Comprehensive Evaluation of Microstructure Properties of Polyurethane Foams

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1 Abstract

It is well known that sound absorption coefficient of porous material is strongly dependent on the micro-structure of porous material. In this work, we evaluate a comprehensive list of micro-structure properties such as cell size & distribution, open porosity, closed cell fraction, closed face fraction and strut geometry of polyurethane foam. X-Ray tomography, mercury porosimeter, scanning electron microscopy (SEM) and other techniques available through the Dow MobilityScience™ platform are utilized for this evaluation. A variety of commercially available chemicals are formulated and foams are made in lab at different densities; the micro structure properties and acoustic absorption performance of such foams is discussed in this work.