


According to Regulation (EC) No 1907/2006 [REACH] Article 3(3) this product is classified as article, hence no obligation exists to create a safety data sheet as required by REACH Article 31/32. This Product Information was created in the style of REACH Annex II/Regulation (EU) 2015/830 to inform about a safe and careful handling with this product.

Chapter 1: Identification of the article and of the company

- 1.1 **Product Identifier** Tenax® Carbon Filament yarn
- 1.1.1 **Product types** Tenax®-E HTS45 P12
Tenax®-E IMS65 P12
Tenax®-E IMS65 P22
- 1.2 **Recommended Use** Manufacturing of Thermoplaste Carbon Composite.
- 1.2.1 **Uses advised against** None.
- 1.3 **Details of the supplier**
- 1.3.1 **Address** Teijin Carbon Europe GmbH
Kasinostr. 19-21
42103 Wuppertal
GERMANY
Tel: +49 202 32-3225
Homepage: www.tejincarbon.com
- 1.3.2 **Responsible department/competent person** Dr Axel Leuchter
General Manager Quality & Compliance
E-Mail: safety@tejincarbon.com

Chapter 2: Hazards identifications

- 2.1 **Classification** This product is an **article**, and hence does not require a classification and labelling according to EU regulations.
- 2.1.1 **Classification according to Regulation (EC) No 1272/2008 [CLP]** Not classified as hazardous. See chapter 3.
- 2.2 **Labelling elements according to Regulation (EC) No 1272/2008 [CLP]** Not subject to classification.
- 2.2.1 **Precautionary instruction** P280: Wear protective gloves.
- 2.3 **Other hazards**
- 2.3.1 **Product meets the criteria for classification acc. to Annex XIII of REACH Reg. (EC) No 1907/2006 as PBT or vPvB** Not applicable.
- 2.3.2 **Other hazards which do not result in classification according to Regulation (EC) No 1272/2008 [CLP]** Self-declaration following DGUV-Information "Bearbeitung von CFK Materialien" (Processing of Carbon Composites Materials) FB HM-074.

Hazard pictograms		
Signal word	Warning	
Hazard statement	During mechanical processing fine dust could be formed as a result of abrasion, and which might be included fractions of WHO-fibre particles that are respirable and/or alveolar.	
	P243	Take action to prevent static discharges.

Precautionary statements - Prevention	P261	Avoid breathing dust.
	P280	Wear protective gloves and half mask.

Chapter 3: Composition/information of ingredients

- 3.1 Product type** This product is an **article** acc. to regulation (EC) 1907/2006 [REACH]. It does not contain any substances that are intended to be released under normal or foreseeable applications.
- 3.1.1 Description** Carbon filament yarn with thermoplastic pre-impregnated.
- 3.2 Composition/information of ingredients**

Content by weight % (w/w)	Substance	CAS No EINECS/ELINCS EU-INDEX	GHS/CLP:
≥ 98	Carbon fiber based on polyacrylonitrile (PAN)	308063-67-4 / 7440-44-0 Polymer: (231-153-3) -	Not classified
≤ 2	Thermoplastic PEI-Sizing (Polyetherimide)	- - -	Not classified

Chapter 4: First aid measures

- 4.1 Description of first aid measures**
- 4.1.1 General information** Avoid breathing fibre dust. Otherwise, no special measures are necessary.
- 4.1.2 Inhalation** In case of vapors or dust inhalation, bring affected person to fresh air. If respiratory irritation persist, seek medical attention.
- 4.1.3 Skin contact** In the event of contact with skin, rinse affected area with cold water.
- 4.1.4 Eye contact** In the case of eye contact, rinse the affected eye thoroughly for a few minutes. Remove contact lenses, if present and easy to do, continue rinsing. If eye irritation persist, seek medical attention.
- 4.1.5 Ingestion** Not applicable.
- 4.2 Most important symptoms and effects, both acute and delayed** No information available.
- 4.3 Indication of any immediate medical attention and special treatment needed** Symptomatic treatment.

Chapter 5: Firefighting measures

- 5.1 Extinguishing media**
- 5.1.1 Suitable extinguishing media** Foam, dry powder, water spray jet, carbon dioxide.
- 5.1.2 Not suitable extinguishing media for safety reasons** Full water jet.
- 5.2 Special hazards arising from the article** Fire or thermal decomposition can lead to release toxic products, and dust may form explosive mixture in air. Temperature above ≥ 650 °C can cause WHO-fibres coming from the disintegrating CF-material.
- 5.3 Advice for firefighters** Do not inhale explosion and/or combustion gases. Use self-contained breathing apparatus. Fire residues and contaminated firefighting water must be disposed of in accordance with local regulations.

