A study on the mechanism and hydrated behavior of an API (active pharmaceutical ingredient) in crystallization as monitored in-situ by liquisonic, FBRM and PVM

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Polymorphism and pseudo polymorphism, which have directed, significant affects on the product performance, are known as the popular phenomenon in a large number of pharmaceuticals or active pharmaceutical ingredients (API). The importance of understanding about the crystallization of polymorphs is clear.

In this study, the cooling crystallization of an API was carried out. The mechanism of crystallization, growth of crystal, crystal size distribution of particles, hydrated behavior of researched material via the in-situ measurements such as liquisonic FBRM and PVM were introduced. Additionally, different hydrated forms were identified by off-line techniques including: XRD, DSC.

This research is such as an example for mechanism study and controlling of pseudo-polymorph by combination of the in-situ measurements and offline characteristic techniques applied in the cooling crystallization. It aids to know how to generate the desired hydrate form, crystal shape, crystal size of studied API.