firefighting if necessary. |
| Further information | : No applicable data available |

SECTION 6 - ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

| | |
|------------------------------------|--|
| Safeguards (Personnel) | : None. |
| Environmental precautions | : Do not let product enter drains. |
| Spill Cleanup | : Avoid dust formation. Clean up dusts and fibres with high efficiency particulate air (HEPA) filtered vacuum equipment, or by wet cleaning. |
| Accidental Release Measures | : No applicable data available. |

SECTION 7 – HANDLING AND STORAGE

| | |
|------------------------------------|--|
| Handling (Personnel) | : Avoid dust formation. Exposure to fibre fly, dust and decomposition products of spinfinishes should be avoided by ventilation and/or vacuum cleaning. High concentrations of dust can irritate eyes, nose and respiratory system and cause coughing and sneezing. Continual rubbing of fibre particulates and dust on the skin can cause a transitory, mild irritation with redness or itching. Do not touch moving threadlines. Entanglement with this fibre can severely cut or even sever fingers. Avoid breathing dust. |
| Handling (Physical Aspects) | : No applicable data available. |
| Dust explosion class | : No applicable data available. |
| Storage | : Keep away from direct sunlight. |
| Storage period | : No applicable data available. |
| Storage temperature | : No applicable data available. |

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls : Ensure adequate ventilation. Recirculated air should be filtered to remove respirable dust. Provide for appropriate exhaust ventilation and dust collection at machinery. Static charges can cause explosions in solvent and dust laden atmospheres. Provide grounding of equipment to prevent static build-up.

Personal protective equipment

Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Eye protection : Safety glasses with side-shields

Exposure Guidelines

Exposure Limit Values

| | | | |
|-------------|----|---------------------|---|
| Para-aramid | | | |
| AEL * | () | 2 RFP/cc | 8 & 12 hr. TWA Respirable fibers. |
| AEL * | () | 5 mg/m ₃ | 8 & 12 hr. TWA Non-fibrous particulate and/or non-respirable fibres. |

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance

| | |
|-----------------------|---|
| Physical state | : solid |
| Form | : nonwoven fabric, woven fabric, fibres, yarn |
| Color | : various |

| | |
|---|--|
| Odor | : odourless |
| Odor threshold | : No applicable data available. |
| pH | : No applicable data available. |
| Melting point/freezing point | : Melting point/range Not applicable |
| Boiling point/boiling range | : Boiling point/boiling range Not applicable |
| Flash point | : Not applicable |
| Evaporation rate | : No applicable data available. |
| Flammability (solid,gas) | : May form combustible dust concentrations in air. |
| Upper explosion limit | : No applicable data available. |
| Lower explosion limit | : No applicable data available. |
| Vapour Pressure | : No applicable data available. |
| Vapour density | : No applicable data available. |
| Specific gravity (relative density) | : 1.44 – 1.45 at 20° C (68° F) |
| Water solubility | : Insoluble |
| Solubility(ies) | : No applicable data available. |
| Partition coefficient: n-octanol/water | : No applicable data available. |
| Auto-ignition temperature | : No applicable data available. |
| Ignition temperature | : does not ignite |
| Decomposition temperature | : > 300° C |
| Viscosity, kinematic | : No applicable data available. |
| Viscosity, dynamic | : No applicable data available. |

SECTION 10 – STABILITY AND REACTIVITY

| | |
|---|---------------------------------|
| Reactivity | : No applicable data available. |
| Chemical stability | : No applicable data available. |
| Possibility of hazardous reactions | : No applicable data available. |
| Conditions to avoid | : No applicable data available. |
| Incompatible materials | : Strong acids and strong bases |
| Hazardous decomposition | |

Products : Hazardous thermal decomposition products: : Carbon dioxide
Nitrogen oxides (NOx) , Hydrogen cyanide (gaseous) , Ammonia, anhydrous
Aldehydes, Hydrocarbons

SECTION 11 – TOXICOLOGICAL INFORMATION

Kevlar® Para-aramid

Skin sensitization : Patch test on human volunteers did not demonstrate sensitization properties.

Inhalation : Rat
An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration.

