Ten Cate
Advanced Composites

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Safety data sheet in accordance with 91/155/EEC

Trade name: **CETEX®- PEI**
(Polyetherimid, reinforced with continuous fiber)

1. Identification of the substance/preparation and company.

Product details:
Trade name: **CETEX®- PEI**
(Polyetherimid, reinforced with continuous fiber)

Supplier details: Ten Cate Advanced Composites bv.
PO Box 9
7440 AA Nijverdal
The Netherlands
Tel. : +31 548 6337 (Europe)
714 4371017 (USA)

Information provided by:
Ten Cate Advanced Composites bv.
Emergency telephone number: +31 548 633700

2. Composition/information on ingredients

Chemical Characterization :
PEI thermoplastic resin reinforced with continuous fiber

Main polymer: Poly-ether-imide	CAS : 61128-46-9
Continuous carbon fiber	CAS : 7440-44-0
Continuous glass fiber	CAS : 65 997-17-3
Continuous aramid fiber	CAS: *not known*

Additives to enhance specific properties are encapsulated in the polymer resin matrix.

3. Hazards identification

3.1 Hazardous decomposition products

The thermal decomposition products are not normally present in hazardous concentrations. When the product contains aramid fiber, the combustion gasses may contain HCN in minimal concentrations, depending on temperature and air supply.

3.3 Further data

This material burns with difficulty and generally requires a continuous external flame source to sustain combustion. Without flashover fire conditions it will extinguish itself. When forced to burn it will produce a surface char and emits low levels of smoke and toxicity. The main products of combustion are carbondioxide and carbonmonoxide. Some types will evolve trace quantities of hydrogencyanide, oxides of nitrogen or aldehydes under certain combustion conditions. During the combustion the base PEI or reinforcements do not produce bromine, phosgene or hydrogen chloride.

4. First aid measures

Eye contact	In case of contact with eyes rinse thoroughly with plenty of water and seek medical advice.
Skin contact	Normal skin contact during handling is harmless. If, however, material becomes embedded seek medical advice.
Burns	In case of contact with hot material, rinse thoroughly with plenty of water and seek medical advice.
Inhalation	(Dust / fumes) Bring person to fresh air. If irritation is severe, seek medical advice.

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5. Fire fighting measures

Suitable extinguishing media :
water is recommended. Carbon dioxide is not recommended due to lack of cooling capacity.

Special hazards: In case of fires, hazardous combustion gases are formed:
Carbon monoxide and Sulfur dioxide

Special protective equipment
In the presence of combustion or carbonization gases, any fire fighting, rescue and clearing up activities should be undertaken only with heavy duty respiratory protection.

6. Accidental release measures

Methods for cleaning up / taking up:
Pick up mechanically

7. Handling and storage

Handling	Edges of laminates are sharp and could cut skin if not handled correct.
Storage	Can be stored indefinitely in a dark and cool place unless otherwise defined in technical information sheets

8. Exposure controls/personal protection

General protective measures
Protective gloves/clothes may reduce skin cutting/irritation.
Eye protection: safety glasses with side shields.
Others: use overalls, buttoned to fit loosely around neck and wrists, long trousers, and good personal hygiene will maximize comfort.

Hygiene measures
Follow good standard industrial practice.
Do not eat, drink or smoke at a workplace.

9. Physical and chemical properties

Form	Consolidated laminates in flat sheets Prepregs on the roll
Colour	Various
Odeur	Typical
Melting point	None (215-350°C)
Glass transition temperature (Tg)	215°C
Specific gravity (20°C)	1.30-2.10 gr./ml
Vapor pressure (20°C)	N/A.
Viscosity (20°C)	N/A.
Water solubility	Product is insoluble in water
pH-value	N/A.
Self ignition temperature	>530°C (ASTM D1929)
Flash ignition temperature	>520°C (ASTM D1929)
Explosion limits	N/A.
Thermal decomposition	>500 °C (TGA onset in air)

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10. Stability and reactivity

Thermal decomposition	>500°C
Hazardous reactions	No hazardous reactions known
Hazardous decomposition products:	Nitrogen Oxide (NOx) Carbon monoxide (CO) Carbon dioxide (CO2)
Stability	May be stored indefinitely at temperatures below 40°C. Store in a dark and dry place.

11. Toxicological information

The product is not toxic.
Many years of experience confirm that for PEI resin has confirmed:

Acute oral toxicity	LD 50 > 10gr/kg rat
Acute dermal toxicity	LD 50 > 2 gr/kg rabbit

According to our current state of knowledge the PEI resin and the reinforcements of glass fibre, carbon fiber and aramid fiber does not cause any health hazards.

12. Ecological information

Product is insoluble in water
The material has no harmful effect to the environment if handled in the correct manner.

13. Disposal considerations

Laminates and forms can be processed several times.So there is a possibility of recycling.
Waste disposal: PEI and reinforcing are not regarded as hazardous chemical substances. Dispose in accordance to local regulations.

14. Transport information

No transportation hazard. Keep dry for optimal processing

15. Regulatory information

Hazard warning label not compulsory

16. Other information

When heating up to processing temperatures virtually all thermoplastics emit processing fumes. The exact composition of processing fumes depends on the resin formulation including additives, the type of fiber which is used, the residence time in the processing equipment, variables such as press-design and press-parameters. When this product is processed according to processing guidelines from Ten Cate Advanced Composites for CETEX (PEI) materials and taking normal precautions detailed below, there are no known adverse effects for human health.

Certain sensitive individuals and those with respiratory impairments however, may experience some temporary irritation by exposure to specific components in the processing fumes. Bring the person into the fresh air. Treat eye irritation by flushing with clean, low pressure water. Treat skin irritation by washing with soap and water. Seek medical attention if irritation persist.

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Normal precautions

Good industrial practice requires adequate ventilation of the workplace. During machining, dust must be removed adequately by ventilation etc. Use of a local exhaust system will remove safely all fumes and dust during processing and secondary operations.

Electric discharge could occur during handling. Prevent the material from sliding over a surface in order to limit static charging. Carbon fiber is electrically conductive. It may cause short circuits in electrical apparatus. Rubber gloves should be worn to avoid electrical shocks and to avoid injuries during machining or handling hot material during laminating and forming. Cleaning of fumes, condensates (which may include toxic contaminants) residues and dust from processing and ventilation equipment should also be undertaken in well ventilated conditions. Use protective clothing including rubber cloves.

This publication provides information and guidelines for save handling and processing and is based on currently available experience and knowledge. It is intended to furnish physical, safety, toxicological and ecological data that are of importance to the users of CETEX^{R}. It is not designed as a comprehensive product performance data sheet, nor as a guide to application possibilities of the material.
Users should follow all applicable local regulations governing health and safety at work and requested to pass this publication to all relevant employees and customers.