

## عنوان مقاله:

Effect of Different Production Temperatures on the Mechanical and Morphological Properties of Polypropylene Foam

## محل انتشار:

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## نویسندگان:

A.R Albooyeh - Assistant Professor, School of Engineering, University of Damghan, Damghan, ۳۶۷۱۶۴۱۱۶۷ Iran

SH Eskandarzadeh - Undergraduate Student, School of Engineering, University of Damghan, Damghan, ۳۶۷۱۶۴۱۱۶۷ Iran

A Mousavi - Undergraduate Student, School of Engineering, University of Damghan, Damghan, ۳۶۷۱۶۴۱۱۶۷ Iran

## خلاصه مقاله:

The main purpose of this article is to investigate the influence of different foam production temperatures, on the flexural, structural, and morphological properties of polypropylene (PP) foam. Solid PP samples were prepared using the melt-compounding technique in a twin-screw extruder. In the next step, microcellular PP foam was produced in a batch process using supercritical carbon dioxide (sc-CO<sub>2</sub>) as the physical foaming agent. In order to optimize the foam production temperature, flexural test samples were saturated in a pressure vessel with sc-CO<sub>2</sub> at room temperature, saturation pressure of 40 MPa, and saturation time of 24 hours. Then, the pressure was released and samples were immersed in a glycerin bath, at different temperature of 155°C, 165°C, 175°C and time of 180 seconds. Scanning Electron Microscopy (SEM) was applied to assess the fracture surface morphology. The cell structure, cell size, and cell density of PP foam were investigated. Simultaneous examination of flexural results, SEM images and cell structure properties show that, the best temperature conditions of producing PP foam is 175°C.

## کلمات کلیدی:

Microcellular foam, Cell structure, Supercritical gas, Polypropylene foam

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