

Safety Data Sheet

Kohle/Kevlar-Mischgewebe

Date of issue/Date of revision: 20.01.2022

en / GB - Version 1.0

1. Identification of the substance/preparation and of the company/undertaking

1.1 Identification of the substance

or preparation: Kohle/Kevlar-Mischgewebe

1.2 Use of the substance/preparation: Carbon fiber

1.3 Company/undertaking identification

Company name: Gößl + Pfaff GmbH
 Street: Münchener Str. 13
 Place: 85123 Karlskron/Brautlach
 Telephone: +49 (0) 8450 / 932-0
 Fax.: +49 (0) 8450 / 932-13
 Contact person: Management: Mr. Gößl, Mr. Pfaff
 E-Mail: info@goessl-pfaff.de
 Internet: www.goessl-pfaff.de
 Responsible Department: Management

1.4 Emergency telephone

Emergency +49 8450 932-0 (During our office hours)

2. Hazards identification

Carbon fiber

Name	CAS No.	Content %
Fiber or carbn fiber (PAN-based)	7440-44-0	≤ 99

Ingredients comment

The product contains epoxy resin on basis of Bisphenol- A-Epichlorhydrin with different molecular weights.

Inventory status

Products self are free from being registered according REACH. Nevertheless all ingredients comply with the registration requirements according REACH further more they are listed in EINECS or ELINCS.

SVHC (list of candidates)

Contains no or less than 0.1wt % of listed substances.

OSHA and ACGIH have not established air contaminant limits for carbon fibers. Under certain conditions, this substance may be a nuisance dust. OSHA has an established standard for particulates not otherwise regulated (nuisance dust) set at 5mg/m³ (respirable fraction) and 15mg/m³ (total dust). ACGIH has established an exposure value of 3mg/m³ (respirable fraction) for particulates not otherwise classified.

Para-Aramid (AR) fibre

Chemical nature:
 Poly-(Paraphenylene-Terephthalamide)
 CAS number: 26125-61-1 (with finish and traces of water)

Fibre finish:

The fibre product itself is not toxic. It may however contain up to 1.2 % of a fibre finish. If the product is intended for special applications, e.g. in the food industry, please consult the manufacturer prior application. So far no impairment of health has become known in case where the product has been used for its intended application. In cases where the product is heat- treated at temperatures of between 130 and 190 °C, the applied fibre finish may evaporate or decompose. If water is used for the further treatment, the waste water generated by the process must be treated in a water purification plant in compliance with the local regulations.

Residual solvents:

None. Fibres and yarns are generally provided with finishes to facilitate processing. If necessary, these finishes and also coning oils or sizing agents can generally be removed an aqueous medium.

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3. Composition/information on ingredients

This product is not considered to be hazardous in the sense of Directive 1999/45/EC and Regulation (EC) No 1272/2008 (CLP).

Emergency overview

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.

Safety note

(P280) Protective gloves.

EU-specific risk characteristics

EUH 208. Contains "Reaction product: Bisphenol-A- Epichlorhydrin resin with an average of ≤ 700 ". May cause allergic reactions.

Specific hazards (processing)

Vigorous abrasion of para-aramid products can yield microscopic fibrous dust particles. Prolonged inhalation of fine fibrous dust at high concentrations may cause lung damage.

Other hazards

No special hazards for health and environment known, if the described instructions according handling are respected.

Hazard that do not directly lead to classification

Carbon fiber is an electricity conducting material; it may break up into fine particles.

Finely dispersed carbon fiber may irritate skin, eyes and mucous membranes.

Carbon fiber dust may cause electrical short-circuits when contacted to electrical devices

4. First aid measures

General advice

When symptoms persist or in all cases of doubt seek medical advice.

Eye contact

In case of dust, thoroughly rinse eyes with clean water for at least 15 minutes.

Arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.

Remove contact lenses if any before continuing rinse.

Do not let the victim rub his eyes.

Skin contact

If skin irritation occurs, wash thoroughly with soap and water.

Ingestion

Give water to the victim if conscious, but do not make him vomit. In case of vomiting do not let the victim swallow the vomit. After swallowing, rinse out mouth and then drink plenty of water.

Inhalation

Move to fresh air. Get medical attention immediately if symptoms occur.

Protection of first-aiders

Use personal protective equipment. Do not breathe dust.

Most important symptoms and effects, both acute and delayed

Main symptoms:

Slight skin irritation has been observed in isolated cases

(Redness, Itching). Dust may be irritating to the

respiratory tract and cause symptoms of bronchitis.

Indication of any immediate medical attention and special treatment needed

Notes of physician:

Treat symptomatically.

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5. Fire-fighting measures

Suitable exhausting methods

Foam, dry powder, carbon dioxide or water-mist.

Unsuitable exhausting methods

Water jet

Dangerous combustible products

Emission or toxic gases (carbon oxides, nitrogen oxides, hydrogen cyanide and hazardous organic compounds)

Protective equipment

Wear self-contained breathing apparatus and protective suit (fire-fighters).

