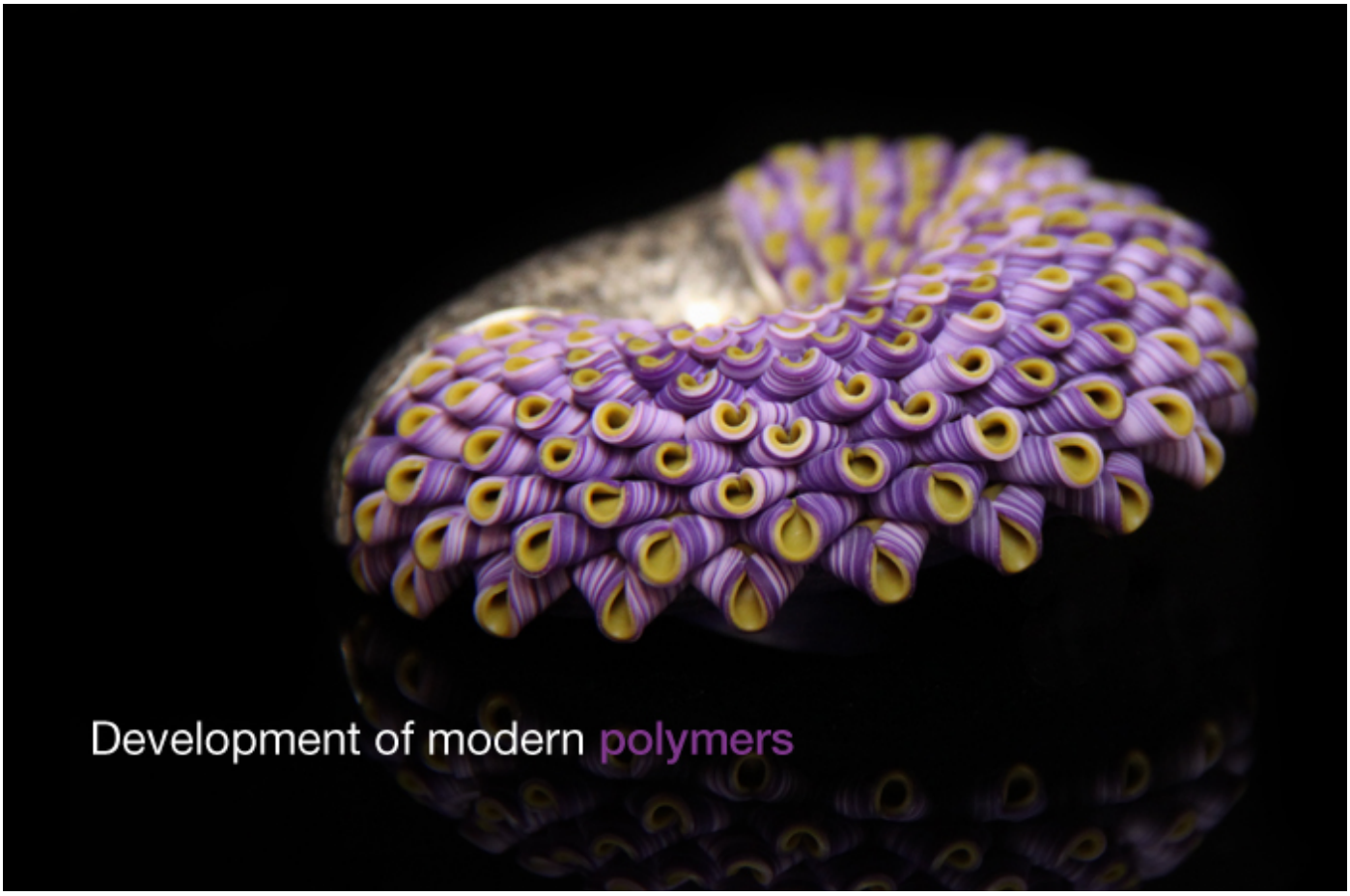


The vacuum oven at the Chair for Polymer Materials

The Chair for Polymer Materials at the University of Bayreuth, Germany, uses a Memmert vacuum oven for drying, curing, degassing and polymerisation.

From jewellery to semiconductors: our world is polymer

They have become an indispensable part of our daily lives, and **polymers** have even found their way into the art world. We pack our rubbish in polyethylene bags, we protect our heads when cycling with helmets made of polypropylene, polyamide made nylon and perlon stockings affordable for women from the 40s of the last century, and polyvinyl-chloride, better known as PVC, is, among other things, the basic material of modelling clay from which jewellery and other decorative objects are formed worldwide.

Research object polymer membrane

For its research projects, the Nanoscience Institute of Aragón in Zaragoza, among other things for the development of a polymer membrane with improved permeability and selectivity, uses a Memmert **vacuum oven**.

more information

Drying and degassing in the vacuum oven

There are more than twenty Memmert appliances at the Chair for **Polymer Materials**, including several **vacuum ovens** for a wide range of applications. For determination of the water absorption, samples are conditioned in the **vacuum oven** at constant temperatures to determine the **dry weight**. Also freed of residual moisture in the **vacuum drying oven** is synthetic granulate as the basic material for extrusion or compound processes. As only high-quality samples can be characterised mechanically, reactive thermoset systems are degassed and sometimes also polymerised in the **vacuum oven** to avoid the formation of pores.

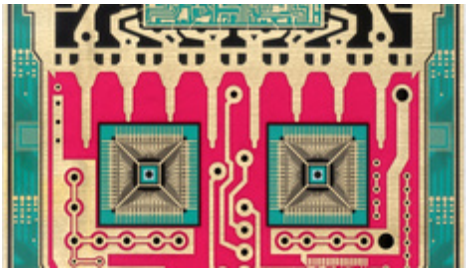
Polymers are indispensable in the aerospace, automotive and electronics industry

Largely unseen to the media and to the public, research institutions like the Chair for **Polymer Materials** at the **University of Bayreuth**, Germany, are working on new fields of application for **polymers** every day, as the improvement of material properties like weight, temperature stability and environmental compatibility, as well as the optimisation of production processes and costs are indispensable for the competitiveness of high tech sectors like the **aerospace**, **automotive** and **electronics industry**.

A standard **semiconductor**, for example, is hazardous waste, due to the use of flame retardants, and cannot be recycled. A foamed, thermoplastic **semiconductor**, which can enter the cycle of reusability once its working life has ended, was therefore a practical and environmentally-friendly idea from the Chair for **Polymer Materials** at the **University of Bayreuth**, which is devoted to the development of modern **polymers**.

Other research projects of the **University of Bayreuth** are for example aimed at developing bio-compatible **polymers** as materials for implants, the development of nanocomposites (**composite materials** with filler material only nanometres in size) or the optimisation of fibre-reinforced plastics to improve stiffness, flame proofing or fracture toughness.

We thank Johannes Krämer for supporting us in writing this article. Further information on the **Chair** for **Polymer Materials** can be found at http://www.polymer-engineering.de/



Foamed thermoplastic **semiconductor**

Memmert laboratory appliances for drying

Oven (drying oven) U

Vacuum drying oven VO

An overview of focus topics

- **Polymer materials**
- **Polymers**
- **Composite materials**
- **Foamed semiconductor**
- **Vacuum oven**
- **Vacuum drying oven**
- **Aerospace industry**
- **Automotive**
- **Electronics**
- **Drying**
- **Curing**
- **Degassing**
- **Polymerisation**

Picture credit: Eva Ehmeier, www.hoedlgut.at, Fotograf Roland Weber/Universität Bayreuth, Lehrstuhl für Polymere Werkstoffe

Autor: