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.

Section 1: Identification of the article and of the company

1.1 Product Identifier
Tenax® TPUD PEEK

1.2 Product type
Tenax® TPUD PEEK IMS65
Tenax® TPUD PEEK HTS45

1.3 Relevant identified uses of the article and uses advised against
Use to produce molded composite parts for aerospace applications, medical devices and oil and gas industry equipment.

1.3.1 Uses advised against
None known.

1.4 Details of the supplier

1.4.1 Supplier
Teijin Carbon Europe GmbH
Kasinostr. 19-21
42103 Wuppertal
GERMANY
Tel: +49 202 32-3225
Homepage: www.teijincarbon.com

1.4.2 Responsible department/competent person
Dr Axel Leuchter
General Manager Quality & Change Management
E-Mail: safety@teijincarbon.com

Section 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 Self-Classification according to Regulation (EC) No 1272/2008 [CLP]
Not classified as hazardous. See chapter 3.

2.2 Self-Labelling elements according to Regulation (EC) No 1272/2008 [CLP]
Not subject to labelling.

2.2.1 Precautionary instruction
P280: Wear protective gloves.

2.2.2 Supplemental Hazard information (EU)
None known.

2.3 Oher hazards

2.3.1 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
Risk of skin burns cause of hot melt.

Section 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
Unidirectional laid carbon fiber with thermoplastic matrix.

3.2 Composition/information of ingredients

Substance	CAS No EINECS/ELINCS EU-INDEX	Content by weight % (w/w)	GHS/CLP	M-factor/ specific limit value
Carbon fiber based on polyacrylonitrile (PAN)	**308063-67-4 / 7440-44-0 Polymer: (231-153-3) -**	**≥ 50**	**Not classified.**	**-**
PEEK Polyetheretherketone, modified	**-**	**≤ 50**	**Not classified.**	**-**

3.2.1 Additional information
None known.

Section 4: First aid measures

4.1 Description of first aid measures

4.1.1 General information
Not special measures necessary.

4.1.2 Following inhalation
In the case of fibre dust inhalation, bring affected person to fresh air. If respiratory irritation persist, seek medical attention.

4.1.3 Following skin contact
Cool skin rapidly with plenty of cool water after contact with molten material. Do not remove solidified product. In the case of burns by molten product, medical treatment is necessary.

4.1.4 Following 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 Following ingestion
Not applicable.

4.1.6 Self-protection of the first aider
Self-aider: Pay attention to self-protection!

4.2 Most important symptoms and effects, both acute and delayed

4.2.1 Symptoms and Effects
None known.

4.3 Indication of any immediate medical attention and special treatment needed

4.3.1 Special treatment
First aid, treatment of symptoms.

4.3.2 Notes for the doctor
Treat symptomatically.

Section 5: Firefighting measures

5.1 Extinguishing media

5.1.1 Suitable extinguishing media
Foam, dry powder, water spray jet, carbon dioxide.

5.1.2 Unsuitable extinguishing media
Full water jet.

5.2 Special hazards arising from the article

5.2.1 Hazardous combustion products
At temperatures above ≥ 650 °C, decomposition of the carbon fiber can cause respirable fibre particles (WHO-fibres).

5.3 Advice for firefighters

5.3.1 Spezial protective equipment for firefighters
Wear a self-contained breathing apparatus and chemical protective clothing.

5.4 Additional Information
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedure

6.1.1 For non-emergency personnel
Wear personal protective equipment, see section 8

6.1.2 For emergency responders
Remove persons to safety. Isolate hazard area and deny entry. Ventilate closed spaces before entering. Use personal protective equipment, see section 8.

6.2 Environmental precautions
Not applicable.

6.3 Methods and material for containment and cleaning up

6.3.1 For containment
None known.

6.3.2 For cleaning up
Clean contaminated objects with damp cloth. Dispose of contaminated material in accordance with regulations.

6.3.3 Other information
None known.

6.4 Reference to other sections
Handling and storage, see section 7.
Personal protection, see section 8.
Disposal considerations, see section 13.

