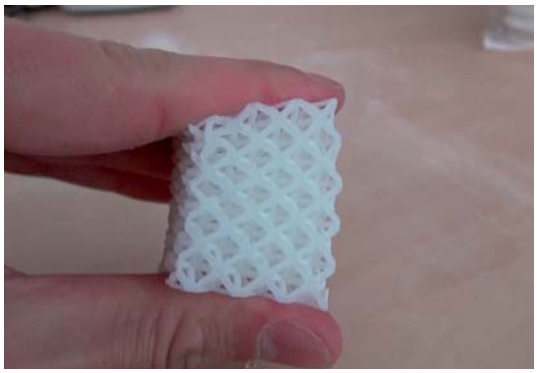
TPE News

Additive preparation processes impress lay people just as much as the professionals. In contrast to processes which remove materials, such as drilling, cutting and grinding, through additive fabrication, parts come in to being layer by layer. It is perhaps this phenomenon, which reminds us of natural growth, which gives such an engaging character to processes like 3D printing, stereolithography and Fused Deposition Modelling. At the same time, those technologies appear trend-setting; the idea of watching complex components appear overnight out of a CAD drawing on a relatively simple machine, using only just as much raw material as the part needs to occupy its own volume, from a material- and energy-efficiency point of view, shows the way.
As soon as manufacturers realise that additive preparation dispenses with the need for moulds and tooling and offers virtually limitless design freedom, the revolution in plastics processing may no longer be hindered. Economic cycles will become more regional, decisions about siting of raw-material production units will have to be taken differently, and the development of the production of goods will be democratised [1].



This article provides an overview of the tailor-made adjustment of thermoplastic vulcanisates (TPVs), focussing on the special demands of more sophisticated products, for example in contact with food and potable water as well as for medical devices. The legal requirements in Europe for food contact applications with regard to the new topics in the EU 10/2011 regulation for "Plastic Food Contact Materials" and the implication of the German recommendations by the Federal Institute for Risk Assessment (BfR) are outlined. Furthermore, a description of the Food and Drug Administration (FDA) regulations and the escapers for food contact applications with TPVs are provided together with an overview of the requirements for contact with potable water. The article continues with the impact of limited raw material selection on food contact applications and how the excellent properties of TPVs are nevertheless realised for these grades. Following this, examples for TPV applications with food contact are presented and the advantages that TPVs offer for these applications. Finally, the demands for TPV materials when used for medical devices are outlined.

Since the introduction of TPEs in the 1960s on the market there is continuous growth in applications and market penetration. The market for medical and pharmaceutical applications, however, was approached reluctantly. Main reasons for this are the by nature conservative behaviour of this market area and the immense costs involved for changing materials for existing products. In the last decennium the acceptance of new materials increased considerably, also but not mainly, initiated by the widely grown suspicion of softened PVC.

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