

Safety datasheet

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Name: **Pultruded carbon-fibre reinforced vinyl ester articles**
Identification no: -
REACH - registration no: -

1.2 Relevant identified uses of the substances or mixture and uses advised against

Pultruded carbon-fibre reinforced vinyl ester articles. The product is used as a semi-manufacture in many industries.

1.3 Details of the supplier of the safety data sheet

Fiberline Composites A/S
Barmstedt Allé 5
DK-5500 Middelfart
Tlf: +45 70 13 77 13
Fax +45 70 13 77 14
E-mail: orderswp@fiberline.com

1.4 Emergency telephone number

Tel: + 45 82 12 12 12 - Poison Center (DK), Bispebjerg Hospital (24hrs open)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to EU Regulation 1272/2008: No classification

2.2 Label elements

Articles manufactured by carbon-fibre reinforced vinyl esters are non-hazardous products according to Regulation 1272/2008 Classification, Labelling and Packaging of Substances and Mixtures.

2.3 Other hazards

Physical/chemical effects: Dust from grinding and cutting in the profile may form explosive mixture in air. By intense heating some decomposition of the material may occur, leading to splitting off dangerous gases and vapours.
Carbon fibres are electric conductive. Dust from grinding and cutting of the profile contains carbon fibres, thus it is necessary with effective ventilation to avoid short circuiting electrical equipment.

Human health effects: Dust from grinding and cutting in the profile may cause irritation of the mucous membranes of the eye and respiratory passages and may cause itching and coughing.

Environmental effects: -

The meaning of abbreviations used in section 2 and 3, see section 16.

SECTION 3. Composition/information on ingredients

3.1 Substances

The composite material, carbon-fibre reinforced vinyl ester, is produced of carbon fibres and vinyl ester dissolved in styrene. Styrene is classified as hazardous substances under EC regulations. By addition of hardener and heat the vinyl ester and styrene will cure and crosslink to form solid material. The cured product may contain low traces of styrene (<1%).

SECTION 4. First aid measures

4.1 Description of first aid measures

General: -

Skin:	In case of contact with possible dust from grinding/cutting in the product: Remove contaminated clothing. Wash the skin thoroughly with water and soap. In case of itching, redness and irritated skin get medical advice/attention.
Eye:	In case of contact with dust from grinding/cutting in the product or exposure to vapour and smoke from possible intense heating. Open eyes widely and rinse cautiously with plenty of water for at least 15 minutes. Remove contact lenses and continue rinsing. Use an eyewash bottle. If irritation persists, get medical advice/ attention.
Inhalation:	In case of inhalation of vapours, smoke and dust from grinding/cutting in the product or from intensive heating, go outside to breathe fresh air. Get medical advice/attention if you feel unwell.
Ingestion:	In case of ingestion of dust from e.g. grinding/cutting in the product, clean mouth with water and drink afterwards plenty of water. Get medical advice/attention if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Causes irritation of the mucous membranes of the eye and respiratory passages if exposed to dust.

4.3 Indication of any immediate medical attention and special treatment needed

No specific information

SECTION 5: Fire fighting measures

5.1 Extinguishing media

Use water mist, foam, powder or carbon dioxide

5.2 Special hazards arising from the substance or mixture

In case of intense heating and fire, incomplete combustion may form toxic gases e.g. carbon dioxide, carbon monoxide and hydrocarbons.

5.3 Advice for fire fighters

Wear self-contained breathing apparatus and protective suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Not relevant, as the product is large units of solid substance.

6.2 Environmental precautions

Not relevant, as the product is large units of solid substance.

6.3 Methods and material for containment and cleaning up

Not relevant, as the product is large units of solid substance.

6.4 Reference to other sections

Use of personal protective equipment, see section 8 and disposal, see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid breathing dust, vapours, and gases from after-treatment processes like e.g. grinding, cutting, drilling etc. Ensure well-ventilated areas for those processes. Use of personal protective equipment, see section 8. Be aware that grinding dust may cause dust explosions. Therefore, ensure good cleaning standard in connection with dusting processes, so that dust does not accumulate on horizontal surfaces. Use sparkless tools and explosion safe equipment. The product may contain low trace amount of styrene, which can be released during cutting, thus it is necessary to have effective ventilation or wear a respiratory mask. Since the dust is electric conductive, there is a risk of short circuiting electrical equipment, if it is exposed to the dust.

