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Polymeric foams for sandwich constructions - Structure property correlations and applications

This study presents an introduction to polymeric foams their types, classification and examples. Their cellular structure, architecture and structure property correlation will be discussed in detail. Novel processing methods and cost effective production techniques to achieve superior performance will be highlighted. An interesting observation of the Poisson paradox in foams will be explained based on the density, cell size and wall thickness of various material candidates. The mechanisms contributing to the observed behaviour of conventional and

unconventional foams will be discussed. Examples of foams applied in thermal and acoustic insulation, high stiffness and strength requirements and impact resistance will be provided. Smart foams and nanocellular foams, the new entrants in the field, will be introduced to the community. An overview of the applications in sandwich composite constructions, multilayer applications, volumetric efficiency applications, metal organic frameworks and rockwool /polymer hybrids will be provided.

Biography

Padmanabhan Krishnan is currently working on the dynamics of composite materials. He received his PhD from IISc, Bangalore, and has rich post-doctoral experience from the USA and Singapore. He has more than 260 publications international journals. He administers & guides research. He is a life fellow of four organizations and a recipient of many national and international awards.

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