

The School of Pharmacy and Pharmaceutical Sciences

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'Colloidal glasses and gels – what's in it for me?'

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Abstract

Colloidal suspensions and emulsions form long-lived, metastable states known as glasses (when the concentration is high) and gels (when the concentration is low). These states are encountered ubiquitously in a very wide range of industrial processes and products - paints, mayonnaise and the 'green body' used in ceramic manufacturing are just three examples. The stability (or otherwise) of these states control the shelf life of many products, and their flow properties are almost always vital in determining the ease of processing and application. Modern colloid physics is beginning to be able to give a unified description of the occurrence of these states, and new tools are enabling the study of their flow properties in completely new ways. I will give an introduction to this emerging unified description of colloidal glasses and gels, and show how fast confocal microscopy is giving a picture of their flow at unprecedented space and time resolutions.