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**A NOVEL ROUTE TO DEVELOP HIGHLY EXFOLIATED POLYMER/ORGANOCLAY
NANOCOMPOSITES USING SUPERCRITICAL CARBON DIOXIDE ASSISTED TWIN SCREW
EXTRUSION**

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In this paper a novel method to develop highly exfoliated polymer/organoclay nanocomposites using a twin screw extrusion with high L/D assisted with supercritical carbon dioxide(scCO₂) is presented. Wide-angle X-ray diffraction(WAXD), transmission electron microscopy(TEM), thermogravimetric analysis(TGA), rotational rheometry were used to characterize the polymer/organoclay nanocomposite. It is revealed that scCO₂ is effective in improving the exfoliation of the nanocomposites. The effects of scCO₂ injection scheme, operation condition on the exfoliation of the nanocomposites are discussed.