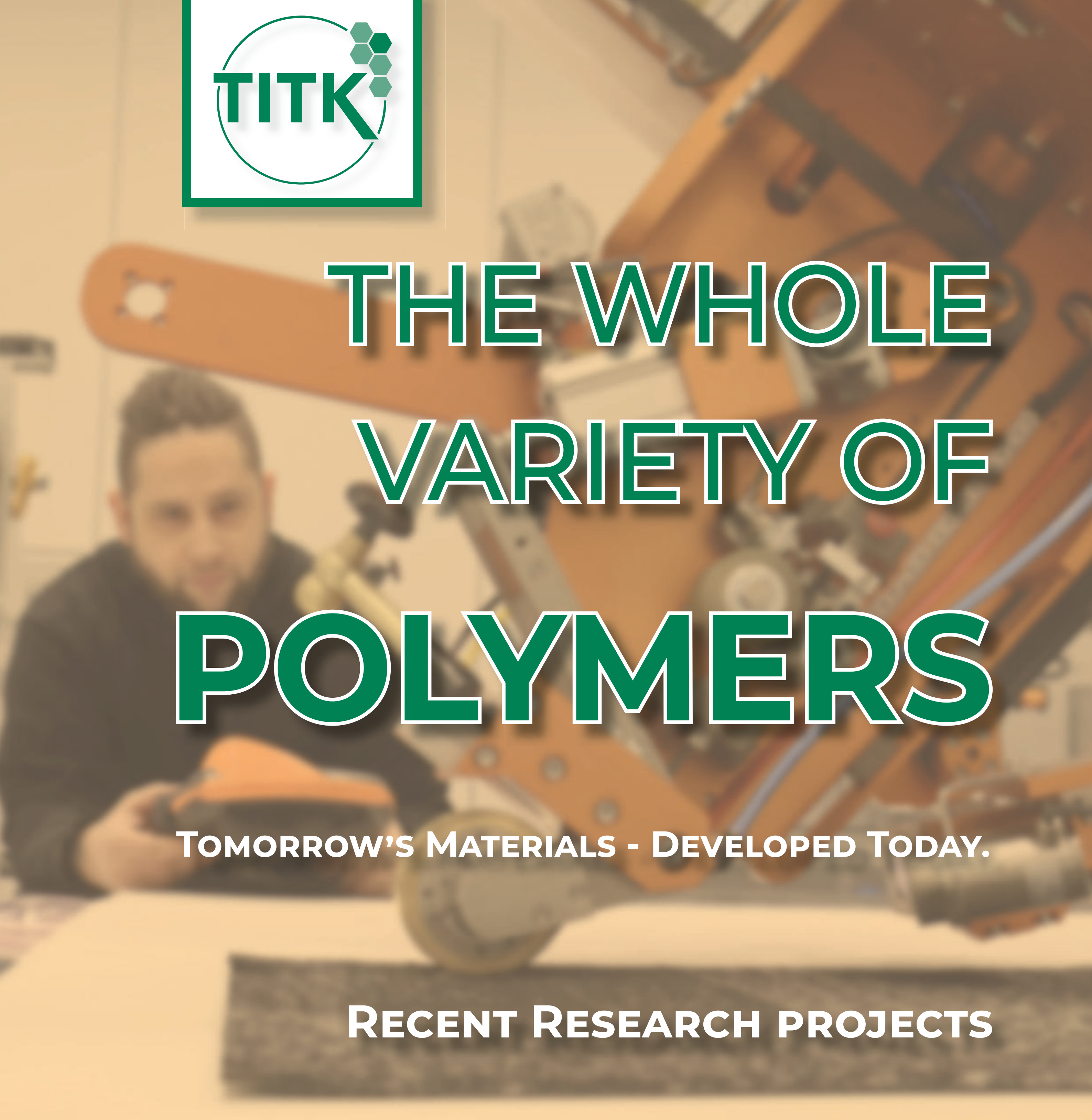


THE WHOLE VARIETY OF POLYMERS

Tomorrow's Materials - Developed Today.

Recent Research projects

TITK - Thuringian Institute for Textile and Plastics Research

TITK – The Research Institute for Polymer Materials

TITK is a proficient research partner for enterprises in the field of materials research and development of leading-edge technologies. As industry-related research institution TITK specializes in modifying polymers in order to create materials with entirely new, functional properties – polymers of the new generation.

The institute is equipped with a state-of-the-art technology park and develops innovative materials and products that are crucial for the production of lifestyle products, packaging materials, vehicle products, bio- and medical technology, power technology, micro- and nanotechnology.

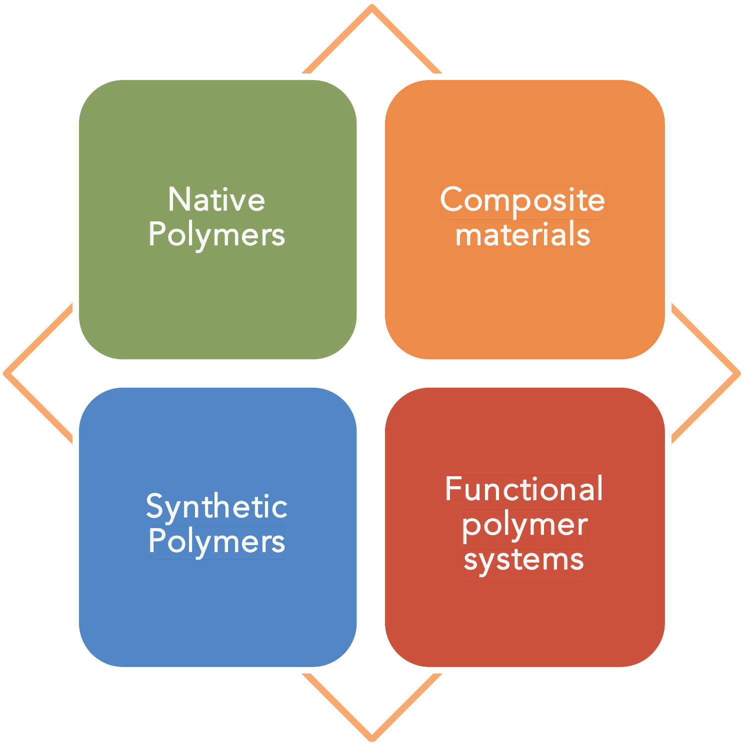
TITK group with 200 staff members includes two subsidiaries in addition to the institute itself. Smartpolymer GmbH focuses on marketing and production of TITK developments, whereas OMPG mbH realizes test services for textiles, fiber composite materials and plastics (accredited test laboratory according to DIN EN ISO/IEC 17025).

