



## SKZ – DAS KUNSTSTOFF- ZENTRUM

### Foundation

- 1961

### Turnover

- 27.5 million €

### Employees

- 308

### Branches

- Partner to the plastics industry

### Key products/services

- Testing and Certification of materials and products
- Basic and advanced training of professionals
- Research and Development (materials, processing, testing, joining, environmental impact)
- Certification of management systems



# SKZ

## Das Kunststoff-Zentrum

### Company

SKZ started more than 50 years ago at a time when polymers had been discovered as materials for the future. As today's biggest institute working on plastics in Germany, SKZ offers practical solutions dedicated to meet your needs.

- The research and development is focused on the entire production chain, starting with material development, through processing and joining, to the evaluation of component properties and sustainability.
- SKZ supports your product policy and provides valuable aspects for your markets by means of quality testing, quality inspection and certification.
- With more than 11 000 participants a year SKZ is the European market leader in education, professional training and knowledge transfer in the field of plastics.
- By certifying management systems SKZ promotes high efficiency and economic success of your company.

For several years now, SKZ has been working on the topic biopolymers. Here are some of the relevant subjects:

### Biopolymers

The synthesis of new biopolymers is not always necessary, because already known and available biopolymers can be optimized sufficiently, for example by addition of different additives or fillers. Beside raw material selection and formulation development, our focus lies on the development and optimization of necessary process technologies as well as on the production and characterization of materials and parts according to national and international standards. For these purposes there is a wide range of state-of-the-art compounding and extrusion equipment available in SKZ, such as single screws, co- and counter-rotating twin screws, planetary roller, Buss kneader or ring extruder. Besides this, the complete understanding of all technical relationships and interactions around the injection moulding of biopolymers was achieved (e.g. in the field of hot runner systems). For this, there are two modern pilot plants with a total of five injection moulding machines including an injection moulding compounder available. Main topics particularly deal with part development, tool technology, process optimization and quality assurance.

### Wood Polymer Composites

For more than ten years SKZ research and development division has been working on Wood Polymer Composites (WPC). The influence of formulation and processing parameters on properties of WPC has been studied extensively. It was also analysed how different processing techniques (direct extrusion, extrusion from compounds and injection moulding) influence the properties of WPC with a similar composition. In addition, joining as well as long-term tests such as weathering of WPC were performed.



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### Testing

To distinguish between biobased and conventional plastics, the amount of radioactive carbon isotope  $^{14}\text{C}$  has to be detected. Since last year SKZ can offer in cooperation the determination of  $^{14}\text{C}$  by Accelerator Mass Spectrometry. This method is described in standard ASTM D 6866 and gives a precise ratio of the carbon-isotopes, which defines the biobased content of a product. In addition, the following tests can be performed in the certified SKZ – laboratories:

- Test methods for characterisation of WPC products according to EN 15534-1, -4 and -5
- Tests according to Quality and Testing Specification issued by Quality Association for Wood-based Panels, registered association to achieve a quality mark for terrace deckings (initial type test and third-party supervision)
- Product characteristics and general test methods for WPC according to Önorm B3031; Önorm B3032

Furthermore, SKZ supports companies in order to create and perform testing programs to achieve inspection approvals for statically relevant applications. These tests comprise:

- Tests of material properties, e.g. mechanical and thermal properties, resistance tests
- Tests of product properties, such as water absorption, flexural behavior, long-term resistance, thermal behavior, impact, slip, chemical resistance as well as weathering resistance

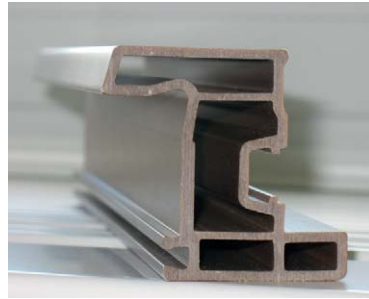
### Sustainability assessment

Biopolymers and WPC are facing particularly high expectations in terms of their sustainability performance. To meet them, it is crucial to have reliable data and comprehensive life cycle analyses for the materials, processes or products. With more than ten years of experience in sustainability assessment SKZ has the competence to provide you with:

- Life Cycle Assessments and Carbon Footprints
- Environmental Product Declarations, EPD, (EN 15804)
- Energy efficiency analyses

### Training and knowledge transfer

Professional training and comprehensive knowledge are individual and company key factors for a successful future. In SKZ's training centres professionals and managers are trained e.g. in the fields of WPC. The seminar „Wood Plastic Composites“ has been conducted once a year since 2007. The event has a workshop character, i.e. topics are discussed intensively with participants in small groups. Experts discuss markets, raw materials, processing and applications of WPC. Besides, the symposium „Processing of Biopolymers“ has been conducted in collaboration with Institute for Bioplastics and Biocomposites from Hannover since 2013. The aim of the conference is to report about current developments and trends regarding the processing of biopolymers.



#### Contact

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