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## Analysis of PLGA molecular weight and structure by the latest advanced multi-detector GPC systems

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**P**oly (D,L-lactide-co-glycolic acid), PLGA, is a copolymer of polylactic acid and polyglycolide. As a biodegradable and biocompatible polymer, it has found use in a number of medical devices such as grafts and sutures as well as in drug delivery applications. Drug delivery profiles will be dependent on the molecular weight, composition and structure of the polymer. Gel-permeation chromatography (GPC) is the most widely used tool for the measurement of molecular weight and molecular weight distribution of natural and synthetic polymers. Static light scattering detectors measure the intensity of light scattered by the sample as it elutes from the column. Since the intensity of the scattered light is proportional to the sample's molecular weight and concentration, they allow the direct measurement of the sample molecular weight independent of its elution volume. A viscosity detector can also be used as part of a GPC system to measure the parameter of intrinsic viscosity. In combination these data allow detailed structural information of a polymer to be generated in a single GPC measurement which can be compared with other samples in Mark-Houwink plots. In this paper, we analyzed different samples of commercially available PLGA to compare their absolute molecular weight from light scattering to those quoted with the product using Malvern's latest GPC/SEC system, OMNISEC. Structural differences between samples of different composition are clear. More detailed analysis of these parameters can be used to better control the end-properties of the PLGA and its release rate of drugs in delivery applications.

### Biography

Mark R Potheary has graduated in Biochemistry at the University of Bath and completed his PhD at the William Harvey Research Institute, part of the Queen Mary University. He has joined Malvern in February 2008 as a Technical Specialist for DLS and GPC/SEC in the UK and is now the Product Manager for GPC/SEC products in the Americas.

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