ZUSE-GEMEINSCHAFT
FORSCHUNG, DIE ANKOMMT.
We are a member

FTVT

From materials research institute to solution provider

Our fields of expertise



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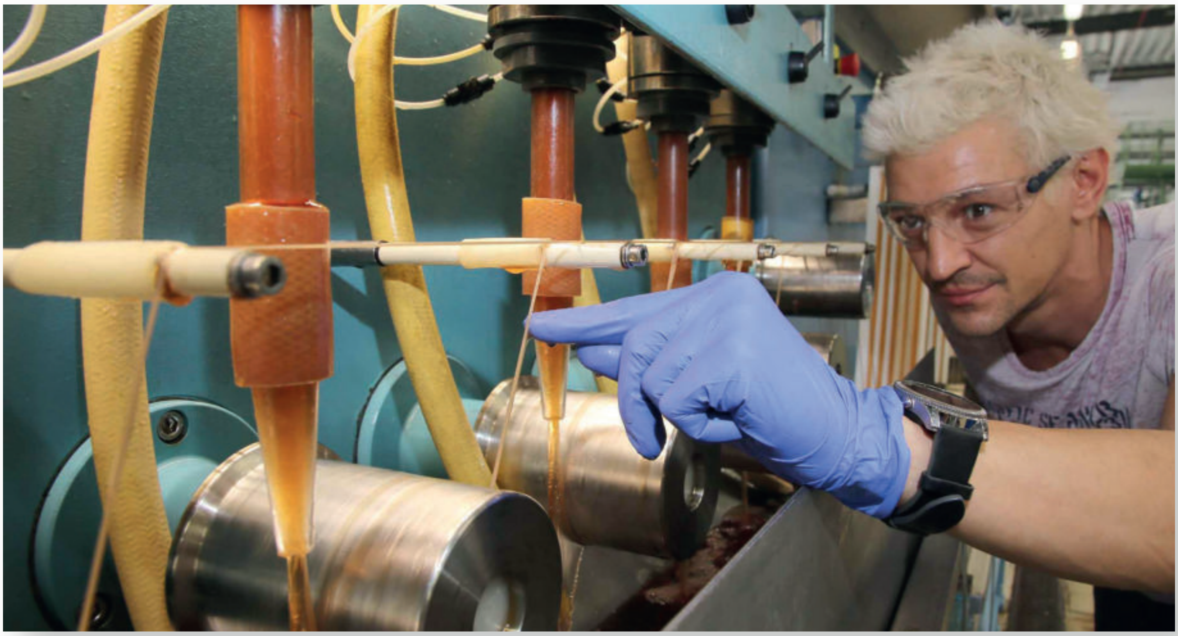

Native Polymers and Chemical Research

The Department of Native Polymers and Chemical Research continues a long tradition for the production of man-made fiber materials. It originated from the R&D activities pursued by the Institute for Textile Technology of Man-Made Fibers (ITC) as the predecessor institute of TITK already since 1954, in which synthetic fiber materials and different generations of cellulose regenerated fiber materials were developed.

After the reestablishment of the institute as TITK, the department was mainly concerned with direct dissolution and dry-wet forming of functional & natural polymers, especially cellulose, other polysaccharides, proteins and polyacrylonitrile. The focus has been and still is on fiber developments as well as other forming processes for polymeric solutions. Extensive polymer and polymer solution characterization techniques are used as a basis for new developments.

An independently developed process for direct dissolution and dry-wet forming of cellulose and the special fibers obtained on its basis has been transferred to commercial scale. Process and product developments focus on cellulose, its chemical and physical modifications and deformation, as well as other soluble native and synthetic polymers.

Since 2015, the department has also been conducting research activities in the field of adhesives and reactive foams. In addition to the development, characterization and modification of commercial adhesive systems and foams, the focus is also on bio-based and biodegradable alternatives.

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Development of a bio-based dispersion adhesive

Mixtures in which a solid is finely dispersed in a liquid are called dispersions. These mixtures are often unsta-ble because the solid particles sink, float, or clump together. To prevent these effects, suitable additives are always added. Dispersions are used, among other things, in adhesives (dispersion adhesives) such as the well-known wood glue. As in almost all applications, the liquid is water. One problem with these adhesives is their lack of biodegradability. Another problem is that the solid responsible for the adhesive effect consists of petroleum-based plastics. These materials are to be replaced in the future as part of the goal of achieving car-bon neutrality.

Objective

The task of this project was to develop a dispersion adhesive based on a biodegradable and bio-based base polymer. The goal was to avoid petroleum-based additives as much as possible while simultaneously allowing for subsequent biodegradability.

Results

A dispersion of a bio-based and biodegradable polymer (PBS) was prepared. This mixture was stabilized using the biopolymer methylcellulose (MC). By adding a tackifier, an adhesive was finally obtained.

Applications

The developed dispersion adhesive was tested, and production was optimized. The adhesive can be used, among other things:

- packaging industry
- construction sector (bonding parquet and carpets)
- furniture manufacturing

Development of a biodegradable protective film for pipe systems

This project aims to develop a fully biodegradable protective film for pipe components used in district and local heating. The first goal is to create a suitable compound for use as the protective film. The second objective is to develop a comparable mono-film from this compound. In the third step, a biodegradable coex-film will be produced at a pilot and industrial scale, meeting the technical requirements of current protective films. Finally, the biodegradability will be verified through laboratory tests and field trials.

Objective

The project aims to develop a compostable protective film for heat supply pipe systems. It reduces waste, conserves fossil resources, improves the CO_2 balance, and supports a sustainable bioeconomy through the use of renewable raw materials.

Results

A biodegradable monolayer film matching the technical profile of current materials has already been successfully developed. The next step is producing a UV-stable coextruded film to further enhance performance.

