

APPLICATION OF HIGH THROUGHPUT SCREENING TO THE STUDY OF THE CONFORMATIONAL POLYMORPHS OF "ROY"

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Abstract. At least six distinct polymorphic forms of "ROY" (5-Methyl-2-[(2-nitrophenyl)amino]-3-thiophenecarbonitrile) have been discovered making it one of the most colorful and thoroughly characterized examples of polymorphic systems known to date.^{1,2} The system demonstrates the property of concomitant polymorphism, making control of its crystallization challenging. While ROY is an intermediate, it serves as a reminder of potential for challenges one might experience in final product crystal form control. The purpose of this study was to use automated "high throughput" crystallization screens to see if conditions could be determined that would provide a single polymorph reproducibly. It is also the objective of the study to determine the frequency of observation of the individual polymorphs and relate this to the thermodynamic stability of the observed crystalline forms.