

Technical articles

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New regulatory horizons for TPE in contact with drinking water 185

Access to clean drinking water is a human right. In December 2020 the European Parliament adopted the revised Drinking Water Directive (DWD). The new directive will guarantee safer access to water for all Europeans. At the same time, it will ensure the highest standards in the world for drinking water. It aims at improving consumers' confidence in the safety of tap water and allows for access to safe drinking water for all.

S. ZEPNIK, A. SIMNICK, M. LAUTER

Essential aspects in 2K injection molding with TPU as soft component 191

Multi-component injection molding technologies are gaining continuously increasing interest and market importance. They combine different materials and functionalities in one product and offer different part and design options, a high degree of automation, and high output rates in constant quality [1, 2]. Thus making it an economical solution over other established joining technologies such as welding or adhesive bonding. Multi-component products include versatile material combinations such as plastic-metal, plastic-glass, and plastic-plastic. Hard/soft combinations based on hard thermoplastics and one or more soft thermoplastic elastomers (TPE) are omnipresent in daily products and play today a key role for nearly all industries. This article aims to give a comprehensive overview of the adhesion performance of thermoplastic urethane elastomers (TPU) in various TPU-based hard/soft combinations using different engineering plastics as hard components. The influence of TPU hardness and TPU type as well as the influence of the 2K injection molding process on the adhesion are shown and discussed. Furthermore, the influence of the compound composition or additivation on the adhesion of the TPU is also addressed.

M. BRÄUER, K.SCHNEIDER

Experimental aspects of the determination of bond strength by means of peel test 198

Hard-soft composites are increasingly used as basic building blocks for lightweight construction. Their use is limited by the composite adhesion. Different methods for characterizing composite adhesion are presented and the determined material parameters are evaluated. For this purpose, results are presented for three different two-component hard-soft composites: sheet steel-TPU, PC-TPU and PA6/GF-TPE. The adhesion strengths are discussed with respect to the different chemical composition of the components and their influence on the adhesion mechanisms.

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