Applications

In addition to packaging for pipe systems, the protective film can also be used for other construction components wrapped in foil, such as doors, facade elements or components for shell construction.

Textile and Materials Research

Textile and materials research has a long tradition within TITK. The central subject of the work in this area is the characterization, processing and application of fiber materials.

In the past, the focus of developments was on applications in the clothing industry. Today, the focus is primarily on technical applications of textile semi-finished products, textile laminates, fiber-reinforced rubber/elastomers and fiber composites. Closely related to this are also developments in the field of materials testing.

The Textile and Materials Research department is able to combine tradition, expertise and innovation for the benefit of customers and is today a research service provider with state-of-the-art technology to meet the needs of industry. The principle here is that materials, process and technology developments basically form a single unit.

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Development of CO_2-optimized subfloors with natural fiber reinforcement

The components of the vehicle's underbody influence the total CO_2 emissions of a vehicle as a technology system, on one hand through their weight and their contribution to the overall cW coefficient of the vehicle during operation, and on the other hand through the materials and manufacturing processes used during production.

Objective

The goal of the project work was to develop lightweight reinforced thermoplastic (LWRT) press materials and injection molding compounds with natural fiber reinforcement for applications in the area of vehicle underbody.

Results

Glass fibers were replaced with natural materials such as flax and hemp. In addition, no new polypropylene material was used on the polymer side; only recycled material. Compared to the materials currently used in series production, CO_2 emissions during production, use, and at the end of the product life cycle were reduced up to 40%.

Applications

The developments are of great interest, especially for the automotive and supplier industry. The results of this research project are pioneering for applications in the external area.

Sheet moulding composite with natural fibre

Sustainable economic activity, rising raw material and energy costs and the need to mitigate climate change gain the importance of using renewable raw materials on a broad scale for economic, ecological and functional reasons. Therefore, the development of locally produced raw materials for new areas of application plays an important role. For this reason, the TITK has been working on the use of natural fibres such as flax and hemp in SMC technology.

Objective

The aim was to prepare the natural fibres in a way that they could be continuously fed into the SMC equipment. To these intentions, suitable semifinished natural fibre products were developed for the SMC process.

Results

NF mats were produced using a modified nonwoven technology and impregnated with polyester resin on conventional SMC equipment. Taking special features of those NF-SMCs into account the material can be molded into parts with good mechanical properties.

Applications

Natural fibre SMC offers a significantly better sustainability balance than glass fibre-reinforced SMC and can be used in the classic SMC segments due to its characteristic properties.

Development of a Smart Odour Test

Odour testing on plastics is currently carried out using human sensory test methods, in which hedonics, intensity and acceptance of the odour are summarised in a odour grade. The odour determined according to these test methods are governed by subjective evaluation and leads therfore to variety of problems. The consortium consisting of TITK, fzmb, Exipnos GmbH, STEP Sensortechnik and Elektronik Pockau GmbH therefore wants to further develop the odour testing of plastics on the basis of a new test method.

Objective

Development of a laboratory-grade measuring device that uses self-learning algorithms to assign the information from the GC-IMS sample spectrum to an odour grade.

Results

The measuring system consists of an autosampler coupled with the IMS measuring device. Device software was implemented with developed AI models. The models are currently being trained with PP data and show a good correlation with the odour grades from the human sensory test.

Applications

The measuring device can support plastics companies in product development, process monitoring and quality control by outputting the odour grade and can be used in test laboratories for odour evaluation.

Value chains for recycling of thermoplastic composites

Experimental investigations are carried out to develop new, innovative mechanical recycling approaches and to gather data on mechanical recycling for continuous fiber reinforced thermoplastics as well as dry fiber waste. A value chain assessment provides insights into the economic, ecologic, and technical feasibility of mechanical recycling approaches. The setup of the project enables SME to take sound decisions on their future recycling strategies based on data. Consequently, the project contributes to transform the linear composite value chains to circularity as well as to the European target to become a circularity-oriented continent by 2050.

Objective

Development of novel approaches for mechanical recycling of thermoplastic composites by identification of ecological and economic alternatives to the primarily used thermal recycling and landfill disposal production waste and EoL components.

Results

Dry fiber waste was processed to nonwovens and semi-finished sheets by compression molding. Continuous fiber-reinforced thermoplastic waste was processed to granulates and these were extruded into plates.

Applications

The achieved mechanical properties are sufficient for industrial applications such as seat structures, underbody parts, trunk floors, trailer construction, transport boxes and containers.

Resource efficiency in automotive interiors

Sustainability is increasingly influencing purchasing decisions and has an impact on the choice of materials, for example in automotive interiors. The use of renewable raw materials as well as recycled materials is of interest here. Nevertheless, an appealing design, industrial processability and the fulfilment of quality requirements must be met. As part of the R&D project, the TITK has succeeded in identifying ways to achieve these goals by using suitable recycling fibers and transfer them via nonwoven technologies and adapted finishing to attractive decor material suitable for one-shot back-injection molding of natural fiber composites.

Objective

Core of the development was a material concept combining natural fiber carrier materials with (recycled) decorative materials (nonwovens) suitable for one-shot processes, taking into account the mono-materiality for subsequent recycling of the components.

Results

The wear resistance of decorative nonwovens has been improved and, like the carrier, meet the specifications of the OEMs and were suitable for one-shot processes. Finally, the nonwovens were used for producing door panels under industrial conditions.

Applications

Typical applications are automotive interiors parts, but are highly relevant across all sectors. Fiber recyclers and nonwoven manufacturers profit the most of the results. Finally, attractive designs are possible with nonwovens and recycled fibers.

Plastics Research

The Plastics Research Department deals with the modification of plastics with the aim of giving the materials new or improved properties. Modification can already take place during polymerisation, but also in the subsequent process steps, such as extrusion or injection molding.

