



COLOURING OF HIGH-PERFORMANCE POLYMERS

The right colourants for your high-performance plastic

INTERESTING FACTS ABOUT HIGH-PERFORMANCE POLYMERS

What are high-performance polymers?

High-performance polymers are a subgroup of thermoplastomers. In addition to the term high-performance polymers, there are numerous other terms for this group of materials. These are, for example: High-temperature polymers, high-performance polymers or high-tech polymers.

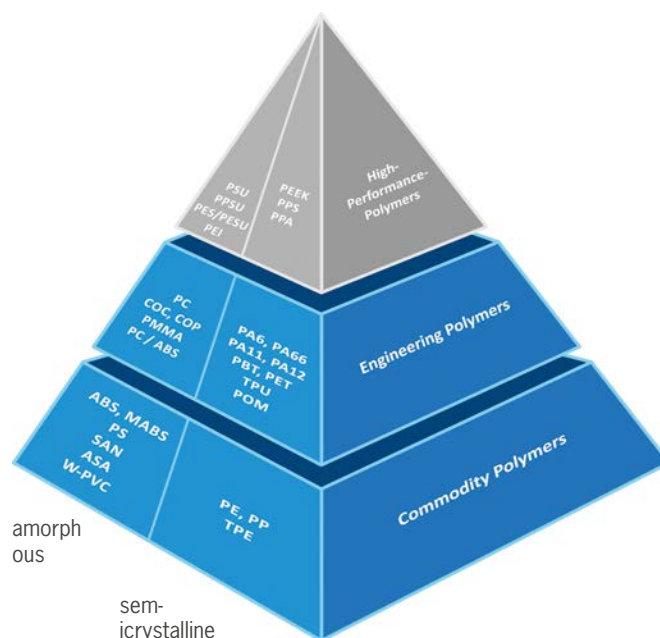
Thermoplastomers are divided into various categories. These are represented in the form of the so-called plastic pyramid. The broad base is formed by stand polymers, which are often used for packaging.

The middle layer consists of technical polymers such as polyamides or polycarbonate.

The "top" are the high-performance polymers with processing temperatures of up to 420 °C. This group of materials is characterised above all by a significantly higher continuous service temperature (usually higher than 150 °C).

TREFFERT offers masterbatches and compounds for the following high-performance polymers:

- Polyphthalamides, PPA
- Polyphenylene sulphide, PPS
- Polyetherimide, PEI
- Polysulfones, PSU, PPSU, PES
- Polyetheretherketone, PEEK



COLOUR AND FUNCTION IN ONE - A RARE EXPERTISE

TREFFERT specialises in the colouring and functionalisation of polymers using masterbatches. Masterbatches are colour or additive concentrates in the form of polymer granules. Processing companies can use them to colour their polymers themselves in the desired way or give them various properties. For example, light diffusion, optical filters as well as light and heat protection or laser markability and laser weldability.

The production of masterbatches for colouring on the one hand and for equipping polymers with

special functions on the other hand is complex. It requires a complex development process.

Combining both services – i.e. producing masterbatches that add both colour and function to the plastic – is already a rare expertise in the field of standard polymers or engineering polymers that are used every day. It is extremely rare when it comes to high-performance polymers. TREFFERT is constantly expanding this expertise through continuous development work.

TEMPERATURE-RESISTANT COLOURS AND ADDITIVES

These particularly high processing and usage temperatures make the development of colour and additive formulations for high-performance polymers a major challenge. At least as important as the temperature resistance is the chemical structure of the colourant or additive and the resistance to chemical reactions in the melt.

We have therefore examined the entire raw material portfolio to determine which colourants and additives have sufficient stability to be used in high-performance polymers. We also constantly screen the market for new potentially suitable raw materials in order to continuously expand our portfolio.

THE RIGHT CARRIER SYSTEM – IT'S ALL IN THE MIX

In addition to the right choice of colourants and additives, special expertise in handling high-performance polymers also includes the selection of a suitable carrier system. Carrier systems bind the colourants in the masterbatch and additives.

In the subsequent manufacturing process, they must be compatible with the plastic to be coloured. We always use a carrier plastic that is specially adapted to the polymer to be coloured, even for high-performance polymers.



Components that are installed very close to the engine or the exhaust system are very often made of high-performance polymers in the automotive industry. In these applications, the metal is often replaced, thus achieving a weight reduction.

High-performance polymers are used in the aerospace industry to produce components in engines, turbines, heat shields and other parts. They are also used in the electronics industry to produce.

The material is also used in housings and connectors where very high temperatures are reached due to high electrical power.

Due to their good thermal and chemical resistance, reusable products are manufactured in medical technology using steam in autoclaves at a temperature of 134 °C can be sterilised. In terms of sustainability, the high-performance polymers therefore make an important contribution to reducing the amount of waste.

**Showcase Flow Sensor,
Hamilton Medical AG**

The proximal flow sensor has been at the heart of Hamilton Medical ventilators since 1983. The entire ventilation process depends on the measurement and accuracy of the flow sensor, which also provides data from the airway opening.



**Showcase housing of a sensor cable
made of PEEK, Knick Elektronische
Messgeräte GmbH & Co. KG**

The sensor is used in various industries. For example, in production facilities in the chemical industry, food production or the pharmaceutical industry, as well as in laboratories. The housing must be very robust against a wide range of environmental influences. These include very good chemical and thermal resistance and suitability for a temperature range from -40 °C to 130 °C.



PERSONAL ADVICE DIRECTLY ON SITE

For individual performance requirements

True to our company motto “Colour follows function”, you will not receive a standard solution from us, but a high-quality product. Comprehensive advice from our application engineers directly on site is particularly important and a matter of course for us. We can advise you on all questions relating to the use of our products and of course provide you with

sample materials at short notice. This enables us to ensure that you can use and process our product optimally. Contact an application engineer in your area. You can find the locations of our application engineers online at www.treffert.eu. We look forward to hearing from you.

COLOUR FOLLOWS FUNCTION

The Treffert Group

At our two sites in Germany and France, we advise and support our customers from the initial idea through product development to technical production. We develop customer-specific masterbatches and compounds and produce order-related batches from small sample quantities up to several tonnes. The driving force behind our performance is our passion for material and function. This applies to our daily work and to the solutions we develop with the utmost precision.

The result is high-quality products with optimum processing safety that fulfil all the criteria of certified quality management. Every development and production step is subject to continuous internal quality control. In this way, we ensure continuous improvement of work processes and production quality.

Documented production processes and recipes as well as the secure storage of reserve samples guarantee that we can still provide our customers with more than 50,000 colour recipes just in time and with production precision, even years later.

Certified quality, environmental and energy efficiency management

Management System
ISO 9001:2015
ISO 14001:2015
ISO 50001:2018

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