

## Surface-Quenching Induced Cell Opening Technique in Extrusion of Thermoplastic Foamed Sheets

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**Abstract :** In this article, a new technique has been developed to manufacture open cell extruded thermoplastic foamed sheets with the aid of extrudate surface-quenching phenomenon. As the extrudate foam exits the die, its surface is rapidly quenched which results in freezing of cells on the surface, while the cells at the core continue to grow and leads to development of open-cellular microstructure at the core. Influence of chill roll temperature was found to be extremely significant in developing porous morphological attributes. Subsequently, synergistic effect of blowing agent content and chill roll temperature was examined for their expansion ratio and open-cell microstructure. Further, chill roll rotating speed was found extremely significant in obtaining open-cellular foam structures. This study intends to enhance the understanding of researchers working in the area of open-cell foam processing.

**Keywords :** foams, porous materials, morphology, composite, microscopy, open-cell foams

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