



Pan Africa Chemistry Network Seminar Series 2017

Polymers, Renewables and
Supercritical Carbon Dioxide

Speaker: Steve Howdle
University of Nottingham, UK
School of Chemistry
Thursday 20th April 2017
Time: 3 – 4 PM
School of Physical Sciences Board Room
University of Nairobi

Polymers, Renewables and Supercritical Carbon Dioxide

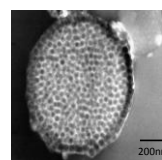
Prof. Steve Howdle

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Steve Howdle is delighted to present the Inaugural **Pan Africa Chemistry Network Kenya Seminar Series**, co-hosted by the Royal Society of Chemistry and the Department of Chemistry, University of Nairobi.

Steve and his research group are excited about making new polymers from renewable resources and waste rather than from oil and to do this they use clean and green chemistry.

He has utilized the ability of $scCO_2$ to plasticise both monomers and polymers to effect polycondensation and ring opening polymerisations at much lower temperatures than is possible under conventional operating conditions. In some cases, these lower temperature operating conditions have opened up the opportunity to use enzymatic catalysts to yield valuable new polymeric materials. Additionally he will report on new approaches to creating polymers with a wide range of physical properties from waste natural materials such as terpenes.



*200nm Microparticle
demonstrating phase separated
structures from dispersion
polymerisation in $scCO_2$*

In addition, the team has exploited the unique properties of $scCO_2$ to create novel polymeric materials in a clean, solvent free and energy efficient approach. The low viscosity and high diffusivity of $scCO_2$ allows dispersion polymerisation to form a range of vinyl block co polymers with excellent control and showing unique phase separation on the nanoscale which could be utilized for energy or power applications. Steve's work has also been commercialized to develop new drug delivery devices through spin out company www.criticalpharmaceuticals.com