The following research topics are addressed:

- Studies on the polymerization of polyamides, polyesters, polycarbonates and biopolymers
- Fiber reinforced plastics
- Flame retardant plastics
- Electrically conductive plastics
- Electromagnetically shielding plastics
- Thermally conductive plastics
- Magnetic and magnetizable plastics
- antimicrobial plastics
- Heat-storing plastics
- Additivated cast polyamide
- Nanocomposites

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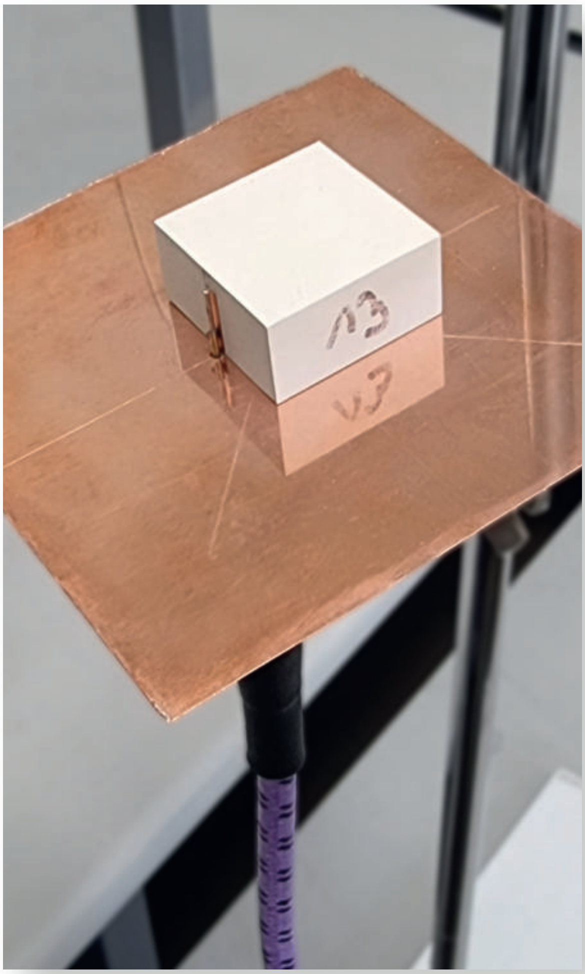


Development of polymer composites for the use in antenna construction

Polymer composites with ceramic filler components of high permittivity and low dielectric damping losses are suitable for use as substrates and radiation elements in antennas in the MHz and GHz range. The increase in permittivity and refractive index of the dielectric-filled polymers reduces the size of antenna systems when these materials are incorporated into the antenna structure. The applicability of dielectric polymer substrates and radiating elements made of compression-molded, injection-molded and 3D-printable prefabricated products for the use in the high-frequency range was verified using demonstrators of dipole antennas and dielectric resonator antennas (DRA).

Objective

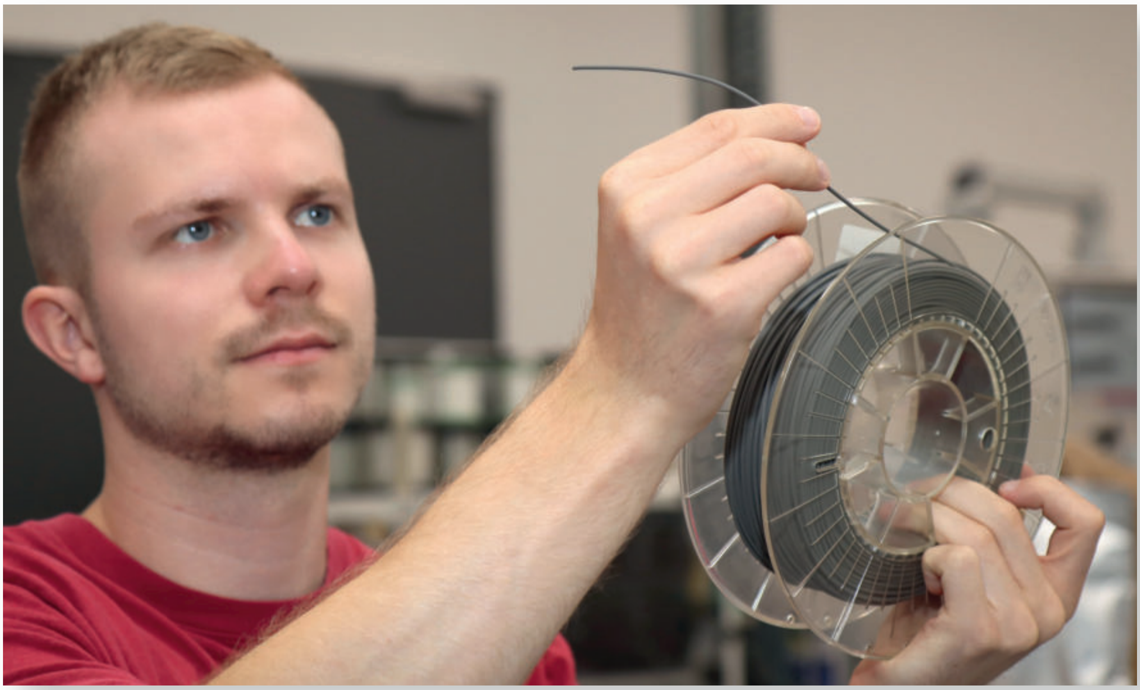
The aim of the investigations was to develop dielectric-filled polymer substrates and prefabricated products such as radiating elements for the use in hotspot antennas operating in the 5G frequency range between 2 to 3.7 GHz and 5 to 6 GHz.

Results

An increase in the permittivity and a changed dielectric environment of the antennas results in a shift of the resonance frequencies into the low-frequency range of the recorded S11 spectra, which corresponds to a miniaturization of the antenna structure.

Applications

The rather expensive prefabricated products of the polymer substrates or ceramics of the radiation elements from other suppliers can be replaced by more cost-effective dielectric-filled polymer composites in a DRA.



Material extrusion of metallic and ceramic parts

The market for the additive manufacturing of metals continues to grow rapidly. Powder bed-based processes are used in particular, which allow the printing of very complex geometries with high precision and comparatively high throughput. However, the investment costs for purchasing the required systems can quickly reach several hundred thousand euros. Filament-based 3D printing, which is now set to become more sustainable, offers a low-cost alternative. Filaments available on the market require either toxic and flammable solvents for debinding or very complex oven processes for sintering. With our filaments, solvent debinding can take place before the furnace process using water or water-based solvents.

Objective

Novel binder systems are being developed for highly filled metallic or ceramic filaments that enable solvent debinding with water. This eliminates the need for toxic and flammable chemicals or complicated oven processes for debinding.