Protection of rescue teams

High-pressure self-respiratory protection apparatus

Specific risks

When the product is burnt, fine carbon fiber particles may be produced. They may cause electrical devices.

Physical and Chemical data on flammability and explosiveness

Flash point NA

Ignition point NA

Explosiveness lower limits NA

Explosiveness upper limits NA

Hazards coming from the product
At temperatures ≥ 650 °C formation and release from dangerous decomposition- and breakdown product like WHO-fibers (respirable carbon fiber particles) as well as dangerous pyrolysis residues are possible.
Other information

This product is not expected to burn. Do not incinerate carbon fibers since airborne fibers may cause electrical malfunctions. See Section 13 – Disposal Considerations for additional information.

6. Accidental release measures

Individual precautions

Don't breathe dust. Wear personal protective equipment.

Environmental precautions

Should not be released into the environment.

Cleaning methods

Avoid dust formation. Sweep up and shovel into suitable containers for disposal.

Precautions when handling

Fine particles may be dispersed; it is advised to wear a dust mask with P3 type filter.

Spill/ release and cleanup

In case of spill, collect (e.g. sweep up, vacuum, etc.) spilled material and either reuse or dispose of properly. Chopped or milled carbon fibers may be slippery if spilled posing an accident risk. Wear personal protective equipment as described in Section 8 during cleanup activities.

7. Handling and storage

Precautions to be taken

Wash hands with soap and water after handling. Wear appropriate protective equipment as described in Section 8 during clean-up activities.

Technical measures
Material to be handled with care – Do not cut the carbon fibre unnecessarily.
Electricity conducting material, do not allow contact with electric current sources.

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Handling precautions

Avoid the dispersion of loose fibres – Handle the fibre in well ventilated premises (the ventilation devices should have a filter to avoid discharging loose fibres into open air) where there are no electrical appliances or said appliances are protected in sealed or pressurized cases. Insulating varnish may be applied to electronic boards and electrical terminals.

Incompatibility with other materials Technical measures/

Avoid friction which may create loose and flying debris. Fibre dust and fly should be removed with approved industrial vacuum cleaning equipment. Compressed air cleaning increases airborne dust levels and must be avoided.

Storage

The moisture content of pulp products must be maintained during storage.
Other para-aramid products require no particular storage precautions.

8. Exposure controls/personal protection

Control parameters

Engineering measures

Use proper workplace ventilation.

Avoid accumulation and discharges of static electricity in the presence of flammable/ explosive materials.

Control parameters

See local regulations. In their absence, it is recommended that the average concentration of respirable fibre-shaped particles (REP's) derived from para-aramid products be maintained below 2 fibrils per ml of workplace air.

Exposure limits

Component	CAS	Occupational Exposure Limit	Country	Source
Carbon fiber	308063-67-4 7440-44-0	250.000 fibres/m ³ recommendation	GER	TRGS 900, 521
Carbon fiber	-	2 fibres/cm ³ (limit value/8h)	BEL	GESTIS limit Values VLEP/GWBB

Limitation and monitoring

In general it is recommended to avoid the exposition of fiber fly.

Exposure controls

Eye protection

Wear protective goggles or dustproof goggles.

Hand protection

Always wear protective gloves conform to EN 374-1/2/3 and EN 420 when handling the product.

Skin and body protection

Long sleeved clothing. Yarn which is processed at high speeds can cause abrasions and cuts.

It is therefore advisable to avoid skin contact with these potential sources of injury.

Respiratory protection

Use protection mask with P3 type filter in case of dispersion of dust.

Individual protection

If dust is created and ventilation is inadequate, it is advised to wear a dust mask, eye protection, gloves and clean and dry work attire.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. During the processing and application of the fibres, small amounts of dust (including dust particles of respirable size) may be given off. A health risk caused by the inhalation of para-aramid dust particles does not exist in the safety instructions. Fibre fly, dust and decomposition products of the fibre finishes must be avoided by ensuring adequate extraction and ventilation. Factory safety regulations must be strictly observed.

Environmental exposure

The product should not be allowed to enter the drain, water courses or the soil.

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9. Physical and chemical properties

Appearance of Carbon

Form	Solid, filament
Odor	Odorless
Color	Black
Volume mass (23°C)	1.6 to 2.2 g/cm ³
Boiling point	NA
Melting point	approx. 3500 °C
Flashpoint	NA
Self-combusting point	NA
Steam pressure	NA
Steam density	NA
Density	NA
Decomposition	NA

≥ 650 °C (in air), preparation ≥ 290 °C

Solubility

Water	Insoluble
Others	Sizing soluble in chlorinated solvents, acetone, DMF
Others	Electricity conducting material (1.6 10 ⁻³ Ohm cm)

Appearance of Para-Aramid

Physical state @ 20 °C	Solid
Appearance	Filament yarn, fibres
Colour	Yellow, black, various
Odour	Odourless

Safety-relevant data

pH	Not applicable
Melting/ freezing point	Decomposes
Boiling point/ boiling range	Not applicable
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	Not flammable
Flammability Limits in air	Not applicable
Vapour pressure	Not applicable
Vapour density	Not relevant
Relative density	1.44
Water Solubility	Negligible
Solubility in other solvents	Strong sulphuric acid
Partition coefficient	Not applicable
Auto ignition temperature	Not applicable
Decomposition temperature	> 500 °C
Viscosity, dynamic	Not applicable
Explosive properties	Not explosive
Oxidizing properties	Not relevant
Density	1.440 kg/m ³

10. Stability and reactivity

Stability and reactivity transport-

The product is stable and not reactive under normal warehouse- and application conditions.