Chapter 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedure.**
Keep away from sources of ignition.
Take precautionary measures against static discharges.
- 6.2 Environmental precautions** No special measures are required.
- 6.3 Methods and material for containment and cleaning up**
Dust at the point of origin shall be vacuumed with industrial vacuum cleaner (recommendation class B1 IP65 or Typ 22 class IIIC acc. to DIN IEC 62784; at least filter class cat. M), or shall be wet absorbed. Accidentally split product shall be taken up mechanically. Dispose of contaminated material in accordance with regulations.
- 6.4 Reference to other sections** See Chapter 7, 8 and 13.

Chapter 7: Handling and storage

- 7.1 Precautions for safe handling** At all stages of the operation/processing, ensure extraction of dust and/or vapor by adequate ventilation, especially in confined areas. Avoid overheating if handled improperly.

General hygiene rules must be observed: Wash hands before breaks and at the end of work. Protect skin by using skincare ointment.
- 7.2 Conditions for safe storage, including any incompatibilities**
Store and keep the article away from direct sunlight and other UV-light source in dry rooms in the original packaging. Recommended storage temperature: ≤ 50 °C, relative humidity: ≤ 85 %.
- 7.3 Specific end uses** See product use, Chapter 1.2.

Chapter 8: Exposure controls/personal protection

8.1 Control parameters


8.1.1 Ingredients with occupational exposure limits to be monitored

Substances	CAS No	Occupational exposure limits (OEL)		Sources
		Limit value Eight hours	Limit value Short term	
Workplace limits for dust in general (allgemeiner Staubgrenzwert ASGW)	-		1.25 A mg/m ³⁽²⁾ 10 E mg/m ³⁽²⁾	TRGS 900, 521 GESTIS Limit Values Germany (AGS)
Carbon fibre	-	2 fibre particles/cm ³		GESTIS Limit Values Belgium VLEP/GWBB
Carbon fibre	-	3 mg/m ³⁽¹⁾		GESTIS Limit Values China
Polymer dust	-	5 mg/m ³⁽¹⁾		GESTIS Limit Values Latvia

⁽¹⁾ = Inhalable aerosol and vapor

⁽²⁾ = 15 minutes reference period / exceedance factor 2

- 8.1.2 DNEL/PNEC-Values** Not specified.

- 8.2 Exposure controls** Individual protection measures when processing the product, such as personal protective equipment:
- 
- 8.2.1 Additional advice on system design** Ensure adequate ventilation on workplace. Mechanical processing should be preferable taken place in confined areas or separate facilities. Technical machinery, electric and electronic devices should be protected against static charge and short circuit.
- 8.2.2 Eye protection** None.
- 8.2.3 Hand protection** Wear protective gloves when handling the product. For sufficient protection use gloves according to EN 374. Nevertheless, before using protection gloves for the first time, they should be tested for their workplace-specific suitability (e.g. mechanical resistance, product compatibility and antistatic properties). For further information, please contact the glove supplier.
- 8.2.4 Additional protective measures** Personal protective equipment should be selected specifically for the work place.
- 8.2.5 Respiratory protection** In the case of vapors and/or dust, use breathing apparatus.
Half or quarter mask, filter P2 or
Particle filter mask FFP2 or
PAPR with TH2P.
- 8.2.6 Delimitation and monitoring of the environmental exposition** Not specified.

Chapter 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

9.1.1 Appearance

- Form** Solid, continuous fibre.
- Color** Black.
- Odor** Not specified.

9.1.2 Basic physical and chemical properties

Parameter	Value	Method	Remarks
Odor threshold	Not available		
pH level [20 °C]	Not applicable		
Melting point [°C]	≈ 3500 °C carbon fiber		
Initial boiling point/ Boiling range [°C]	Not specified		
Flash point [°C]	Not specified		
Evaporating temperature	Not available		
Inflammability (fest, gasförmig)	Not available		
Lower explosion limits	Not available		
Upper explosion limits	Not available		
Vapor pressure [Pa]	Not available		
Vapor density [°C]	Not available		
Relative Density [°C]	1.2 – 1.7		

Parameter	Value	Method	Remarks
Solubility (solvents) [°C]	Not available		
Partition coefficient: n-Octan/Water [K_{ow}]	Not applicable		
Auto-ignition temperature [°C]	Not available		
Decomposition temperature [°C]	≥ 650 °C carbon fiber		ambient air
Viscosity, flow time [23 °C]	Not available		
Viscosity, dyn. [mPas/20 °C]	Not available		
Explosive properties	Not available		
Oxidizing properties	None		

9.2 **Other information** No information available.