7.2 Conditions for safe storage, including any incompatibilities

Avoid overheating.

7.3 Specific end use

No specific information.

SECTION 8: Exposure controls /personal protection

8.1 Control parameters

National occupational exposure limit values:

Substance	Dust, inhalable			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
<u>Austria</u>		10		20
<u>Belgium</u>		10		
<u>Denmark</u>		10		20
<u>France</u>		10		
<u>Germany (AGS)</u>		10 (1) (2) (3)		20 (1) (2) (3)
<u>Germany (DFG)</u>		4		
<u>Hungary</u>		10		
<u>Ireland</u>		10		
<u>Singapore</u>		10		
<u>Spain</u>		10		
<u>Sweden</u>		10		
<u>Switzerland</u>		10		
<u>USA - OSHA</u>		15		
	Remarks			
France	Bold type: Restrictive statutory limit values			
Germany (AGS)	(1) Insoluble particulates (2) not applicable for ultra-fine dusts and dusts with specific toxicity (3) the limit value is a general upper limit for technical measures, as long as no specific regulations for toxic or carcinogenic substances are available			
Germany (DFG)	Long term exposure level, insoluble particulates			

Substance	Dust, respirable			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
<u>Austria</u>		5		10
<u>Belgium</u>		3		
<u>France</u>		5 respirable aerosol		
<u>Germany (AGS)</u>		1,25 (1)(2)(3)(4)(5)		
<u>Germany (DFG)</u>		1,5		
<u>Hungary</u>		6		

Ireland	4
Spain	3
Sweden	5
Switzerland	3
USA - OSHA	5
	Remarks
Austria	STV 15 minutes average value
France	Bold type: Restrictive statutory limit values
Germany (AGS)	(1) Insoluble particulates (2) not applicable for ultra-fine dusts and dusts with specific toxicity (3) the limit value is a general upper limit for technical measures, as long as no specific regulations for toxic or carcinogenic substances are available (4) the limit value was derived for dusts with an average density of 2.5 mg/m ³ (5) at work areas where all technical and further measures are state of the art but the LV is still not adhered, the old LV can be applied for a transitional period until 31st December 2018 (8 h-LV: 3.0 mg/m ³ , 15 minutes average value: 6.0 mg/m ³)
Germany (DFG)	Insoluble particulates

Substance	Styrene*			
	*During intense heating, cutting or drilling of the material styrene may be released.			
CAS No.	100-42-5			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
Australia	50	213	100	426
Austria	20	85	80	340
Belgium	50	216	100	432
Canada - Ontario	35		100	
Canada - Québec	50	213	100	426
Denmark	25	105	25	105
Finland	20	86	100 (1)	430 (1)
France	50	215		
Germany (AGS)	20	86	40 (1)	172 (1)
Germany (DFG)	20	86	40 (1)	172 (1)
Hungary		50		50
Ireland	20	85	40 (1)	170 (1)
Japan	50			
Latvia		10		30 (1)
New Zealand	50	213	100	426
People's Republic of China		50		100 (1)
Poland		50		200
Singapore	50	213	100	426
South Korea	20	85	40	170
Spain	20	86	40	172

Sweden	10	43	20 (1)	86 (1)
Switzerland	20	85	40	170
USA - NIOSH	50	215	100 (1)	425 (1)
USA - OSHA	100		200	
United Kingdom	100	430	250	1080
	Remarks			
Finland	(1) 15 minutes average value			
Germany (AGS)	(1) 15 minutes average value			
Germany (DFG)	(1) 15 minutes average value			
Ireland	(1) 15 minutes reference period			
Latvia	(1) 15 minutes average value			
People's Republic of China	(1) 15 minutes average value			
Sweden	(1) Short term value, 15 minutes average value			
USA - NIOSH	(1) 15 minutes average value			