Section 7: Handling and storage

7.1 Precautions for safe handling

7.1.1 Protective measures
Wear personal protective equipment. See Section 8.

7.1.2 Measures to prevent fire
Keep the product away from heat, sparks and open flames.

7.1.3 Measures to prevent aerosol and dust generation
At all stages of the operation/processing, ensure extraction of dust by adequate ventilation, especially in confined areas.

7.1.4 Measures to protect the environment
None known.

7.1.5 Advice on general occupational hygiene
General hygiene rules must be observed: Wash hands before breaks and at the end of work. Wash contaminated clothing prior to re-use.

7.2 Conditions for safe storage, including any incompatibilities

7.2.1 Technical measures and storage conditions
Recommended storage temperature: ≤ 50 °C, relative humidity: ≤ 85 %.

7.2.2 Requirements for storage rooms and vessels
Store and keep the article in dry rooms in its original packaging.

7.2.3 Further information on storage conditions
Store and keep away from direct sunlight and other UV-light source.

7.3 Specific end use(s)

7.3.1 Recommendations
Recommended use, see Section 1.2.

7.3.2 Specific end uses
See chapter 1.3.

Section 8: Exposure controls/personal protection

8.1 Control parameters

8.1.1 Occupational exposure limits

Substance	CAS No	Occupational exposure limits (OEL)		Monitoring and observation processes	Sources Limit value type Country of origin
		Limit value Eight hours	**Limit value Short term (15 min)**		
Workplace limits for dust in general (allgemeiner Staubgrenzwert ASGW)	**-**		1.25 A mg/m³ 10 E mg/m³	Exceedance factor = 2	TRGS 900, 521 GESTIS Limit Values Germany (AGS)
Carbon fibre	**-**	2 fibre particles/cm³			GESTIS Limit Values Belgium VLEP/GWBB
		3 E mg/m³			GESTIS Limit Values China
Polymer dust	**-**	5 mg/m³			GESTIS Limit Values Latvia

8.1.2 Biological limit values
Not applicable.

8.1.3 DN(M)EL-Values
Not applicable.

8.1.4 PNEC-Values
Not applicable.

8.2 Exposure controls
Individual protection measures when processing the product, such as personal protective equipment:

8.2.1 Appropriate protective equipment
Ensure adequate ventilation on workplace. Mechanical processing should be preferable taken place in confined areas or separate facilities.
Technical machinery, electric and electronic devises should be protected against static charge and short circuit.

8.2.2 Personal protective equipment

8.2.2.1 Eye and face protection

Suitable eye protection
None known.

Other eye protection measures
None known.

8.2.2.2 Skin protection

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.
Glove material: not specified.
Penetration time: not specified.

Body protection
None known.

Other skin protection measures
None known.

8.2.2.3 Repiratory protection
If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn. In case of fibre dust, use breathing apparatus. Short time (max. 20 min). Half-/quarter mask with A2P2 filter.

8.2.2.4 Thermal hazards
No specific hazards.

8.2.3 Environmental exposure controls
Not specified.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

9.1.1 Appearance

Form	Color	Odor	Odor threshold
Solid, tape	Black	Not specified	Not available

9.1.2 Basic physical and chemical properties

Parameter	Value	Method	Remarks
pH level [20 °C]	Not applicable		
Melting point/ freezing point [°C]	≈ 3 500 °C CF 343 °C PEEK		
Initial boiling point/ Boiling range [°C]	Not specified		
Flash point [°C]	Not specified		
Evaporating rate	Not available		
Inflammability (solid, gaseous)	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]	1.7 - 2.0 g/cm³ CF 1.3 g/cm³ PEEK		At 23 °C
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 CF ≥ 450 °C PEEK		Ambient air
Viscosity, flow time [23 °C]	Not available		
Viscosity, dyn. [mPas/20 °C]	Not available		

Parameter	Value	Method	Remarks
Explosive properties	Not available		
Oxidizing properties	None known		

9.2 Other information
None known.

Section 10: Stability and reactivity

10.1 Reactivity
Product is not reactive under conditions for transfer, storage and applications. See Chapter 7.2

10.2 Chemical stability
Product is stable under conditions for transfer, storage and applications. See Chapter 7.2

10.3 Possibility of hazardous reactions
Accumulation of 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 Section 5.2, 9.1.2.

