

WE OFFER YOU

- polymer development
- resin formulation and synthesis
- commodity and structural resins (e.g. unsaturated polyesters, phenolics, epoxides, polycyanurates)
- polymer characterization and test of complex composite parts
- implementation of new manufacturing technologies and adaptation to specific production peculiarities
- continuous coupled process structure simulation (static, dynamic NVH)
- prototype production with extended property profile

RANGE OF APPLICATION

- automotive
- aerospace
- railway transportation
- naval architecture
- wind turbines
- sports and leisure
- mechanical and construction engineering
- machine tool

Hamburg

Potsdam
Berlin
Teltow
Wildau
Halle
Schkopau
Leipzig
Cottbus
Senftenberg
Schwarzheide

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POLYMERIC MATERIALS AND COMPOSITES PYCO

FROM MONOMERS TO COMPLEX COMPOSITE STRUCTURES

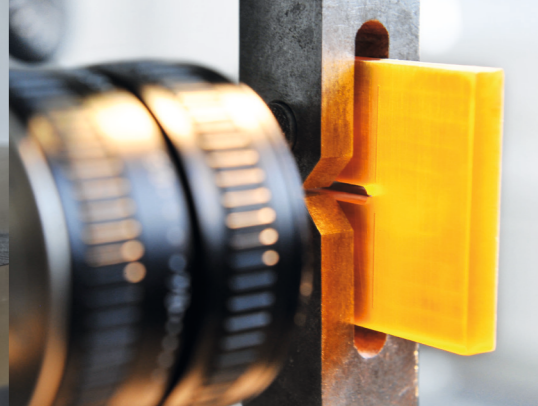
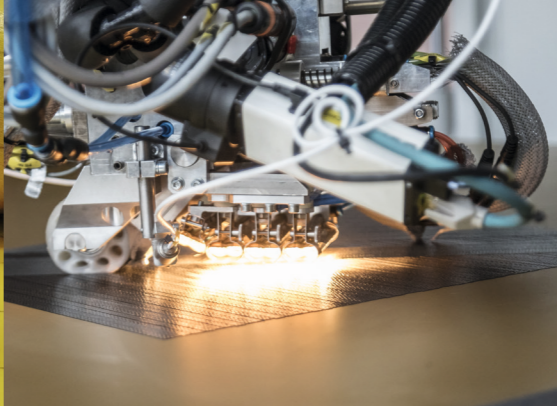
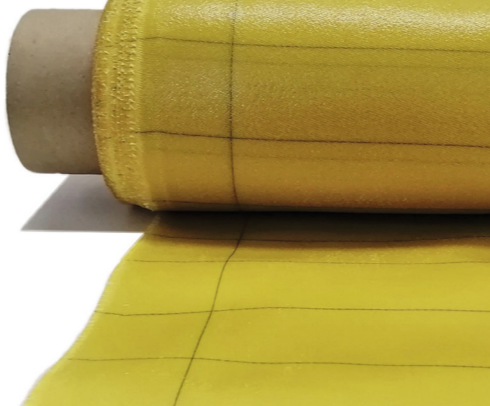
OUR EXPERTISE – YOUR SUCCESS





EXPERTISE IN ALL KINDS OF POLYMER-BASED LIGHTWEIGHT TECHNOLOGIES

The research division Polymeric Materials and Composites PYCO at the Fraunhofer Institute for Applied Polymer Research IAP is your competent partner when it comes to polymer-based lightweight design with fiber-reinforced plastics as well as complex composite components in multi-material design. Our holistic approach includes not only novel construction methods, design of materials, structures and associated manufacturing technologies but also the development of sustainable recovery and recycling strategies for end-of-life-scenarios. We can offer you individual solutions thanks to our state-of-the-art equipment and technologies.



TAILORED MATERIALS

- synthesis and formulation of thermosetting resins
- development and modification of polymers and composites for applications in lightweight design
- processing of polymers
- alternative curing (microwave, UV, IR, 190 keV electron-beam)
- repair and recycling of polymers and fiber-reinforced plastics
- application-oriented analysis for product introduction
- consulting, preparation of studies and expert reports

SIMULATION AND DESIGN

- description of complex process structure-property relationships
- data-based modeling using machine learning
- construction and simulation of structural components
- holistic design of manufacturing processes for composite structures (Liquid Composite Molding (LCM), thermoforming, Automated Fiber Placement (AFP))
- multi-criteria optimization
- static & dynamic NVH (Noise, Vibration, Harshness)



SEMI-FINISHED COMPONENTS

- fiber-reinforced polymers, multilayer composites, core materials, sandwich structures (also in combination with other materials, e.g. metals)
- prepregs, laminates
- horizontal and vertical pilot impregnation plants
- radiation-curable thermosets (UV, microwave, e-beam)

STRUCTURAL TESTING AND ANALYTICS

- testing and characterization of polymers and composites
- development and advancement of special characterization methods (e.g. Optical Crack Tracing (OCT) for determination of fracture toughness)
- fire smoke toxicity (cone calorimetry, limiting oxygen index)

