CPET
(Crystalline Polyethylene Terephthalate)

PET (Polyethylene terephthalate) is produced from ethylene glycol and terephthalic acid:

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\text{nHO-CH}_2-\text{CH}_x-\text{CH}_y+n\text{HOOC} \rightarrow \text{COOH} \rightarrow \left[\text{CH}_x-\text{CH}_y-\text{COO} \rightarrow \text{COO} \right] + \text{nH}_2\text{O}
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There are two main types of PET: Amorphous PET (APET) and Crystalline PET (CPET), the main difference being that CPET is partially crystallised, while APET is amorphous. The partially crystalline structure of CPET makes it dimensionally stable at high temperatures.

Due to this partially crystalline structure, CPET is opaque, while APET’s amorphous structure provides glass quality clarity. Nearly all CPET products have an APET top layer as standard. This provides CPET products excellent sealing properties and a superb glossy finish.

Due to the highly accurate control of the material’s crystallinity, CPET is suitable for use between –40°C and +220°C.

This meets the consumer’s need for impact strength at low temperatures and dimensional stability at high temperatures.

CPET provides an extremely good barrier against oxygen, water, carbon dioxide and nitrogen.
Production process
A flat film is extruded, which is then cooled and calibrated in thickness between two cooling rollers before being wound onto large reels.

In the thermoforming process the film is heated until it is soft enough to be fed into the forming machine. The item is formed under high air pressure/vacuum until the desired degree of crystallisation has been reached.

Finally, the item is cooled and punched out of the film.

The skeletal waste from forming and the running-in material are ground and reused in the next production of film.
Product safety
At Faerch Plast, we only use raw materials guaranteed by our suppliers to meet the requirements in the EU directive EC 2002/72 (rules governing which monomers and other basic materials can be used in the manufacture of plastic raw materials intended to come into contact with food).

The raw materials also comply with the EU directive EEC 94/62 concerning heavy metals.

In the absence of EU legislative regulations covering colour master-batch, we demand our supplier comply with the German BfR guidelines (formerly BgVV), which with regard to CPET are:

Empfehlung XVII (polyester) and Empfehlung IX (colourmaster-batch).

In order to ensure that legislation is respected we carry out migration measurements. Our CPET products are tested under the following conditions:

- 2 hours at 175°C followed by 10 days at 40°C in olive oil
- 2 hours at 100°C, followed by 10 days at 40°C in 3% acetic acid
- 2 hours at 100°C, followed by 10 days at 40°C in 15% ethanol

All migration test results comply with the EU-specified limits. The migration tests are carried out by internationally recognised, independent test institutes, and are always kept up to date with respect to legislative changes.

We also have certificates from Normpack (Sweden) and Emballasje-konvensjonen (Norway).

Use
All kinds of ready-prepared meals and meals of fresh raw materials for preparation in microwave or conventional ovens.

CPET is also ideal for process pasteurisation and/or frozen food products that are heated in the tray. CPET trays can be taken directly from the freezer and heated in microwave or conventional ovens, including fan assisted ovens.

Hygiene
Hygiene plays a vital role throughout the company. For more than 10 years Faerch Plast has been focusing on hygiene issues and has been hygiene accredited since 1998.

In 2002 Faerch Plast was the first danish manufacturer of packaging for direct food contact to be accredited with the BRC/IOP technical Standard by Bureau Veritas Quality International. The accreditation ensures, that all aspects of hygiene, product quality and product safety, are respected fully.
Recycled raw materials
All CPET trays contain up to 25% post consumer recycled plastic in the middle layer. All raw materials used, including recycled ones, are certified suitable for food contact packaging. Faerch Plast complies with regulations about functional barriers, where national regulation legislates accordingly on the use of recycled plastic.

Energy and the Environment
Faerch Plast is continually trying to minimise its environmental impact and reduce the amount of energy used in production. This focus is maintained through energy management and energy control using a CRM system, which controls, regulates and monitors energy consumption and processes. Before production equipment is purchased, it has to satisfy rigorous criteria for economical energy consumption and lower environmental impact.

Waste disposal
Reuse
After use as food packaging, CPET trays can be ground and reused for secondary, non-food purposes.

Incineration
When incinerated, CPET produces more energy than it consumes, and can re-enter the natural cycle. Complete incineration of CPET produces CO2, H2O, CO and small quantities of ash.

Handling
CPET products from Faerch Plast contain only raw materials approved for food packaging.

Disposal
CPET is suitable for landfill sites without any known risk to the environment.

Storage
Packaging made from CPET should be stored in dry conditions under 30°C.