Product Handling Information Sheet (PHIS)
Information on the safe handling of products

TECAPEEK ELS

1. Identification of the article and of the company

Trade name:
TECAPEEK ELS nano black,
TECAPEEK ELS CF30 black

Application:
Semi-finished engineering plastics, finished parts

Note:
The present product is an article in the sense of regulation (EC) No 1907/2006 (REACH).

Supplier:
Ensinger GmbH
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Competent person:
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2. Hazards identification

Classification and labelling:
The product is not classified and doesn`t need any labelling.

Other hazards:
There are no known risks, if the regulation/details for handling are observed.

3. Composition/information on ingredients

Description:
Article based on polyetheretherketone (PEEK), CAS No 31694-16-3 or 29658-26-2.
Containing synthetic graphite / carbon nanotubes (MWCNT).
Possibly containing carbon fibres.
Possibly containing additives and processing aids.

Information on ingredients:
The product doesn`t contain any substance, which is supposed to be released under normal or reasonably foreseeable conditions of use.

4. First aid measures

After inhalation:
After inhalation of thermal decomposition products, remove person from the danger zone. Oxygen supply, apply artificial respiration if necessary. Keep quiet, warm and seek medical help.

After skin contact:
In case of skin irritation caused by carbon fibres, wash skin thoroughly with cold water. Do not use warm water, as this will open the pores of the skin, thus enabling the fibres to enter more deeply. Do not rub or scratch. Remove contaminated clothing. In the event of persisting skin irritation seek medical help.

After eye contact:
If a foreign body (splinter, chip) enters the eye do not rub. Immobilize the eye, cover both eyes with bandages, consult an eye specialist.

Indication of any immediate medical attention and special treatment needed:
Treat symptomatically.

5. Firefighting measures

Suitable extinguishing media:
Water spray, alcohol-resistant foam, carbon dioxide, dry chemical foam.

Unsuitable extinguishing media:
Water jet.

Special hazards arising from the article:
With carbonization and incomplete combustion toxic gases develop, predominantly carbon dioxide and carbon monoxide. The development of further fission and oxidation products is dependent on the conditions of burning.
Traces of other toxic substances may develop under certain conditions of burning.
The release of nitrogen oxides and other organic decomposition products is possible.

Advice for firefighters:
If exposed to fumes and carbonization gases during fire-fighting measures, rescue operations and cleanup wear a self-contained breathing apparatus.
The product ignites in a flame, but stops burning on removal of the source.
In an advanced state of fire, the molten polymer must be cooled with water. Water used to extinguish the fire and fire remainders must be collected and water disposed of, in accordance with local regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:
No special measures necessary.

Environmental precautions:
No special measures necessary.

Methods and material for containment and cleaning up:
Mechanical cleaning up.
Dust deposits must be removed by humid or wet cleaning or with an appropriate industrial vacuum cleaner (minimum is dust class M). Dry sweeping or blowing-off of dust deposits with compressed air is not allowed.

7. Handling and storage

Precautions for safe handling:
Avoid overheating of material by improper handling. The "Ensinger machining recommendations for semi-finished engineering plastics" are to be observed.

In terms of prevention and based on the precautionary principle exposure to nanoparticles should be minimized. Handling and mechanical processing should generate as little dust as possible. Dust emitting facilities, machines and devices are to be equipped with an appropriate exhaust system. As much dust as possible should be drawn off at the outlet. The recirculation of air into the working place is only allowed after appropriate cleaning. Maintenance and functional testing of the exhaust system must be done on a regular basis.
The working place must be kept clean, dust deposits must be removed immediately.
Inhalation of dust/mist/vapour has to be avoided.

General industrial hygiene regulations are to be observed.
Wash hands before breaks and at the end of workday.
Tobacco should not be kept in the workplace.
Do not eat, drink or smoke in the work area.
Work clothes must be kept away from street clothes. Dusty work clothes should not be shaken out or blown off with compressed air.

Conditions for safe storage, including any incompatibilities:
The appropriate company regulations for fire prevention are to be followed.

8. Exposure controls/personal protection

Control parameters:

In case of mechanical processing the general limit for dust is valid.

substance	EC No	CAS No	exposure limit value	biological limit value	comment	source	country (type)
general dust limit value (a-dust)			4 mg/m³		respirable fraction	Workplace Exposure Limit (WEL)	UK
general dust limit value (e-dust)			10 mg/m³		inhalable fraction	Workplace Exposure Limit (WEL)	UK

Exposure controls:

Mechanical processing should generate as little dust as possible. Technical measures have priority over personal protective equipment.

Respiratory protection:

If technical measures are insufficient, wear protective breathing apparatus. Wear dust mask filter type P3 (DIN EN 140/142/143) or helmet/hood with ventilation and particle filter TH3P (DIN EN 12941).

Eye/face protection:

For mechanical operations wear safety glasses with side pieces or fully closed and tight-fitting goggles (DIN EN 166).