Results

The entire material extrusion process chain could be carried out. Highly filled filaments were successfully printed using the specially developed binder systems. A component made of tool steel for metal cutting has already been debinded and sintered.

Applications

The material extrusion of metallic and ceramic components is primarily used in the production of very complex components, prototypes and small batches. Areas of application include toolmaking, medical technology, the automotive and aerospace industry.

Project group Circular Economy

In 2019, the EU accumulated 5.8 Mio. tons of unused textiles. Despite upcoming 2025 waste regulations, 73 wt% are still landfilled or incinerate In 2019, the EU accumulated 5.8 Mio. tons of unused textiles. Despite upcoming 2025 waste regulations, 73 wt% are still landfilled or incinerated. Global fibre production is expected to rise from 113 Mio. tons in 2021 to 150 Mio. tons by 2030. Each year, 92 Mio. tons of textile waste are generated, half of which are polycotton blends. In response, the TITK group focusses its research on chemically recovering polyester and cellulosic raw materials from polycotton waste to produce virgin-grade fibers. Circular polyester processes are being developed to support a sustainable, circular textile economy.

Objective

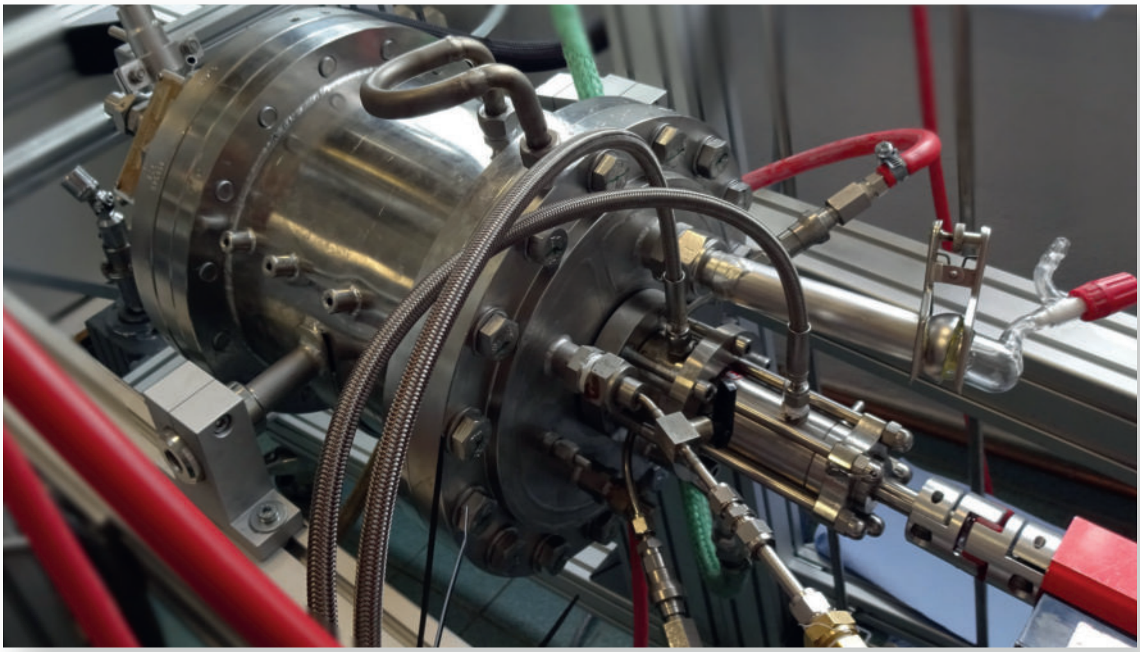
- RECYCON: Recovery of PET Monomers and cellulose from PolyCotton Mixed Textiles
- RECERU: Cotton Textile Waste Conversion into cellulose for spinning according to the ALCERU® Process
- POLYCON: Repolymerization of recovered PET Monomers and Melt Spinning.

Results

- Fiber grade PET-monomers were recovered from PolyCotton Waste and specified
- Analytical Methods for characterization of raw materials were established and applied
- Recovered PET monomers from industrial partners were repolymerized and melt spun

Applications

- Polyester textiles from recovered raw materials reduce CO2 emissions and replace fossil resources in a future circular economy.
- Conversion of cotton textile waste into fiber grade cellulose eliminates huge water consumption of the cotton production



Polymerization and processing group

TITK has gathered the expertise of over 85 years in the manufacturing of fully synthetic polymers, and fibers. Our current activities are centered on the development of innovative materials based on polyamides such as PA6, PA66, PA6.6T and P66.6T. A core focus lies in the preparation of diverse polyester types: PET, PBT, PEN and polycarbonates. Our processing capabilities include extrusion, melt spinning and injection molding, among others. Modified polyacrylnitril types CoPAN are synthesized via radical polymerization, enabling the development of our own carbonfiber precusor filaments. The purification and characterization of raw materials are integral components of our processing chains.

Objective

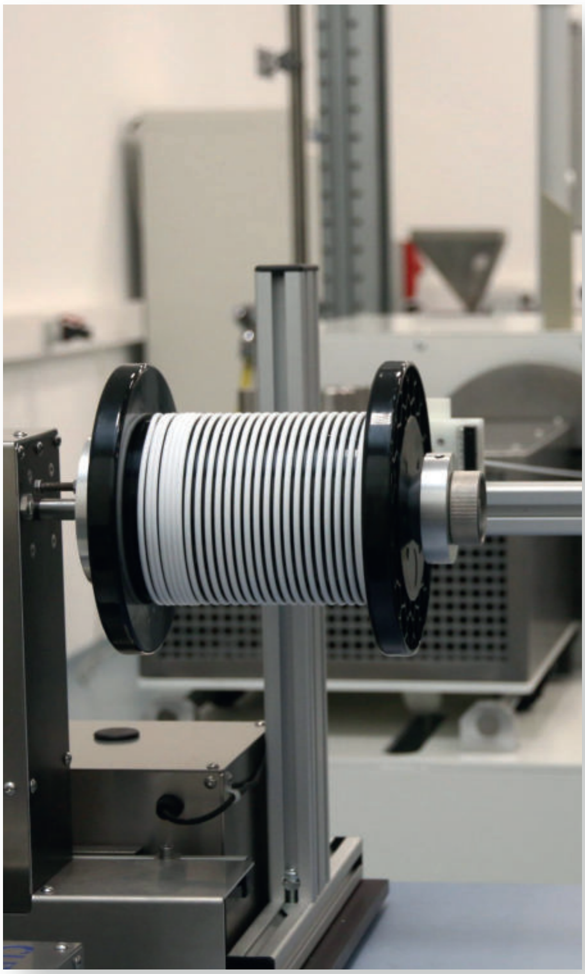
- 10 Liter Autoclaves for pressure and vacuum 3-5 Kg
- Siewable disc ring reactor (HVSR) 2-3 Kg
- Solid State polycondensation (SSP) 1 Kg, 50 Kg rotating double conus reactor
- Suspenstion polymerization alu reactor with steam stripping unit
- Lab capacities