8.2 Exposure controls

Engineering controls:	Ensure effective ventilation in post-processing areas. Provide access to water and eyewash bottle.
Respiratory protection:	In case it cannot be ensured that dust from post-processing are removed effectively through suction cleaning directly at source, wear particle filtrating respiratory equipment (P2/FFP2). If applied heating results in formation of vapours and waste gases one must wear a combination filter protecting against both organic and inorganic gases and vapours and particles (ABEK P2). If the respiratory equipment does not fit tightly to the face, due to the beard, face shape etc. and using the product for more than 3 hours total in a workday, the respiratory equipment must be air supplied.
Skin protection:	Wear working gloves to prevent carbon-fibre stinging/itching. In case of grinding and cutting, where dust may be generated, ensure that working clothes and working gloves sit tight to avoid skin contact with the dust.
Eye protection:	Wear safety glasses.
Body protection:	In case of grinding and cutting, where dust may be generated, then wear work clothes which covers entire body, and it must be changed after work shift.
Others:	Wash hands before breaks and at the end of workday. Smoking, eating and drinking should be prohibited in the application area. After work shift it is recommended to take a shower in order to avoid exposure to dust.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Solid heterogenic substance
Odour:	Weak smell of styrene, sweet odour
Odour threshold	0.32
pH:	NA
Melting point:	NA
Boiling point:	NA
Flash point:	NA

Evaporation rate:	NA
Flammability:	NA
Explosive limits:	NA
Vapour pressure:	NA
Vapour density:	NA
Relative density:	1.4-2.3 kg/l
Solubility- water:	Not soluble in water
Partition coefficient:	NA
Auto-ignition temperature:	No data
Decomposition temperature:	180-450 °C
Viscosity:	NA
Explosive properties:	Dust may form explosive mixture in air
Oxidising properties:	NA

9.2 Other information

Dust from grinding and cutting is electrically conductive and may cause short circuit in electrical equipment.

SECTION 10: Stability and reactivity

10.1 Reactivity

Inert under ordinary conditions of use.

10.2 Chemical stability

Stable under ordinary conditions of use.

10.3 Possibility of hazardous reactions

No data

10.4 Conditions to avoid

Intense heating

10.5 Incompatible materials

No data

10.6 Hazardous decomposition products

In case of decomposition toxic gases such as carbon dioxide, carbon monoxide and hydrocarbons may be generated.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Toxicological test	No data
Skin contact:	Dust from grinding and cutting processes may cause skin irritation with itching and blushing.
Eye contact:	Dust from grinding and cutting processes may cause eye irritation.
Inhalation:	Inhalation of dust generated by grinding and cutting in the carbon-fibre reinforced vinyl ester irritates the mucous membranes of the upper respiratory tract and may cause coughing. Gasses and vapours generated by intense heating of the material, e.g. during cutting and drilling (smoke) are dangerous to the health and may among other things cause nausea, headache, uneasiness and damage to the central nervous system.
Ingestion:	Not relevant as the products are large units of solid substances.
Carcinogenicity:	No data
Mutagenicity:	No data

Reproductive toxicity:	No data
Sensitisation:	No data
STOT single:	Is not classified as specific target organ toxicant, single exposure.
STOT repeated:	Is not classified as specific target organ toxicant, repeated exposure.

SECTION 12: Ecological information

12.1 Toxicity:

No data

12.2 Persistence and degradability

The product is very strong and durable and is virtually non-biodegradable.

12.3 Bio-accumulative potential

No data

12.4 Mobility in soil

The product is a solid substance. Dust is not soluble in water – not mobile in the environment.

12.5 Results of PBT and vPvB assessment

No data

12.6 Other adverse effects

No data

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Dust and product residues must be disposed of in accordance with local authority requirements. Product residues do not constitute hazardous waste.

SECTION 14: Transport information

The product is not classified as dangerous in transport regulation (ADR, RID, IMDG, IATA).

14.1 – 14.5 UN–no, UN proper shipping name, transport hazard class, packing group, environmental hazards

Not dangerous goods.

14.6 Special precautions for user

None.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not dangerous goods

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

None

Approval

Not relevant

Use restriction – young people

None

Code no.

Not relevant

15.2 Chemical safety assessment
No data.

SECTION 16: Other information

Hazard statements, safety phrases and/or precautionary statements used in section 3:

Education and training

The user must be given thorough instruction in the performance of their work with this material, the hazardous properties of the material, and the necessary safety measures.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is subject to the product being used under normal conditions and as specified on the packaging or in relevant technical literature. Any other use of the product, e.g. in connection with other products or processes, is the responsibility of the user.