

## Effect of Depressurization Rate in Batch Foaming of Porous Microcellular Polycarbonate on Microstructure Development

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**Abstract :** In this article, a focused study has been performed to comprehend the influence of change in depressurization rate on microcellular polycarbonate foamed morphological attributes. The depressurization rate considered in this study were 0.5, 0.05, 0.01 and 0.005 MPa/sec and the physical blowing agent utilized was carbon dioxide owing to its high solubility in polycarbonate at room temperature. The study was performed on two distinct saturation pressures, i.e., 3 MPa and 6 MPa to understand if saturation pressure has any effects on it. It is reported that with increase in depressurization rate, a higher amount of thermodynamic instability was induced which resulted in generation of larger number of smaller sized cells. This article puts forward an understanding of how depressurization rate control could be well exploited during the batch foaming process to develop high quality microcellular foamed products with exceedingly well controlled cell size.

**Keywords :** depressurization, porous polymer, foaming, microcellular

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