Conditions to avoid

Do not heat above decomposition temperature. Vigorous hardening may release toxic gases and create dangerous decomposition products.

Conditions to avoid

Exposure to UV-rays. Temperatures above 500 °C. To avoid thermal decomposition, do not overheat.

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Incompatible materials

Strong acids, strong bases and oxidizing agents.
The enrichment of fiber dust in the presence of air can lead to dust explosion.

Hazardous decomposition products

Carbon monoxide (CO), Carbon dioxide (CO₂), Organic materials, Hydrogen cyanide.

Dangerous reactions

Polymerization (avivage).

Dangerous decomposition products

Emission of nitrogen oxides and carbon monoxide.

11. Toxicological information

Acute toxicity

Ingestion None known effect
Skin contact None known effect
Inhalation None known effect

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Poly-(paraphenylene-Terephthalamide)	> 7.500 mg/kg (Rat)		

Exposure risks

Ingestion

Possible irritation of throat.

Inhalation

Possible irritation of respiratory apparatus.

Skin contact

May cause irritations.

Contact with eyes

May cause irritations.

Germ cell mutagenicity

Not known to cause heritable genetic damage.

Carcinogenicity

The fiber product (polymer) is non-toxic. Usually the fibers are treated with about 1 % finish. All additives are non-toxic according to the safety datasheets of their manufacturers. The following information does not relate to the intact fibers but only to respirable, fiber-shaped particulates (RFP), which may be found in small numbers in the workplace atmosphere due to abrasive processing. RFP are fragments with diameters of less than 3µm, lengths up to 100 µm and a length/ diameter ratio of at least 3:1. No malignant tumors resulted from the lifelong inhalation tests a rat. Instead proliferative cystic tissue changes were observed in rats after exposure to particulates. They occur mainly in (female) rats and have never been observed in human beings. These cysts were subject of scientific debate for an extended period of time, but current consensus holds that they are not malignant and that their occurrence in animals has no relevance to humans.

Reproductive toxicity

Not known to cause birth defects or have a deleterious effect on a developing fetus. Not known to adversely affect reproductive functions and organs.

STOT-single exposure

The fiber product (polymer) is non-toxic. Usually the fibers are treated with about 1 % finish. All additives are non-toxic according to the safety datasheets of their manufacturers. The following information does not relate to the intact fibers but only to respirable, fiber-shaped particulates (RFP), which may be found in small numbers in the workplace atmosphere due to abrasive processing. RFP are fragments with diameters of less than 3 µm, lengths up to 100 µm and a length/ diameter ratio of at least 3:1. Short term and sub chronic (3 months) inhalation studies in rats and hamsters with an extended follow-up of up to nine months have demonstrated that p-Aramid RFP are not bio persistent.

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Long p-Aramid RFP are quickly transversely broken into smaller fragments and then removed from the lung. However, extremely high amount of inhaled p-Aramid RFP may inhibit the clearance mechanism. 25 RFP/ml of air has been established as the "no observed adverse effect level" in sub chronic study.

STOT-repeated exposure

See: STOT-single exposure.

Aspiration hazard

See: STOT-single exposure.

12. Ecological information

Mobility

NA

Persistence and degradability:

Para-aramid products are stable, persistent and resist bacterial degradation.

Bioaccumulation

NA

Eco toxicity affects

None

Events of PBT- and vPvB

On basis of all available information not classified as PBT or vPvB.

Other harmful effects

The product is inert with existing substances in the ground. Due to the rot resistance do not release the material to the environment respectively to the canalization. An ozone-depleting potential or a greenhouse effect are not known.

13. Disposal considerations

Product disposal according to the regulation on waste in force:

EWC (European Waste Catalogue): recommendation: 16 03 06

16 Kind of wastes not described on the list

16 03 Manufacturing defective products and unused products

06 03 06 Other organic wastes than those listed on 16 03 05

Disposal of polluted packages according to the regulation on waste in force:

EWC (European Waste Catalogue): recommendation: 15 01 05

15 Packages and packaging wastes, absorbents, wipers, filtering materials and protection attire unspecified elsewhere

15 01 Packages and packaging wastes (including town wastes collected separately)

15 01 05 Composite packages

According to the origin and the waste form, other EWC numbers should apply.

RCRA Classification

If discarded in its manufactures form, this product is not expected to be a characteristic or specifically listed hazardous waste under RCRA. However, it is the responsibility of the user to determine at the time of disposal whether a material containing the product or derived from the product should be as a hazardous waste.

Special instructions

Do not incinerate carbon fibers since airborne fibers may cause electrical malfunctions. Any disposal practices must be in compliance with federal, state and local requirements.

