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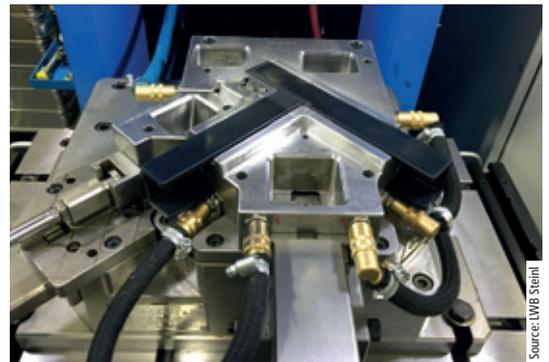
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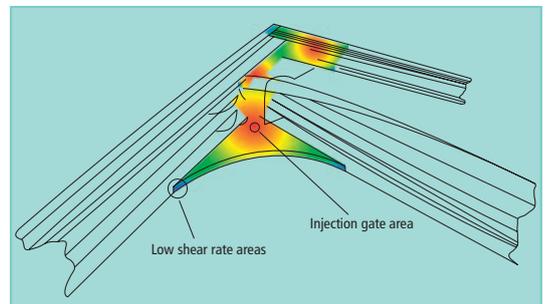
Thermoplastic vulcanizates (TPV) belong to the family of thermoplastic elastomers (TPE). Important areas of use for these materials are the automotive and transportation sectors. Typical applications in these fields include corner molds, end caps or sealing parts co-molded onto cross-linked EPDM rubber seals. This paper discusses the use of AlfaterXL TPV grades from Albis Plastic for automotive 2K molding applications with special focus on adhesion to EPDM. As these parts are usually exposed to a broad temperature range a very good ageing resistance under different temperatures is required. This paper will therefore also present the results of accelerated ageing tests.



D. KRUEGER, A. NAECK

TPE for corner moldings and glass encapsulation. Current developments..... 168

Good adhesion, excellent sealing and sliding properties, a safe and tight encapsulation, and a perfect surface appearance throughout a car’s life cycle: the requirements for thermoplastic elastomers (TPE) for corner molding of EPDM and TPE door sealings and glass encapsulations are challenging. Compared to thermoset rubber, TPEs have multiple advantages such as ease of processing, short cycle times, and no flockmelting, which made them an industry standard for this kind of applications. Allod supplies a range of TPE grades for these applications under the brand name Allruna.



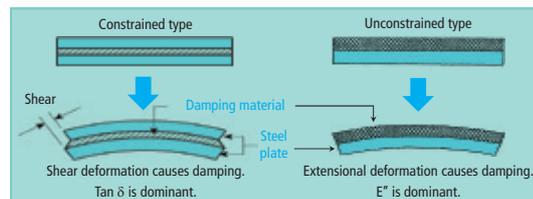
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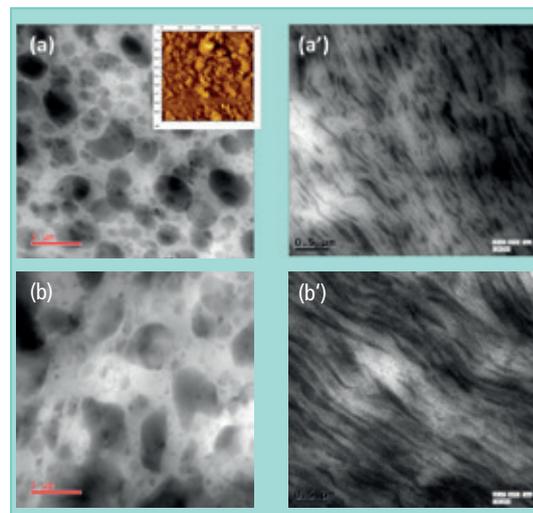
Hybrar is a triblock co-polymer having polystyrene end blocks and a vinyl rich poly-diene mid-block. Due to its peak $\tan \delta$ near room temperature, the material exhibits exceptional vibration damping and shock absorption properties. When blended with Hybrar, the damping properties of a polystyrene or polyolefin can be greatly enhanced. This results in novel compounds that meet the demand of the automotive industry for high performance damping materials, e.g. for applications in e-cars. This paper discusses the use of Hybrar for high performance automotive damping applications.



S. SAHA, A. K. BHOWMICK

Smart TPEs based on PVDF and HNBR. Processing and structure-property relationship 178

Novel smart thermoplastic elastomers (TPE) with very high extensibility were prepared by blending polyvinylidene fluoride (PVDF) with hydrogenated nitrile butadiene rubber (HNBR) at an appropriate ratio and their processing-structure-property relationship was investigated. Although the rubber phase was found to be dispersed in the matrix of PVDF for all compositions, morphology was shear sensitive and changed significantly after each processing step. Droplet like structure was observed after the mixing in an internal mixer and compression molding, which changed to the lamellar structure after milling and injection molding. The compression molded sample exhibited very high extensibility (~ 1,600 % elongation at break for 30/70 PVDF/HNBR blend) and a tensile strength of ~ 6 MPa due to the formation of a strong interface. The elongation at break was much higher than any of the TPEs reported so far. Theoretical calculation of rubber particle size was also in agreement with the experimental observation. Dissipative particle dynamics simulation was run to capture the morphology, where HNBR chains were more sensitive to the shear force, than the PVDF chains. The electromechanical sensitivity of the blend was 14.3 MPa-s, much better than the existing reported elastomeric actuator as well as pristine PVDF. Dynamic vulcanization gave further improvement in tensile strength and tension set properties.



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