Poster Presentation

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Tuning Polymorphs using Pressure-Transmitting Media

I. Hutchison[1], A. Delori[1], W. Marshall[2], I. Oswald[1]

[1]Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde, Glasgow, UK, [2]ISIS Neutron and Muon Source, Science and Technology Facilities Council, Rutherford Appleton Laboratory, Harwell Oxford, Didcot, Oxon, UK

The role of pressure-transmitting media is to ensure that uniaxial pressure is translated into a hydrostatic pressure. Many of these media are useful to high-pressure scientists for a limited pressure regimen out with which the media becomes non-hydrostatic in nature. For most pressure studies the role of the media is purely to apply the pressure however in recent years the media has been used to dissolve compounds of interest before precipitating these out by the application of pressure. Previous work of Fabbiani et al gave a wonderful example of how changing the concentration of the solution and hence the pressure of precipitation can isolate new polymorphs of the pharmaceutical material, piracetam.[1] It is known that the structural changes that occur in a material may depend on the pressure that is applied i.e. phase transition may not occur under hydrostatic regime whereas they will if put under non-hydrostatic environments. Our present studies have been exploring the role of pressure in the polymerisation reaction of simple systems and structurally characterising the materials preceding these events.[2] These studies have provided extra structural insight into the previous Raman studies.[3] We present here a case study where the role of the pressure-transmitting medium extends beyond just application of pressure but where, depending on the medium chosen, new phases can be observed. This work has been conducted at the Pearl beamline at ISIS Neutron Facility in UK.

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