Hand protection/skin protection:

Avoid skin contact with product dust. Where dust is released wear protective gloves overlapping with further protection clothing.
Suitable materials for safety gloves (EB 374):
Nitrile rubber - NBR; thickness >= 0,35mm.
Use preventive skin protection (barrier cream containing tanning agent).

9. Physical and chemical properties

Appearance:
solid (semi-finished or finished parts)

Melting point/Melting range:
ca. 341 °C

Relative density:
ca. 1,4 g/cm³

Flash point:
N/A (solid)

Explosive properties:
N/A

Solubility(ies):
insoluble (water, 20 °C)

Odour/odour threshold:
odourless

Initial boiling point and Boiling range:
N/A (solid)

Decomposition temperature:
> 450 °C

Flammability (solid, gas):
575 °C

Vapour pressure:
N/A (solid)

Partition coefficient: n-octanol/water:
N/A

10. Stability and reactivity

Chemical stability:
Product is stable. No hazardous reactions known when stored and handled according to instructions and used for its intended purpose.

Conditions to avoid:
Do not heat to a temperature above the melting or decomposition temperature.

Incompatible materials:
Concentrated sulphuric acid, strong oxidizing agents.

Hazardous decomposition products:
No decomposition and hazardous reactions known when handled according to instructions.
By strong overheating of the material carbon oxides and other toxic organic vapours may be generated.

11. Toxicological information

Acute toxicity:
With proper use and in accordance with regulations there are no known dangers to health.
Carbon fibres and dust released during mechanical processing may cause irritation of eyes and skin. The symptoms will disappear after end of contact.
Inhalation of carbon fibres and carbon fibre dust may cause cough, irritation of nose and throat and sneezing. Massive exposition may cause breathing difficulties, stasis of secretions and chest tightness

Chronic toxicity:
When used and handled according to specifications, the product does not have any harmful effects.
At present the question whether carbon nanotubes (CNT) are harmful to health or have a similar effect as asbestos has not been finally clarified. CNTs can have very different shapes. Parameters such as structure, length, shape, bio-persistency and agglomeration characteristics of CNT materials have an influence on the toxic effect. The CNTs contained in this product are "multi walled carbon nanotubes" (MWCNT), which means short, fibre-shaped or long, rolled up to a ball nanotubes.Previous investigations have shown that MWCNTs do not have the typical biological effect of asbestos fibers, which means they do not cause inflammations in the lung which may be the cause of lung diseases.

Other information:
With mechanical processing and with proper use of the product CNTs are not expected to present a hazard to health when inhaled or after skin contact. The amount of exposure is influenced by the emission ratio and the patterns of dust generation. The CNTs contained in the product are firmly embedded in the plastic matrix. To release isolated nanoparticles from the solid plastic it would take large amounts of energy and is therefore not likely.

12. Ecological information

No relevant information available.
Due to the consistency of the product a disperse distribution in the environment is not likely. Therefore, according to the present state of knowledge negative ecological effects are not expected.

13. Disposal considerations

Waste treatment methods:
Product residues can be recycled or treated in an energy recovery plant.
When segregated, unpolluted product residues can be recycled mechanically.

European waste cataloque:
The unpolluted product has no dangerous properties and is therefore not a hazardous waste within the meaning of regulation on the european List of wastes.

Waste codes/waste identification:
The exact waste code must be carried out source- and use-related.
Proposals for the waste code numbers based on the probable use of the unpolluted product:
07 02 13 (waste plastic)
12 01 05 (plastics shavings and turnings)
20 01 39 (plastics from separately collected fractions)

Packaging:
Uncontaminated or cleaned packaging can be recycled without verification.

14. Transport information

Not classified as dangerous in the meaning of transport regulations.

15. Regulatory informaton

Safety, health and environmental regulations/legislation specific:
According to annex II of the REACH regulation there is no legal obligation to compile safety data sheets for articles. We explicitly would like to point out that the present product handling information sheet (PHIS) is a voluntary information sheet for the handling of products, based on the same principle as our safety data sheets.

EU regulations:
According to regulation (EC) No 1272/2008 (CLP) articles are not subject to classification and labelling requirements.

Chemical safety assessment:
A chemical safety assessment is not necessary for articles and therefore has not been carried out.

National regulations:
Storage class TRGS 510 (Germany): 11 (flammable solid materials)

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16. Other information

Indication of changes:
First issue, status as of 01/24.

Our information and statements reflect the current state of our knowledge and shall inform about our products and their applications. They do not assure or guarantee chemical resistance, quality of products and their merchantability in a legally binding way. Our products are not defined for use in medical or dental implants. Existing commercial patents have to be observed. The corresponding values and information are no minimum or maximum values, but guideline values. They do not represent guaranteed properly values and therefore they must not be used for specification purposes. The customer is solely responsible for the quality and suitability of products for the application and has to test usage and processing prior to use. It is the user`s responsibility to ensure that existing legislation and regulation are followed.