10.5 Incompatible materials
No information available.

10.6 Hazardous decomposition products
None known if used for intended purpose.

Section 11: Toxicological information

11.1 Information on toxicological effects

Toxicological effects of the product are not studied.

11.1.1 Acute toxicity

Practical experience / human evidence
No data available.

Animal data
No data available.

Other information
No data available.

Assessment / Classification
Based on available data, the classification criteria are not met.

11.1.2 Skin corrosion/irritant

Practical experience / human evidence
No data available.

Animal data (InVivo)
No data available.

InVitro skin test
No data available.

Other information
No data available.

Assessment / Classification
Based on available data, the classification criteria are not met.

11.1.3 Serious eye damage/eye irritation

Practical experience / human evidence
No data available.

Animal data (InVivo)
No data available.

InVitro eye test
No data available.

Other information
No data available.

Assessment / Classification
Based on available data, the classification criteria are not met.

11.1.4 Sensitisation to the respiratory tract/skin

11.1.4.1 Sensitisation to the respiratory tract

Practical experience / human evidence
No data available.

Other information
No data available.

Assessment / Classification
Based on available data, the classification criteria are not met.

11.1.4.2 Skin Sensitisation

Practical experience / human evidence
No data available.

Animal data (InVivo)
No data available.

Other information
No data available.

Assessment / Classification
Based on available data, the classification criteria are not met.

11.1.5 Germ cell mutagenicity

InVivo Mutagenität / Gentoxizität
No data available.

InVitro mutagenicity/genotoxicity
No data available.

Other information
No data available.

Assessment / Classification
Based on available data, the classification criteria are not met.

11.1.6 Carcinogenicity

Practical experience / human evidence
No data available.

Animal data
No data available.

Other information
No data available.

Assessment / Classification
Based on available data, the classification criteria are not met.

11.1.7 Reproductive toxicity

Adverse effects on sexual function and fertility
No data available.

Adverse effects on developmental toxicity
No data available.

Effects on or via lactation
No data available.

Other information
No data available.

Assessment / Classification
Based on available data, the classification criteria are not met.

Overall assessment on CMR properties
This product does not meet the criteria for classification as CMR category 1A or 1B according to CLP.

11.1.8 Specific target organ toxicity (single exposure)

Practical experience / human evidence
No data available.

Animal data
No data available.

Other information
No data available.

Assessment / Classification
Based on available data, the classification criteria are not met.

11.1.9 Specific target organ toxicity (repeated exposure)

Practical experience / human evidence
No data available.

Animal data
No data available.

Other information
No data available.

Assessment / Classification
Based on available data, the classification criteria are not met.

11.1.10 Aspiration hazard

Practical experience / human evidence
Not applicable.

Experimental data
Viscosity data. See Section 9.

Other information
No data available.

Assessment / Classification
Based on available data, the classification criteria are not met.

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.

Section 12: Ecological information

12.1 Toxicity

12.1.1 Aquatic toxicity

12.1.1.1 Acute (short-term) fish toxicity
No data available.

12.1.1.2 Chronic (long-term) fish toxicity
No data available.

12.1.1.3 Acute (short-term) toxicity to crustacea
No data available.

12.1.1.4 Chronic (long-term) toxicity to crustacea
No data available.

12.1.1.5 Acute (short-term) toxicity to algae and cyanobacteria
No data available.

12.1.1.6 Toxicity to other aquatic plants and organisms
No data available.

12.1.1.7 Toxicity to microorganisms
No data available.

Assessment / Classification
Based on available data, the classification criteria are not met.

12.1.2 Sediment toxicity
No data available.

12.1.3 Terrestrial toxicity

12.1.3.1 Toxicity to soil microorganisms except arthropods
No data available.

12.1.3.2 Toxicity to terrestrial arthropods
No data available.

12.1.3.3 Toxicity to terrestrial plants
No data available.

12.1.3.4 Toxicity to birds
No data available.

Assessment / Classification
Not classifiable due to data lacking.

12.2 Persistence and degradability

12.2.1 Abiotic Degradation
Not applicable.

12.2.2 Biodegradation
Not applicable.

Assessment / Classification
Based on available data, the classification criteria are not met.