Results

- Modified Polycarbonates for sandwich and composite materials
- Devolopment sustainable Polycarbonates
- Processing and evaluation of recovered monomers together with industrial partners
- Depolymerization of polyester and polyamide based waste materials

Applications

- Sustainable fully synthetic fibers and construction materials
- Implementation of functions into polymers, for instance flame resistance
- Polymer matrix for UD-tapes in unidirectional reinforced thermoplastic compounds



Plastics functionalization for medical technology

The functionalization of polymer materials for use in medical technology is the focus of TITK's plastics research.
Our activities are aimed at achieving fluid-repellent, biorepulsive, antithrombotic, and other properties through micro- and nanostructuring of plastic surfaces.
Another focus is improving instrument observation through imaging techniques. We are developing discreet markings on catheters, cannulas, probes, stents, etc. that enable precise placement and tracking in the patient without adversely affecting the functionality of the instruments.
Also integrating antibacterial or antiviral properties into polymers by incorporation additives or by surface coating are main topics of the medical device research field.

Objective

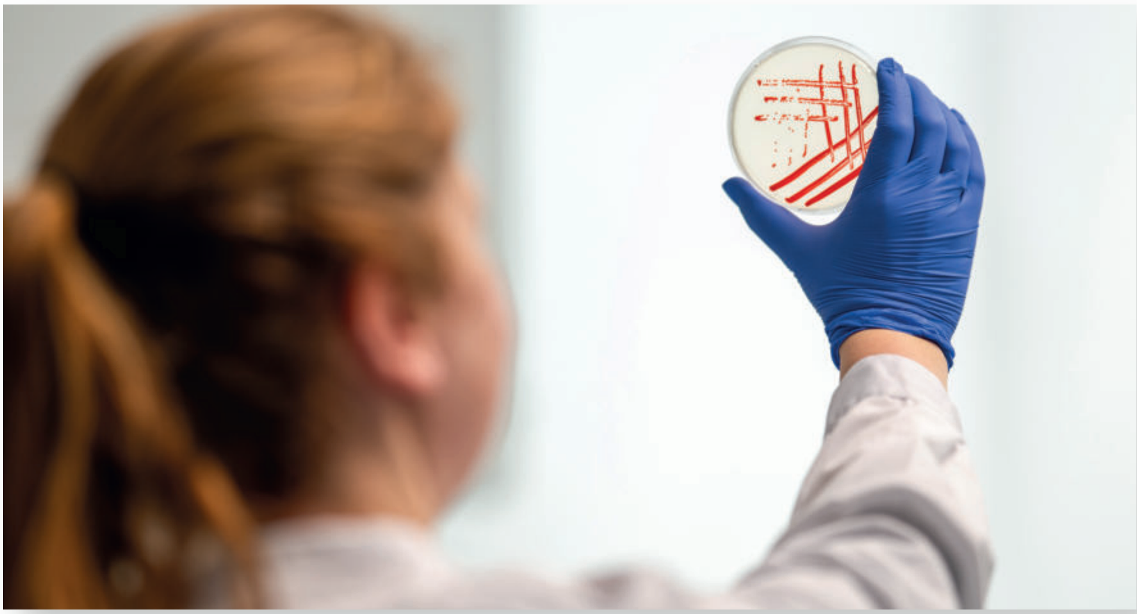
- Antithrombotic catheters through nanostructuring
- Laser-applied echogenic markings on catheters through laser foaming
- Medical devices with fluid-repellent plastic surfaces through laser-structured injection molding

Results

- Markings for ultrasound and X-ray contrast in the form of patterns, labels, or graphics with high variability and excellent imaging properties
- Process for the production of pipettes with very low liquid residue

Applications

- Medical devices
- Catheters, cannulas, implants, stents
- Containers, vessels, bottles, ampoules, pipettes, pipette tips, titer plates



Antibacterial and antiviral plastics

The functionalization of plastics with antibacterial and antiviral substances is primarily achieved through volume incorporation or coating. Both, leaching and non-leaching systems are realized at the TITK. To ensure optimal effectiveness, the additives must be optimally matched to the polymer matrix and tailored to the specific application.The active ingredients used at TITK include for example antibiotics, metals, polyelectrolytes, as well as natural substances (e. g. bacteriophages, peptides, plant ingredients).
In addition to additivation, the TITK also has extensive expertise in the field of producing nanostructured surfaces to prevent the attachment of bacteria.

