

Revision 03 (en), print data 15 Aug. 2016, updated 15 Aug. 2016

According to Regulation (EC) No 1907/2006 [REACH] Art. 3 Part 3 this product is classified as article, hence no obligation exists to create a safety data sheet as required by REACH Art. 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, nickel-coated

1.1.1 Product types Tenax®-J HTS40 A23

1.2 Recommended Use Manufacturing of Carbon Composites

1.2.1 Uses advised against None

1.3 Details of the supplier/site

Address Toho Tenax Europe GmbH
 Kasinostr. 19-21
 42103 Wuppertal
 GERMANY
 Tel: +49 202 32-3225
 Homepage: www.tohotenax.com

1.3.1 Responsible department/qualified person

Europa Dr Axel Leuchter
 General Manager Quality & Compliance
 E-Mail: safety@tohotenax-eu.com

1.4 Emergency telephone No. +49 228-19240 (24h) German/English



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]
 Classification of **metallic nickel** as product component:

Skin Sens. 1	H317	May cause an allergic skin reaction.
Carc. 2	H351	Suspected of causing cancer.
STOT RE 1	H372	Causes damage to organs through prolonged or repeated exposure.

2.2 Labelling elements according to Regulation (EC) No. 1272/2008 [CLP]
 Classification of **metallic nickel** as product component:

Hazard pictograms	 GHS08	 GHS07
Signal word	Danger	

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Hazard statements	H317 May cause an allergic skin reaction. H351 Suspected of causing cancer. H372 Causes damage to organs through prolonged or repeated exposure. May be irritant to eyes, skin, respiratory and gastrointestinal tract. May cause health disorders such as bronchitis, lung damage and mucosal ulcers.
Precautionary statements	P280 Wear protective gloves/protective clothing/eye protection. P302+P352 IF ON SKIN: Wash with plenty of water. P333+P313 If skin irritation or a rash occurs: Get medical advice/attention if you feel unwell. P308+P313 IF exposed or concerned: Get medical advice/attention if you feel unwell. P405 Store locked up.
Supplemental information	For safety reasons, product handling should solely be carried out by trained and authorized personnel with appropriate care.

2.2.1 Supplemental hazard information (EU)

EUH 208: Contains „Reaction Product: Bisphenol-A-(Epichlorhydrin); Epoxy Resin (Number Average Molecular Weight ≤ 700“).
 May produce an allergic reaction.

2.3 Other hazards

With respect to health and environment risks, as long as safety instructions are followed, no other hazards are to be feared.
 See chapter 11

Chapter 3: Composition/information of ingredients

3.1 Product type This product is an article acc. to regulation (EC) 1907/2006 [REACH].

3.2 Composition/information of ingredients

wt [%]	Substance	CAS EINECS/ELINCS EU-INDEX	GHS/CLP:	
40 - ≤ 60	Carbon fiber based on polyacrylonitrile (PAN)	308063-67-4/7440-44-0 Polymer: (231-153-3) -	-	
40 - ≤ 60	Nickel	7440-02-0 231-111-4 028-002-00-7	Skin Sens.1 Carc.2 STOT RE 1	H317 H351 H372

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3.2.1 Comment on component parts

The product contains epoxy resins based on Bisphenol-A-(Epichlorhydrin) with different molecular weights.

Chapter 4: First aid measures

4.1 Description of first aid measures

- 4.1.1 **General information** Remove any clothing that has been contaminated with the product.
- 4.1.2 **Inhalation** In the case of fiber and/or metallic dust inhalation, bring affected person to fresh air. If respiratory irritation persists, seek medical attention.
- 4.1.3 **Skin contact** In the case of contact with skin, rinse affected area immediately with plenty of warm water. Consult a doctor if skin irritation persists.
- 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 persists, seek medical attention.
- 4.1.5 **Ingestion** Seek medical care. Rinse mouth out with water then give plenty of water to drink.
- 4.2 **Most important symptoms and effects, both acute and delayed** Allergic reaction.
- 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

At temperatures above ≥ 650 °C, hazardous decomposition and degradation products as WHO-fibers (respirable carbon fiber particles) as well as hazardous pyrolysis residues like metal oxides might occur.

