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Polypropylenes; 3.3 Processing; 3.3.1 Extrusion of thermoplastic foam sheet
3.3.2 Melt rheology suitable for foaming
3.3.3 Stages in closed-cell foam development; 3.3.4 Post-extrusion shrinkage; 3.3.5 Oriented PP foams - Strandfoam; 3.4 Foam crystallinity and crystal orientation; Summary; References; Chapter 4. Bead foam microstructure and processing; 4.1 Introduction; 4.2 Processing; 4.2.1 Bead preparation; 4.2.2 Steam moulding; 4.2.3 Dimensional stability post-moulding; 4.3 Microstructure; 4.3.1 Bead shape and fusion; 4.3.2 Density variations in large mouldings; 4.3.3 The effects of processing on properties; 4.3.4 Bead shape variation; 4.3.5 Microstructural models
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5.5 Testing products with a density gradient; 5.5.1 Tensile or compression tests on EPS; 5.5.2 Bend tests on EPS; 5.6 Test equipment; 5.6.1 Compressive impact; 5.6.2 Tensile or shear impact; 5.6.3 Creep; 5.6.4 Compression set; 5.6.5 Poisson's ratio; 5.6.6 Humidity and temperature control; References; Chapter 6. Finite element modelling of foam deformation; 6.1 Introduction; 6.1.1 FEA packages; 6.1.2 Static vs. dynamic FEA; 6.1.3 FEA material models; 6.2 Elastic foams; 6.2.1 Curve fitting vs. strain energy functions; 6.2.2 Strain energy function for rubbers
6.2.3 Ogden strain energy function for elastic foams

Sommario/riassunto

This handbook explores the applications of polymer foams, and the properties that make them suitable for so many applications, in the detail required by postgraduate students, researchers and the many industrial engineers and designers who work with polymer foam in industry. It covers the mechanical properties of foams and foam microstructure, processing of foams, mechanical testing and analysis (using Finite element analysis). In addition, it uniquely offers a broader perspective on the actual engineering of foams and foam based (or foam including) products by including nine detailed