12.3 Bioaccumulative potential (BCF)
Not applicable.

Assessment / Classification
Based on available data, the classification criteria are not met.

12.4 Mobility in soil
Not applicable.

Assessment / Classification
Based on available data, the classification criteria are not met.

12.5 Results of the PBT and vPvB assessment
Not applicable.

12.6 Other adverse effects
None known.

Section 13: Disposal considerations

13.1 Waste treatment methods
Product 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 costumer 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 / Packaging disposal
List of proposed waste codes/waste designations in accordance with AVV.

13.1.2 Waste treatment-relevant information
Not specified.

13.1.3 Sewage disposal-relevant information
Not specified.

13.1.4 Other disposal recommendations
Non-contaminated packaging may be taken for recycling.
Contaminated packaging must be disposed of like the product.

Section 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 Section 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
Not applicable.

Section 15: Regulatory information

15.1 Safety, health and environmental regulations/specific legislations

15.1.1 EU regulations

15.1.1.1 Authorizations and/or restrictions on use
Not applicable.

15.1.2 Other EU regulations

15.1.2.1 VOC directive (2004/42/EG)
Product does not emit volatile organic components.

15.1.2.2 Ozone layer (Reg. EC No. 1005/2009)
Product does not contain substances that deplete the ozone layer.

15.1.2.3 Employment restriction
None known.

15.1.2.4 Fluorinated greenhouse gases (Reg. EU No. 517/2014)
Product does not contain fluorinated greenhouse gases.

15.1.2.5 SVHC (candidate list)
The product does not contain Substances of Very High Concern acc. to REACH Reg. (EC) No 1907/2006, Art. 57 above legal concentration limits of ≥ 0.1 % (w/w).

15.1.2.6 RoHS 2011/65/EU and amendments
This carbon fiber product does not contain any substances listed in RoHS (or contains in concentrations below the limits as specified therein).

15.1.3 National regulations

15.1.3.1 Water pollution class
Not applicable.

15.2 Chemical safety assessment
Chemical safety assessments for substances in this product were not carried out.

Section 16: Other information

16.1 Indication of changes

First edition

Second edition: All chapters have been completely revised.

16.2 Abbreviations and acronyms

A	Alveolar fraction
ÁK	Average concentration
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
BLF	Biological Limit Value
BGV	Biological Guidance Value
BSB	Biochemical oxygen demand
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
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
LO(A)EL(C)	Lowest Observed (Adverse) Effect Level (Concentration)
MAK	Maximum Workplace Concentrations
MARPOL	International Convention for the Prevention of Marine Pollution from Ships
MW	Molecular weight
NOAEL(C)	No Observed Adverse Effect Level (Concentration)
NOELR	No Observable Effect Loading Rate
N.O.S.	Not otherwise specified
OEL	Occupational Exposure Limit(s) (Values)

PBT	Persistent, Bioaccumulative and Toxic substance
PEL	Permissible Exposure Limits
PNEC	Predicted No Effect Concentration
P_{ow}	Partition coefficient n-octanol/water
QSAR	Quantitative structure-activity relationship
RE	Repeated dose toxicity
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals
REL	Recommended exposure limits
RID	International Carriage of Dangerous Goods by Road
SCOEL/EU	European Scientific Committee on Occupational Exposure Limits
STOT	Specific target organ toxicity
STP	Sewage treatment plant
SVHC	Substances of Very High Concern for Authorization
TRK	Technical Guidance Concentrations
TRGS	German Technical Rule for Hazardous Substances
vPvB	Very Persistent and very Bioaccumulative
AwSV	German Regulation on Installations for Handling Substances Hazardous to Water
WHO	World Health Organisation
WHO-fibre	length ≥ 5 µm, diameter ≤ 3 µm and length-to-diameter ratio 3:1
% (w/w)	Weight Percent

16.3 Key literature references and sources for data

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 Classification for mixtures and used evaluation method according to regulation (EC) 1272/2008 [CLP]
Although the product is treated as an article, the classification used herein was determined based on a mixture and in accordance with the technics of the calculation method acc. to regulation (EC) 1272/2008.

16.5 Training advice
None known.

16.6 Additional information
None known.

16.7 Other information

16.7.1 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.

16.7.2 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.