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

Use personal protective clothing.

6.2 Environmental precautions

No special measures are required.

6.3 Methods and material for containment and cleaning up

Take 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

During mechanical processing, dust should be kept to a minimum and taken place in closed systems. Avoid skin contact by wearing appropriate protective clothing (suitable gloves, personal protective clothing). 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	Occupational exposure limits (OEL)	Country	Sources
Carbon fibre	308063-67-4 7440-44-0	2 fibres/cm ³ (limit value – 8h)	BEL	GESTIS Limit Values Belgium VLEP/GWBB
		3 respirable particle (limit value – 8h)	CHN	GESTIS Limit Values China (currently in process)
Nickel metal – total dust	7440-02-0	0.006 mg/m ³ alveolar fraction	GER	TRGS 900 Germany
		1 mg/m ³ (limit value 8h)	AUS	GESTIS Limit Values Australia
		0.5 mg/m ³ (limit value 8h) 2 mg/m ³ (short term)	AUT	GESTIS Limit Values Austria – MAK and TRK
		1 mg/m ³ (limit value 8h)	BEL	GESTIS Limit Values Belgium VLEP/GWBB
		1 mg/m ³ (limit value 8h)	CDN	GESTIS Limit Values Canada/Québec - VEA
		1 mg/m ³ (limit value 8h)	FRA	GESTIS Limit Values France – VLE
		0.1 mg/m ³ (limit value 8h) 0.1 mg/m ³ (short term)	HUN	GESTIS Limit Values Hungary - ÁK
		0.5 mg/m ³ (limit value 8h)	IRE	GESTIS Limit Values Ireland (currently in process)
		1 mg/m ³ (limit value 8h)	NZL	GESTIS Limit Values New Zealand (currently in process)
1 mg/m ³ (limit value 8h)	SIN	GESTIS Limit Values Singapore (currently in process)		

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		1 mg/m ³ (limit value 8h)	KOR	GESTIS Limit Values South Korea (currently in process)
		1 mg/m ³ (limit value 8h)	ESP	GESTIS Limit Values Spain
		0.015 mg/m ³ (limit value 8h)	USA	GESTIS Limit Values United States of America – REL (Niosh)
		1 mg/m ³ (limit value 8h)	USA	GESTIS Limit Values United States of America – PEL

8.1.2 DNEL/PNEC-Werte

Substance	CAS	DNEL	Exposure route	Sources
Nickel metal – total dust	7440-02-0	0,05 mg/m ³	Long-term-inhalativ-local	GESTIS-DNEL- Database
		0,05 mg/m ³	Long-term-inhalativ-systemic	GESTIS-DNEL- Database

Substance	CAS	PNEC	Ecosystem	Remarks
Nickel metal – total dust	7440-02-0	≤ 0,1 mg/l	Aquatic, freshwater	AF = 1000 (short term) n.c.T = 100 mg/l

8.2 Exposure controls In general, we recommend to avoid breathing fiber and/or metallic dust.

8.2.1 Additional advice on system design

Ensure adequate ventilation on workplace. In the case of fiber and/or metallic dust formation, it is suggested using an appropriate extraction. If processing cause a high risk of skin contact, it would be necessary to work in closed systems. Should this is technically impossible, it is recommended using only those tools with which skin contact could be avoid or minimize to an absolute minimum. Technical machinery, electric and electronic devises should be protected against short circuit while fiber and/or metallic dust appear.

8.2.2 Eye protection Protection goggles

8.2.3 Hand protection Wear protective gloves in any case. 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: Nitrile rubber, thickness ≥ 0.11 mm
Penetration time: ≥ 6h (480 min)

8.2.4 Additional protective measures

Personal protective equipment should be selected specifically for the work place.

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8.2.5 Respiratory protection In the case of fiber and/or metallic dust, use breathing apparatus.
Short time filter device, filter P2 white
Respiratory equipment for high concentrations.

