

Flame retardant finishing of functional materials for polymer composites

To obtain flame retardancy for various applications, it is necessary to incorporate high amounts of flame retardants into a polymer system. The good flame retardant properties result in reduced strength and impact resistance. For many applications, the mechanical properties are important, e.g. for lightweight construction, metal replacement, etc. The mechanical properties are achieved by reinforcing materials such as glass or carbon fibers. In the ZIM project FlamZation, synergies between PIN surface modifications and classical fillers will be developed with the aim of meeting the fire safety requirements of the different application areas and eliminating the disadvantages of a significant degradation of the mechanical properties.

Within the FlamZation research project, DTNW is using its experience to develop flame retardant systems as additives for various polymers. In combination with the desired additive, the flame retardant requirements for different applications should be achieved without losing mechanical properties.

The production of the flame retardants, both in laboratory scale for screening tests, as well as the scale-up into pilot plant or production scale is implemented by abcr GmbH. As a producer and trader of specialty chemicals, the company has a large know-how in the field of silanes and siloxanes.

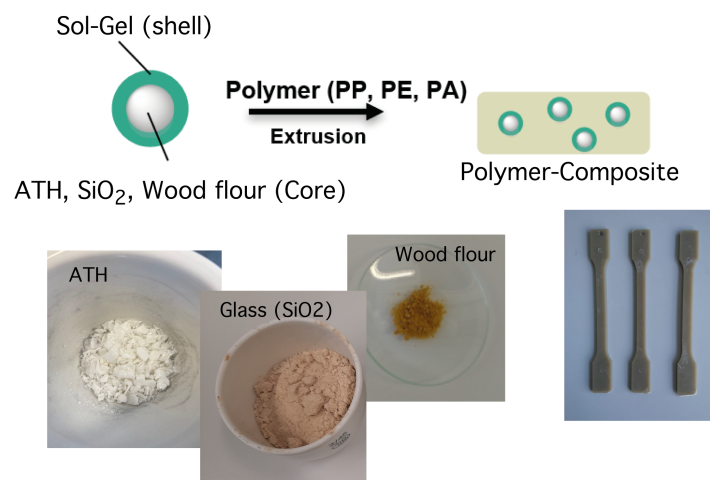
Material development is carried out by the non-profit KIMW Forschungs-GmbH, which contributes its expertise in compounding, injection molding processing and material validation.

The upscaling behavior of the new material systems is qualified by BADA AG. BADA AG is also able to test newly developed material systems according to UL standards in accordance with the requirements profile.

As a user of electronic components, Weidmüller will take over the material qualification on the basis of a benchmark, which is intended to show the potential of future material developments.

In addition to the technical base polymers, fillers and reinforcing materials, natural fibers will also be included in the consideration. In cooperation with the company ENTEX Rust & Mitschke GmbH, investigations will be carried out using a planetary roller extruder in order to compare the advantages and disadvantages of the process technologies twin screw extruder vs. planetary roller extruder with regard to the incorporation of the novel flame retardant systems.

The project partners thus represent a powerful project consortium across the entire value chain for the realization of new flame retardant polymer composites for applications in the E&E and building materials sectors.



Project Information:

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Gemeinnützige KIMW Forschungs-GmbH
abcr GmbH
ENTEX Rust & Mitschke GmbH
BADA AG
Weidmüller Interface GmbH & Co KG
Kontakt DTNW: Dr. Thomas Mayer-Gall, Tel.: +49-2151-843-2015, e-Mail: mayer-gall@dtnw.de