

*Co-crystal: A simple term with many interpretations*

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The history of co-crystals can be traced at least back to Wöhler's work in the 19th century on quinone and hydroquinone, but as a readily identifiable research area, the synthesis, characterization and applications of co-crystals, it has only really been brought to the forefront in the last twenty-five years or so. An important driving force behind the propagation of such research is clearly the recognition that the crystal structure of any substance ultimately determines many fundamental physical properties of that particular material, e.g. thermal stability, hygroscopicity, density, and mechanical strength. Thus, the ability to make new solid forms of a compound can facilitate the design and synthesis of a range of new materials with improved performance and tunable properties.

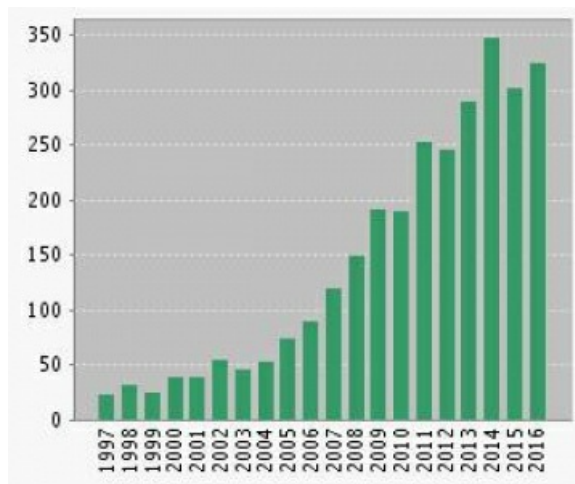
The number of published papers dealing with some aspect of co-crystals of small molecules has risen dramatically in the last few years and there are no signs yet to indicate that the field has become saturated. There is considerable interdisciplinary agreement that fundamental studies of co-crystal design and synthesis can offer very valuable and transferable insight that will enable new high-value applications of co-crystal technology. In contrast, there is somewhat less agreement on exactly what should be understood by the term 'co-crystal'. It is clear that several different operational 'definitions' of the term are in place at the moment and the question is whether this seeming lack of clarity and agreement is important, detrimental, or relevant to the field as a whole. The purpose of this presentation is not to offer a definition of the term, but instead to draw attention to some of the factors that have contributed to making co-crystal terminology a rather complex issue.

[1] Aakeröy, C.B. (2015) *Acta Crystallogr. Sect. B*, 71, 387-391.

[2] Aakeröy, C.B. et al. (2015) *IUCr*, 2, 498-510.

[3] Aakeröy, C.B. & Salmon, D.J. (2005) *CrystEngComm*, 7, 439-448.

Publications on the topic of "co-crystal" from chemistry, crystallography, and materials science journals (Web of Science<sup>TM</sup>, March 2017)



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