Chapter 10: Stability and reactivity

- 10.1 **Reactivity** Product is not reactive and stable under conditions for transfer, storage and applications.
- 10.2 **Chemical stability** See Chapter 10.1.
- 10.3 **Possibility of hazardous reactions**
Accumulation of fibre dust may entail the risk of a dust explosion in the present of air.
- 10.4 **Conditions to avoid** Do not heat up above decomposition temperature mentioned.
See Chapter 5.2, 9.1.2.
- 10.5 **Incompatible materials** No information available.
- 10.6 **Hazardous decomposition products**
None if used for intended purpose.

Chapter 11: Toxicological information

- 11.1 **Information on toxicological information**
Toxicological effects of the product are not studied.
- 11.1.1 **Acute toxicity** Not specified.
- 11.1.2 **Skin corrosion/irritant** Not specified.
- 11.1.3 **Serious eye damage/eye irritation**
Not specified.
- 11.1.4 **Respiratory or skin sensitization**
Not specified.
- 11.1.5 **Germ cell mutagenicity** Not specified.
- 11.1.6 **Carcinogenicity** Not specified.
- 11.1.7 **Reproductive toxicity** Not specified.
- 11.1.8 **STOT-single exposure** Not specified.
- 11.1.9 **STOT-repeated exposure** Not specified.
- 11.1.10 **Aspiration hazard** Not specified.
- 11.1.11 **General information**
Carbon fiber itself does not emit WHO-fibre particles that are respirable (IARC).
Definition of WHO-fibre particle:
length ≥ 5 µm, diameter ≤ 3 µm and length-to-diameter ratio 3:1

Chapter 12: Ecological information

12.1	Toxicity	Toxicity of the product is not studied.
12.2	Persistence and degradability	Not specified.
12.3	Bioaccumulative potential	Not specified.
12.4	Mobility in soil	Not specified.
12.5	Results of the PBT and vPvB assessment	Not applicable.
12.6	Other adverse effects	Do not let the product enter the groundwater, open water, or the sewerage system.

Chapter 13: Disposal considerations

13.1	Waste treatment methods	Article residues should be disposed of in compliance with Directive on Waste 2008/98/EC as well as national and regional regulations. For the product, it is not possible to determine a waste code number according to the European Waste Catalogue (EWC) as only the intended use by the customer enables an allocation. The waste code number has to be determined within the EU in accordance with the local waste disposer.
13.1.1	Product	If necessary, coordinate disposal with the authorities.
	AVV-No. (recommended)	061399 Wastes from inorganic chemical processes, if otherwise not specified. 160304 Inorganic wastes.
13.1.2	Contaminated packaging	Non-contaminated packaging may be taken for recycling. Contaminated packaging must be disposed of like the article.
	AVV-No. (recommended)	150101 Packaging made of paper and cardboard. 150102 Packaging made of plastic.

Chapter 14: Transport information

	Land transport (ADR/RID)	Inland waterways (ACN)	Marine transportation (IMDG)	Transport by air (ICAO-TI / IATA-DGR)
14.1	UN-Number -			
14.2	UN proper shipping name NO DANGEROUS GOODS			
14.3	Transport hazard class -			
14.3.1	Label -			
14.4	Packing group -			
14.5	Environmental hazards -			

14.6	Special precautions for user	See Chapter 6 to 8.
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and IBC-Code	Not applicable.
14.8	Additional information	
14.8.1	Limited quantities (LQ)	-
14.8.2	Classification code	-
14.8.3	Hazard Number	-
14.8.4	Tunnel restriction code	-
14.8.5	EmS Number	-

Chapter 15: Regulatory information

15.1 Safety, health and environmental regulations/specific legislations

- The national health and occupational safety regulations have to be considered when handling or processing the product.
- 15.1.1 National regulations** See Chapter 8.
- 15.1.2 VOC directive (2004/42/EG)** Product does not emit volatile organic Substances.
- 15.1.3 Ozone layer (Reg. EC No. 2037/2000)** Product does not contain substances that deplete the ozone layer.
- 15.1.4 Employment restriction** When processing the product, observe employment restrictions for child bearing mothers and nursing mothers, and furthermore, observe employment restrictions under the law for the protection of young people at work (94/33/EC Article 7)
- 15.1.5 Water pollution class** Not applicable.
- 15.1.6 Fluorinated greenhouse gases (Reg. EU No. 517/2014)** Product does not contain fluorinated greenhouse gases.
- 15.1.7 SVHC (candidate list)** The product does not contain Substances of Very High Concern acc. to REACH Reg. (EC) No 1907/2006 Article 57 above legal concentration limits of $\geq 0.1\%$ (w/w).
- 15.1.8 RoHS 2011/65/EU / (EU) 2015/863** This Carbon Fiber product does not contain any substances listed in RoHS and amendments (or contains in concentrations below the limits as specified therein).
- 15.2 Chemical safety assessment** Chemical safety assessments for substances in this product were not carried out.

