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## Cyclic Studies of the Interphase in PP-Glass Composites

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In composites, the interface between the components is essential for the mechanical properties. By using a suitable sizing or finish of the fiber, the interface may be varied, e.g. by suppressing or promoting transcrystallisation of a thermoplastic matrix. In the latter case, a three dimensional “interphase” with properties differing from those of the bulk matrix is formed.

Polypropylene-glass fiber composites with a number of different sizings and different PP chain lengths are prepared as single fiber model composites and studied in quasistatic pull-out tests or cyclic fatigue tests. Static tests permit insights in the interfacial characteristics such as shear strength and modulus. Dynamic tests on these model composites can be used to study the damage behaviour and the nature of dissipative processes. An AFM characterisation of the pulled out fibers provides supplementary information. Additionally, the dynamic behavior of bulk composites is characterized.