

Bio-based polymer research at CSIRO - what's new?



The state-of-the-art biodegradation facility at CSIRO Materials Science & Engineering in Clayton.

Sustainable polymeric materials is a major theme of research at CSIRO's Division of Materials Science & Engineering. Scientists at the Division's Clayton site are engaged in leading-edge research on a wide range of bio-based materials, such as starch, soy proteins, polylactic acid (PLA) and other polyesters, in blends, composites, and nanocomposites, including the biodegradation mechanisms of these materials.

A key achievement by this team is the patented starch-based technology developed through the CRC for International Food and Packaging, and which has now been commercialised through the spin-off company Plantic. A primary focus of the research is to develop new eco-friendly materials that have properties optimised to meet the requirements for applications including packaging, paper coatings, and engineering products. The use of these materials as degradable controlled-release vehicles, and methods of triggered biodegradation, are other areas also being investigated.

Chemical modification, blending, and nanocomposite formation methods have been applied to produce a range of new materials, leading to fundamental understanding of crystallisation behaviour and other key properties. The new state-of-the-art biodegradation facility at CSIRO is unique in Australia, and is in the process of being NATA-certified.

So, while biodegradation testing can already be conducted according to AS4736-2006 using this facility, it is expected that NATA-certified biodegradation testing to meet the specifications of both national and international regulatory and industry bodies will be available from early 2008.

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