Objective

- bioactive natural substances for antibacterial and antiviral functionalization of plastics (silicone, etc.)
- bacteriophages based catheter coating
- Virus-inactivating filter materials and polymer surfaces
- dendritic carrier systems
- surface structuring of polymers to generate biorepulsive and antibacterial properties

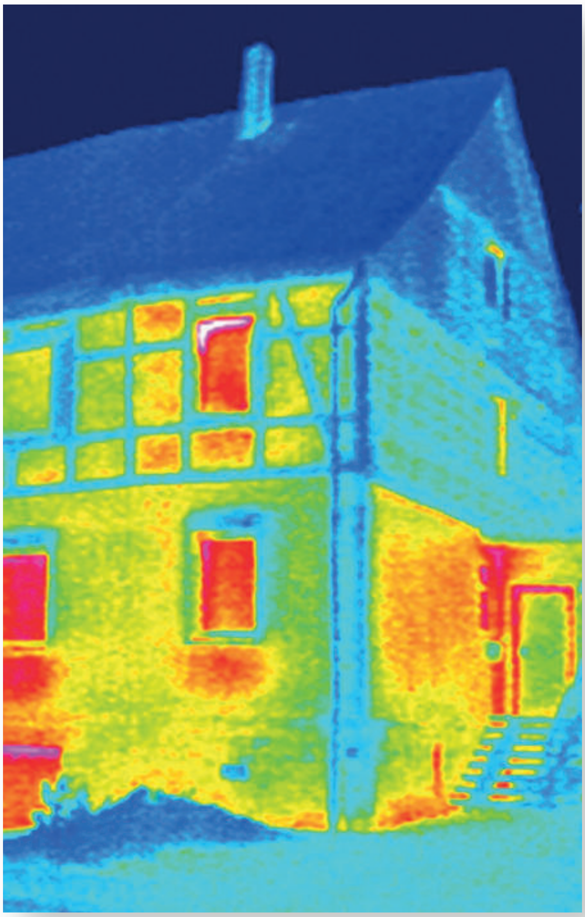
Results

- a wide range of leaching/ non-leaching systems
- In-house, patented additives
- antibacterial surfaces based on bacteriophages
- antiviral coatings
- material formulations without health risks (e. g. by natural substances)

Applications

Antibacterial and antiviral plastics are used particularly in healthcare, the food industry, and in private households. They are used, among other things, for:

- medical devices
- water desinfection
- air purification
- hygienic surfaces
- food packaging



Efficient Storage of Heat and Cold

Phase Change Materials (PCM) can achieve heat capacities that are higher by a factor of 2 to 4 by comparison with sensitive, classic heat storage materials. Thanks to their thermoplastic character, the developed heat storage compounds have a large number of processing and design possibilities which offer a broad range of applications. Granules, films, composite sheets and gels can be produced on a production scale. These versatile options enable a wide range of applications such as building technology, pharmaceutical logistics, food transportation or electronics cooling. The innovative material can be adapted to many applications.

Objective

- Increased performance of electrical processes by reducing thermal load peaks in the range of 80 to 130 °C using innovative heat storage material
- Increasing the thermal storage of bio-based lightweight construction elements
- Development of an air-guided heat exchanger with thermal energy storage

Results

- Buffering temperature peaks
- Delayed release of cold or heat
- Intermediate storage of thermal energy: up to 200 J/g
- Bonding of the liquid phase -> liquid remains solid
- Adjustable melting temperature -> -4 to 82 °C
- Addition of additives to adjust properties
- Thermoplastic processability for semi-finished products

Applications

- Transport of temperature-sensitive goods
- Cooling of electrical applications
- Storage of cold and heat for building temperature control
- Therapeutic and medical applications

Functional Polymer Systems

The classic applications of polymer materials are in the area of construction applications, where it is primarily a matter of their mechanical and thermal properties while maintaining a low density. In recent years, so-called functional polymers have also become increasingly important.

Of particular interest are polymer materials with specific, i.e. for example electrical, magnetic, optical, biologically relevant or other functional properties. On the one hand, these result directly from the molecular and supramolecular structures of the macromolecules of which they consist, i.e. they are “intrinsic” properties. On the other hand, suitable polymers can be modified by means of specific inorganic and/or organic additives to obtain functional polymers with these special, functional material properties.

Against this background, on the path “from material to system”, technology-oriented research projects and R&D services are being carried out in particular in the following fields:

- Functional polymers and their composites with special electrical or optical properties
- Organic and hybrid nanolayers and nanolayer systems
- Polymer-based electronic system components (polymer electronics)

Parallel to this, the research activities of the department are focused e.g. on

- Additive and polymer syntheses for high-performance polymers with
- Melt spinning technologies / Bicomponent or Tricomponent melt spinning
- Integration of new bio-based materials in sustainable development and manufacturing processes

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Melt spinning process for fibers made from new biopolymers

Research focuses on developing flexible fibers from bio-based, biodegradable PHB polyester. Structural modifications aim to improve flexibility and enable melt spinning. Fine multifilaments and thicker monofilaments are planned for medical uses, especially sutures, while preserving biobased and biocompatible properties.

Objective

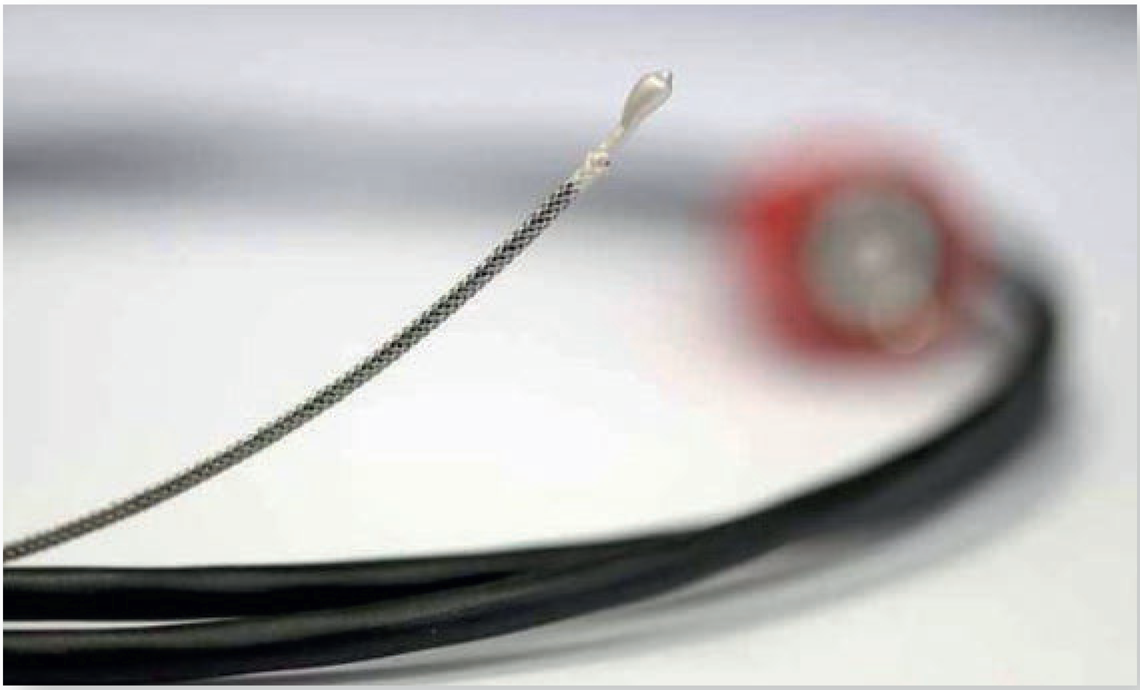
The goal was to develop processable fibers from novel biobased, biodegradable biopolyesters. Melt spinning aimed to enable medical applications while tailoring the material properties to meet specific technical requirements.

