

### Preparation of microcellular polyolefin rubber(Engage)/clay nanocomposite foam in supercritical CO<sub>2</sub>

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In this study, we successfully generated polyolefin rubber(Engage) microcellular foam by using supercritical carbon dioxide as a physical blowing agent. The Engage/clay nanocomposite were prepared by blending a organoclay(Closite 20A) with glycidyl methacrylate grafted Engage(Engage 8003) in a Haake internal mixer. From XRD analysis, it was found to form an intercalated nanocomposite. Foaming was performed with the neat Engage and its nanocomposite using supercritical carbon dioxide at 20MPa at 80°C.

SEM analysis showed that microcellular foam with cell size in the range of 5 – 20µm were produced. Obviously, the nanocomposite exhibited smaller cell size and large cell density in comparison to neat Engage suggesting that the dispersed silicate particles act as nucleating sites for cell formation.