

Abstract Submitted
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Characterization of the Polymorphic Composition of a Pharmaceutical: Chlorpropamide ELIZABETH STOCKTON, LAUREN CHUDEJ, Texas Women's University, BRYAN BILYEU, WITOLD BROSTOW, University of North Texas, LAPOM-TWU TEAM — Chlorpropamide is polymorphic. It exhibits three principal crystal forms, depending on crystallization conditions, but can transform from one form to another under certain conditions. Since different crystal forms affect both industrial processing and pharmacological activity, characterization of the crystal form or forms is very important in dosing and storage. Since the melting points of the three crystal forms of chlorpropamide are very close, but the enthalpies are very different, differential scanning calorimetry (DSC) is an obvious choice to identify the melting peaks and quantify the energy associated with each. The three pure crystal forms were prepared and the melting points and enthalpies of fusion determined. Samples cooled from the melt were found to be semi-crystalline, with a large amorphous component. However, with annealing, the amorphous component reorganized into a crystal form. Mixtures of two crystal forms were prepared and scanned for melting points. The mixtures showed two distinct melting points for the two components, from which the melting points were determined for identification. The enthalpy of fusion was calculated to determine the relative amount of each crystal form.

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