Results

A flexibilized polyester-urethane block copolymer (PEU) was developed from microbial biopolyester. It is suitable for melt spinning to produce monofilament surgical suture fibers with tested strength and proven biocompatibility.

Applications

Biobased PEU enables melt-spun monofilaments with surgical suture diameters. Its biobased origin and biocompatibility suit medical uses, especially sutures. Versatile fiber types and diameters broaden application potential in healthcare and related fields.



Temperature-resistant piezoelectric sensor fiber

The project aimed to develop fiber-shaped piezoelectric polymer sensors with low thermal sensitivity for integration into thermoplastic processing without loss of function. A special thermal insulation layer enabled continuous use up to 120 °C and short-term exposure to 300 °C. The sensors were fabricated with a steel multifilament wire using rotary electrodeposition and encapsulated with a heat-shrink tube or PA coating. High-voltage polarization and characterization (optical, mechanical, thermal) confirmed their performance. DSC analysis and further tests in climate chambers showed stable operation under thermal and dynamic stress.

Objective

Develop fiber-shaped piezoelectric polymer sensors with low thermal sensitivity, suitable for thermoplastic processing. Optimized materials and layers enable continuous use up to 120 °C and brief exposure to 300 °C without loss of function.

Results

Piezoelectric fibers with outer electrodes and thermal insulation were produced using steel wire and heat-shrink tubing. Tests confirmed stability up to 120 °C. Characterization showed good thermal, mechanical, and electrical performance under stress.

Applications

Piezoelectric fibers are ideal for smart home sensors (motion, sound, contact). Their flexibility suits textile integration. Further uses include damage detection in hoses, sealing inspection, rail systems, or structural monitoring in lightweight buildings.

Development of innovative marker fibers and additives

The project focuses on concealed marking of textiles to coordinate material flows in a circular economy and prevent product piracy in global markets. The goal was to develop and test a protective and marking technology for the textile value chain. Specifically, a versatile marking system for textile components was created based on a multi-level coding and analysis method. Various marker substrates, fluorescent dyes, and metal complexes integrated into multifilaments serve as information carriers. This marking enables generation of codes detectable by newly developed detection methods within the research consortium.

Objective

Develop a protective marking technology for textiles to support circular economy and prevent piracy. The system uses multi-level coding with fluorescent dyes and metal complexes in fibers, enabling reliable detection and product identification throughout the textile value chain.

Results

New markers for melt spinning enable binary-coded fibers with capacitive and spectroscopic detection. Iron(III) complexes and fluorescein derivatives ensure strong signals. Coding integrated into fabrics shows multi-level marker functionality.

Applications

The multi-level fiber marking system enables easy handling and hidden product info for diverse textiles. It improves origin verification, combats counterfeiting, and supports innovative uses, advancing traceability and circular economy goals.

Fluorine-free textile finish with lasting oil repellency

Water- and oil-repellent textiles are essential in sectors like outdoor, medical, and technical applications. Common PFAS-based coatings are harmful and under scrutiny. This project aimed to develop fluorine-free alternatives, focusing on improved oil repellency through support layers. TITK used its expertise in 2-alkyl-2-oxazolines, which served as the chemical base. Side chains were synthetically modified to enhance hydrophobicity, and substrates were expanded to include PES fabrics. Novel "umbrella-like" oxazolines were synthesized, applied to textiles, and showed promising hydrophobic behavior with contact angles up to 146° and high durability through wash cycles.

Objective

Water- and oil-repellent textiles are widely used, but PFAS pose health risks. This project developed fluorine-free alternatives using 2-alkyl-2-oxazolines. Side chains were modified to enhance repellency, and applications were extended to PES fabrics.

Results

Novel oxazolines were synthesized and applied to textiles, achieving water contact angles up to 146° and good oil repellency. The fluorine-free coatings remained effective after multiple washes, showing robust, durable hydrophobic performance.

Applications

Applications include outdoor wear, home textiles, automotive, medical clothing, and filters. With PFAS facing bans, this eco-friendly, durable alternative offers high performance and sustainability for producers seeking green solutions.

Member of TITK Group: OMPG - The testing laboratory for plastics and textiles

OMPG is a full subsidiary of Thüringisches Institut für Textil- und Kunststoff-Forschung (TITK). With its establishment in 1992, TITK has concentrated its competences of material characterisation as an institute for industry-related research in the field of polymer materials and expanded these competences continuously.

By following the dynamic development in the field of quality assurance, OMPG developed into a modern analysis, research and development service provider. It meets both the demands of classical traditional analyses and the complex, differentiated and future-oriented demands of its customers.

The high quality of products, materials and technologies is and will be the basis for success on the increasingly globalised market. The connected internal and external supervision and assurance of the quality not only challenges the technical competence of internal quality assurance bodies. It increasingly also demands the assessment and inspection by independent experts.

OMPG is accredited in accordance with DIN EN ISO / IEC 17025. Testing is carried out in accordance with national and international standards and norms as well as customer-specific test procedures.

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Member of TITK Group: smartpolymer - Product management, production and global sales

smartpolymer GmbH makes new developments from the Thuringian Institute for Textile and Plastics Research (TITK) available to industry, marketing polymer-based functional and construction materials as well as the products and processes developed from them.

In addition to the functional fibers of the Cell Solution® family, these include, for example, flocked applicators for the cosmetics industry and cold and heat-storing media with phase-change materials.

Smartpolymer also undertakes the individual adaptation or new development of additives, compounds, and polymers, as well as their manufacture and marketing.

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