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 fiber
Color Bronze-metallic glossy
Odor Odorless

9.1.2 Basic physical and chemical properties

Inflammability and explosion limits

Upper Not applicable
Lower Not applicable

Oxidizing properties None

Density 23 °C [g/cm³] 2.5 – 3.0

Bulk density [g/cm³] Not applicable

Melting point [°C] ca. 3500 carbon, ca. 1450 nickel

Decomposition temp. ≥ 650 (ambient air), Sizing ≥ 290

Carbon fiber filament diameter [µm] ≥ 5.0

9.2 Other information

Spec. electr. conductivity 7.5 10⁻⁵ Ohm cm

Chapter 10: Stability and reactivity

10.1 Reactivity/stability Product is not reactive and stable under normal conditions for transfer, storage and applications.

10.2 Conditions to avoid Reaction with powerful oxydants.
Do not heat up above decomposition temperature mentioned.
See Chapter 5.2, 9.1.2

10.3 Incompatible materials Accumulation of fiber-/ metallic dust may entail the risk of a dust explosion in the present of air.

10.4 Hazardous decomposition products
None if used for intended purpose.

Chapter 11: Toxicological information

11.1 Information on toxicological information

Toxicological effects of the article are not studied.

wt [%]	Substance	CAS	Einstufungsrelevante LD/LC ₅₀ Werte:
40 - ≤ 60	Nickel	7440-02-0	LD _{50,oral} , 9000 mg/kg (rat)

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- 11.1.1 **Acute toxicity** Not specified
- 11.1.2 **General information** Carbon fiber does not emit WHO-fibre particles that are respirable (IARC).
Definition of WHO-fibre particle:
length $\geq 5 \mu\text{m}$, diameter $\leq 3 \mu\text{m}$ and length-to-diameter ratio 3:1

Chapter 12: Ecological information

- 12.1 **Toxicity** Toxicity of the article is not studied.

wt [%]	Substance	CAS
40 - ≤ 60	Nickel	7440-02-0
Toxicity to fish: $\text{LC}_{50} \geq 100 \text{ mg/l 96h}$ (Danio rerio)		
Daphnia toxicity: $\text{EC}_{50} \geq 100 \text{ mg/l 48h}$ (Daphnia magna (Water flea))		
Algae toxicity: 100 mg/l 72h (Selenastrum capricornutum)		

- 12.1.1 **Results of the PBT and vPvB assessment** Based on available information, the article is not classified as PBT or vPvB..
- 12.1.2 **Other adverse effects** Ecological data of the article is not available. Due to the residents to rotting, do not release into the environment or sewers.

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 article, 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 **Article** Dispose of as hazardous waste.
If necessary, coordinate disposal with the authorities.
- AVV-No. (recommended)** 061399 Wastes from inorganic chemical processes, if otherwise not specified.
160303 Inorganic wastes containing dangerous substances.
- 13.2 **Contaminated packaging** Non-contaminated packaging may be taken for recycling.
Contaminated packaging must be disposed of like the article.
- AVV-No. (recommended)** 150110 packaging containing residues of dangerous substances or contaminated of dangerous substances.

Chapter 14: Transport information

- 14.1 With reference to the transport regulations the article is classified as:
NO DANGEROUS GOODS

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.
See Chapter 8

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- 15.1.1 **VOC-Regulation (2004/42/EG)**
Product does not emit volatile organic components.
- 15.1.2 **Ozone layer (Reg. EC No. 2037/2000)**
Product does not contain substances that deplete the ozone layer.
- 15.1.3 **Employment restriction** Observe employment restrictions for child bearing mothers and nursing mothers.
Observe employment restrictions under the law for the protection of young people at work (94/33/EC Art.7)
- 15.1.4 **Fluorinated greenhouse gases (Reg. EU No. 517/2014)**
Product does not contain fluorinated greenhouse gases.
- 15.1.5 **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 wt %.
- 15.1.6 **RoHS 2011/65/EU / (EU) 2015/863**
This carbon fiber product does not contain any substances listed in RoHS (or contains in concentrations below the limits as specified therein).
- 15.1.7 **Water pollution class** **Nickel** WGK 1 (KBwS-resolution 2011, slightly polluting to water Ident No. 7182)
- 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
In view of the data content, this information sheet has been completely revised. Unlike previous definition, the Toho Tenax Europe GmbH has concluded that Carbon Fiber and its products is regarded as article in accordance with REACH Regulation (EC) 1907/2006. Toho Tenax 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** Chapter 1: 1.3.1 Definition of sides, 1.3.2 Details of responsible contact persons
 - Revision 03** Chapter 1: 1.3.1 Definition of sides, 1.3.2 Details of responsible contact persons deleted.
Chapter 8: revised
Chapter 15: revised and added further regulations.
Chapter 16: revised
- 16.2 **Hazard information (Chapter 2 and 3)**
Classification according to Regulation (EC) No. 1272/2008 [CLP]