Dermal : The substance is a polymer and is not expected to produce toxic effects.

Oral LD50 : >7,500 mg/kg, rat

Skin irritation : No skin irritation, guinea pig

Repeated dose toxicity : Inhalation, rat – Respiratory irritation.

Carcinogenicity : Not classifiable as a human carcinogen.
Overall weight of evidence indicates that the substance is not carcinogenic.

Mutagenicity : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Evidence suggest this substance does not cause genetic damage in animals.

Carcinogenicity

The carcinogenicity classifications for this product and/or its ingredients have been determined according to HazCom 2012, Appendix A.6. The classifications may differ from those listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or those found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition).
None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

SECTION 12 – ECOLOGICAL INFORMATION

Additional ecological information : No data is available on the product itself.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste disposal methods : Can be landfilled or incinerated, when in compliance with local regulations.
Do not flush into surface water or sanitary sewer system.

Contaminated packaging : No applicable data available.

SECTION 14 – TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

SECTION 15 – REGULATORY INFORMATION

TSCA Status : On the inventory, or in compliance with the inventory

SARA 313 Regulated Chemical(s) : SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop 65 : This product contains a chemical that is at or below California Propositions 65's "safe harbor level" as determined via a risk assessment. Therefore, the chemical is not required to be listed as a Prop 65 chemical on the MSDS or label.

SECTION 16 – OTHER INFORMATION

Restrictions for use: Do not use DuPont materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless the material has been provided from DuPont under written contract that is consistent with DuPont policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your DuPont representative. You may also request a copy of the DuPont POLICY Regarding Medical Applications H-50103-3 and DuPont CAUTION Regarding Medical Applications H-50102-3.

It is recommended that additional information be requested if an unusual application of synthetic fibres is intended.

The information accumulated herein is believed to be accurate but is not warranted to be, whether originating with **Fibre Glast Developments Corporation** or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.



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SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

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SECTION 2 – HAZARDS IDENTIFICATION

GHS CLASSIFICATION

Black continuous carbon fiber. Not expected to present an immediate concern for emergency response personnel. Not expected to present an immediate acute health, reactivity, or flammability hazard. Not expected to present an environmental hazard.

GHS Label Element

Hazard pictograms : N/A

Signal word : N/A

Hazard statements : N/A

Precautionary statements : N/A

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 transient skin irritation.

Environmental Effects

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

Airborne Carbon Fiber can also disturb electrical equipment.

Health Hazard Data

Primary Route of Entry: Inhalation, Eyes, Dermal, Ingestion

Effects of Overexposure:

Inhalation : Nuisance dust may cause temporary but reversible respiratory problems.

Eyes : Abrasive action may cause damage to the outer surface of the eye. Avoid wearing contact lenses if airborne carbon fiber/particle fly is particularly heavy.

Skin Contact : Fiber contact may cause slight itching and irritation.

Ingestion : Not a likely source of entry due to physical nature of material.

Chronic : Product does not contain carcinogenic materials as defined by OSHA Communication Act 1910.1200.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL TYPE: Carbon (Carbon Fiber)

Generic Name: N/A

Abbreviation Name: N/A

CAS Number: 7440-44-0

SUBSTANCE () MIXTURE (O): UN CLASS & UN NUMBER: N. A.

| Chemical Name | Comp. % | Chemical Formula (Constitutional Formula, Structural Formula) | CAS No. | TSCA |
|---------------|---------|---|------------|------------|
| Carbon Fiber | ≥ 94 | Carbon Fiber | 7440-44-0 | Registered |
| Sizing Agent | ≤ 2 | Not Open to public | Registered | Registered |

SECTION 4 – FIRST AID MEASURES

Inhalation : Move to fresh air and wash inside of mouth with water. If dizzy or unbalanced, seek medical attention as soon as possible.

Skin Contact : If transient skin irritation occurs, remove contaminated clothing and wash thoroughly with soap and water. If irritation persists, seek medical attention. Wash contaminated clothing before reuse.

Eye Contact : Immediately wash eyes with an excessive amount of water for at least 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 prickly feeling, seek medical attention as soon as possible.