Chapter 16: Other information

16.1 Changes compared to the last version

- Revision 01** First edition
Unlike previous definition, the Teijin Carbon Europe GmbH has concluded that Carbon Fiber and its products is regarded as article in accordance with REACH Regulation (EC) 1907/2006. TCE has come to the firm conviction that during production Carbon Fiber is given a special shape, surface or design, which determines its function to a greater degree than does its chemical composition. Therefore, it has to be treated as an article.
- Revision 02** Due to a new layout and the addition of IMS65 P22, the PISH has been completely revised.

16.2 Hazard information (Chapter 2 and 3)

TRGS 521: We are recommend to take actions according to the measured fibre dust concentration. If in doubt, we recommend to take actions for category of exposure 3 ($\geq 250\ 000$ fibres/m³).

16.2.1 Methods according to article 9 of (EC) No 1272/2008 (CLP) for the evaluation of available information

The product classification has been determined based on a mixture and in accordance with the technics of the calculation method.

16.3 Literature references and sources for data

16.3.1 Regulations In their respective current versions:

REACH (EC) No 1907/2006
Regulation (EU) Nr. 2015/830 „amending REACH, Annex II“
CLP (EC) No 1272/2008
TRGS 521 „Fibre Dust“
TRGS 900 „Occupational Exposure Limits“
Waste directive 2008/98/EC
VwVwS
VOC (2004/42/CE),

Ozon (EC) No 2037/2000
Greenhouse gases Reg. (EU) No 517/2014
RoHS Directive 2011/65/EU and amendments
National Maternity Protection as well as Youth Employment Acts
National Workplace Exposure Limits of corresponding countries

16.3.2 Internet

Sources:

http://www.bgbau.de/gisbau
http://www.dguv.de
http://www.dguv.de/gestis
http://www.echa.europa.eu/candidate-list-table
http://www.baua.de
https://echa.europa.eu/de
http://eur-lex.europa.eu

16.4 Abbreviations

A	Alveolar fraction
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
AGS	German Committee on Hazardous Substances
ATE	Acute Toxicity Estimated value
AVV	European List of Waste
BCF	Bioaccumulation factor
bw	Body weight
CAS No	Registration Number of the Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
DGUV	Institute for Work and Health of the German Social Accident Insurance
DMEL	Derived Minimum Effect Level
DNEL	Derived No Effect Level
dw	Dry weight (Dry basis)
E	Inhalable fraction
EC	European Council
EC₅₀	Median effective concentration
ECHA	European Chemical Agency
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EU	European Union
EUH	EU-Hazard Statements
EWC	European Waste Catalogue
GHS	Globally Harmonized System
GWBB	Granswaarden voor beroepsmatige blootstelling
IARC	International Agency for Research of Cancer
IATA	International Air Transport Association
IC₅₀	Inhibition concentration, 50 %
IMDG	International Maritime Code for Dangerous Goods

LC₅₀	Lethal concentration, 50 %
LD₅₀	Median lethal dose
LOEC	Lowest Observed Effect Concentration
MARPOL	International Convention for the Prevention of Marine Pollution from Ships
MW	Molecular weight
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect concentration
NOELR	No Observable Effect Loading Rate
N.O.S.	not otherwise specified
NTIS	National Technical Information Service, USA
PBT	Persistent, Bioaccumulative and Toxic substance
PNEC	Predicted No Effect Concentration
P_{ow}	Partition coefficient n-octanol/water
QSAR	Qualitative structure-activity relationship
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals
REL	Recommended exposure limits
RID	International Carriage of Dangerous Goods by Road
STOT	Specific target organ toxicity
STP	Sewage treatment plant
SVHC	Substances of Very High Concern for Authorization
TRGS	German Technical Rule for Hazardous Substances
VLEP	Valeurs limites d'exposition professionnelle
vPvB	Very Persistent and very Bioaccumulative
VwVwS	German Administrative Regulation of Water-Polluting Substances
WHO	World Health Organisation
WHO-fibre	length ≥ 5 µm, diameter ≤ 3 µm and length-to-diameter ratio 3:1
% (w/w)	Weight Percent

16.5 Other information

16.5.1 Inventory Status

In general, articles are exempted from compulsory registration acc. to REACH regulation. Anyhow, all ingredients comply with the registration requirements acc. to REACH (registration or pre-registration), and additionally are listed in EINECS or ELINCS.

16.5.2 Disclaimer

This information is given to the best of our current knowledge and describes an article with regard to safety requirements. We would like to point out that it does not represent a guarantee of properties.