

Technical articles

L. DAMMER, M. CARUS

The EU Circular Economy Package and Plastics Strategy 182

Very few policy initiatives in the last few years have received as much public attention as the recently adopted Single-Use Plastics Directive – also known as the single-use plastics ban. This legal act, however, is only one piece of the puzzle with which the European Union is attempting to curb plastic littering and transform the European economy into a circular one. The following article gives an overview on the EU Circular Economy Package and Plastics Strategy and explains what they mean for bio-based plastics.

J. BERTRAND

New modified silica for optimized tire tread development 186

This article shows ways to significantly improve both the technical performance and the processing of tread compounds and to reduce resource consumption by using optimized surface-modified silica.

D. SCHRAMM, T. SCHMID

Access to compound extrudability by using a 5-finger die – Application of standardized test formulations 192

The work presented here proposes and describes a lab method to get access to the extrudability of compounds by means of lip shaping: the use of a 5-finger die, where the five lips have an increasing degree of difficulty, and also represent variety thin profile lips in sealing profiles.

S. ALOUI, W. WURPTS, H. DECKMANN

Methods for simultaneous dynamic-mechanical and dielectric analysis – Part 3: Dielectric investigation of elastomer composites under dynamic deformation 197

Electrically conductive fillers can be used as "markers" for condition monitoring of elastomer components, provided the exact correlation between the mechanical and dielectric properties of the material is known. Part 3 of this series of three articles on simultaneous dynamic-mechanical and dielectric analysis deals with the influence of dynamic-mechanical deformation on the dielectric spectra of a carbon black-filled styrene-butadiene rubber (SBR) under dynamic-mechanical deformation.

CH. HOPMANN, C. ZIMMERMANN

Efficient testing and development of a visco-elasto-plastic material model for thermoplastic elastomers 201

Thermoplastic elastomers (TPE) show a strong non-linear material behaviour in combination with a stress softening after initial loading and a high residual deformation after unloading. This material property depends on the stress state as well as on the temperature. In order to consider this characteristic during the design and development of TPE parts, suitable material models have to be developed.

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