Ingestion : Do not induce vomiting. Rinse mouth with fresh water. Then drink two or three glasses of water. Seek medical attention as soon as possible.

SECTION 5 – FIRE-FIGHTING MEASURES

Specific Hazards with Regard to Fire-Fighting Measures : Apply water from a safe distance to cool and protect surrounding area.

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.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Measures for Handling Personnel : No special measures requested

Measures for Environmental Effects : No special measures requested

Measures when Handling Spilled Substance : N/A

SECTION 7 – HANDLING AND STORAGE

HANDLING : Exposure control for individuals handling product:
Contact with carbon fiber can cause transient skin irritation. Hold the paper tube when handling bobbins to limit contact. To limit exposure wear cloth/leather gloves and cover exposed areas with normal work clothing. Additional protection may be needed if particle limits are excessive.
Protective measures against fire & explosion: N/A

STORAGE : Store bobbins in a cool, dark space. Low humidity is recommended.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

No data are available for the product

| Content | Carbon Fiber | Sizing Agent |
|---|--------------|--------------|
| LABOR SAFETY & HEALTH ACT (JAPAN) ppm (mg/m ³) | 2.9 | N/D |
| OSHA ppm (mg/m ³) | 2.0 | N/D |
| ACGIH Ppm (mg/m ³) | 10.0 | N/D |

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.

Personal Protective Equipment

Respiratory protection : Adequate respirator is requested to keep from inhaling dust and fly particles.

Eye protection : Adequate protective goggles are requested to keep eyes from dust and fly.

Hand, skin, and body Protection : Adequate protective gloves and clothing are requested to keep skin from dust and fly.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--------------------------|----------------------|
| Appearance : Black Fiber | Odor : None |
| Density : 1.6~2.0 | Boiling Point : N/A |
| Melting Point : N/A | Vapor Pressure : N/A |

| | |
|---------------------|---|
| Vapor Density : N/A | Solubility(%) : In soluble in water : N/A in others : N/A |
| Volatility : N/A | Others : N/A |

SECTION 10 –STABILITY AND REACTIVITY

| | |
|---|--|
| Flash Point : None | Spontaneous ignition temperature : None |
| Explosion limit (%) : None Upper: None Lower: None | Combustibility : Not Spontaneous Reactivity with water : None |
| Flammability : N/A | Dust explosion : N/A |
| Oxidizibility: Oxidize by stronger 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.

SECTION 11 – TOXICOLOGICAL INFORMATION

| | |
|-----------------------------|---|
| Acute toxicity | : N/A |
| Sub-chronic toxicity | : N/A |
| Chronic Toxicity | : N/A |
| Carcinogenic effects | : No silicosis case has been reported on inhalation test with mouse. |
| Mutagenic effects | : In one component of Sizing Agent, Bisphenol A epoxy resin, the mutagenic effect on a microbe is recognized. |
| Irritant Properties | : Contact with fly or dust can cause skin irritation. |
| Teratogenic effects | : N/A |

SECTION 12 – ECOLOGICAL INFORMATION

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

SECTION 13 – DISPOSAL CONSIDERATIONS

In case of disposal, this product must be treated as industrial waste, separated from public waste.

This product should not be incinerated. Carbon fiber cannot 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.

SECTION 14 – TRANSPORT INFORMATION

N/A

SECTION 15 – REGULATORY INFORMATION

| Regulatory/Classification | Reg. Info. | Substance Name | Allowed Concentration | |
|---------------------------|--------------|---------------------------|-----------------------|-----|
| TSCA (USA) No. | N/A | 7440-44-0 Carbon Fiber | N/A | N/A |
| EINECS No. | N/A | N/A | N/A | N/A |
| California Proposition 65 | N/A | N/A | N/A | N/A |
| FDA | N/A | N/A | N/A | N/A |
| UL | N/A | N/A | N/A | N/A |
| CAS | N/A | 7440-44-0 | N/A | N/A |
| REACH | Article Only | Carbon Fiber | N/A | N/A |
| OSHA | N/A | N/A | N/A | N/A |

SECTION 16 – OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be, whether originating with Fibre Glast Developments Corporation or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.