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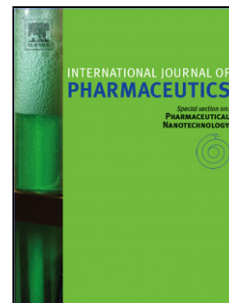
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A Novel Tool to Standardize Rheology Testing of Molten Polymers for Pharmaceutical Applications

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Graphical abstract

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Abstract

Melt rheology provides information about material properties that are of great importance for equipment design and simulations, especially for novel pharmaceutical manufacturing operations, including extrusion, injection molding or 3d printing. To that end, homogeneous samples must be prepared, most commonly via compression or injection molding, both of which require costly equipment and might not be applicable for shear- and heat-sensitive pharmaceutical materials.

Our study introduces a novel vacuum compression molding (VCM) tool for simple preparation of thermoplastic specimens using standard laboratory equipment: a hot plate and a vacuum source. Sticking is eliminated by applying **polytetrafluoroethylene (PTFE)** coated separation foils. The evacuation of the tool leads to compression of the sample chamber, which is cost-efficient compared to conventional methods, such as compression molding or injection molding that

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