Hazard statements		Grading methods
Skin Sens. 1	H317	Data based on metallic nickel as product component.
Carc. 2	H351	Data based on metallic nickel as product component.
STOT RE 1	H372	Data based on metallic nickel as product component.

16.2.1 Supplemental hazard information (EU)

	EUH 208	Data based on Bisphenol-A-Epichlorhydrin resin as product component.
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16.2.2 Trainings instructions Provide adequate information, instruction and training for operators.

16.3 Literature references and sources for data
16.3.1 Regulations

In their respective current versions:

REACH Regulation (EC) No. 1907/2006, Regulation (EU) 2015/830
 CLP Regulation (EC) No. 1272/2008, VwVwS, VOC 2004/42/CE, Ozone
 Regulation (EC) No. 2037/2000, RoHS Directive 2011/65/EU, National
 Maternity Protection Act, Youth Employment Act acc.to Directive 94/33/EC,
 National Workplace Exposure Limits (OELs) of corresponding countries

16.3.2 Internet

<http://www.baua.de>
<http://www.bgbau.de/gisbau>
http://www.dguv.de/medien/fb-holzundmetall/publikationen/infoblaeter/info-bl_deutsch/074_cfk_materialien.pdf
<http://www.dguv.de/gestis>
<http://www.echa.europa.eu/candidate-list-table>
<http://www.esdscom.eu>
<http://www.echemportal.org>
<http://eur-lex.europa.eu>

16.4 Abbreviations

acc. to	according to
AF	Assessment factor
ÁK	Average concentration
AVV	Abfallverzeichnis-Verordnung European List of Waste (Wastregulation)
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
DNEL	Derived No-Effekt Level
EC	European Council
e.g.	for the sake of example (exempli gratia)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELNICS	European List of Notified Chemical Substances
EU	European Union
EUH	EU-Hazard Statements
EWC	European Waste Catalogue
GWBB	Granswaarden voor beroepsmatige blootstelling
IARC	International Agency for Research of Cancer
KBwS	German Commission for the Evaluation of Water Polluting Substances (Kommission Bewertung wassergefährdender Stoffe des Umweltbundesamt)
MAK	Maximum Workplace Concentrations
n.c.T.	niedrigste chronische Toxizität
NIOSH	National Institute for Occupational Safety
OEL	Occupational Exposure Limits
PBT	Persistent, Bioaccumulative and Toxic substance
PEL	Permissible Exposure Limits

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REACH	Registration, Evaluation, Authorization and Restriction of Chemicals
REL	Recommended exposure limits
RoHS	Restriction of Hazardous Substances Directive
SVHC	Substances of Very High Concern for Authorization
TRGS	Technische Regeln für Gefahrstoffe Technical Rules for Hazardous Substances
TRK	Technical Guidance Concentrations
VEA	Valeurs d'exposition admissibles
VLEP	Valeurs limites d'exposition professionnelle
VOC	Volatile Organic Compounds Directive
vPvB	very Persistent and very Bioaccumulative
VwVwS	Verwaltungsvorschrift wassergefährdende Stoffe Administrative Regulation of Water-Polluting Substances
WHO	World Health Organisation
wt %	Weight Percent

16.5 Other information**16.5.1 Customs tariff number** 68151010**16.5.2 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.**16.5.3 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.