

New sustainable polymeric materials are now being developed worldwide.

However, are they really sustainable?

It seems very admirable to use bamboo, waste pineapple leaves, algae and fish waste for new uses to replace other oil derived polymers as fossil fuel supplies become depleted. Other sources such as sugar and starch have been a matter of research for some time. ICI's Biopol, made from PHB (a bacterium), dates back to the 1990s but has been given a new lease of life in the 21st century. This continues a cycle of thinking about the future of sustainable polymers, perhaps also indicating ways of replacing single use plastics with more sustainable options.

The interest in the exploitation of semi-synthetic cellulosic based plastics stretches back into the mid-nineteenth century. Work on the degradability of semi-synthetics and biopolymers is becoming increasingly important, as witnessed by projects such as that undertaken at UCL (www.plasticwastehub.org.uk). Their results have shown that biopolymers need special environmental conditions to compost successfully and do not decompose in landfill very quickly. Many so-called biopolymers are mixtures of

natural polymers combined with more traditional polymers – so their recycling will not be a simple matter.

Lyocell has been an attempt to make a more sustainable fabric and this factor is increasingly used as a selling point by marketeers of clothing, with special labels added to the price labels. The production of bamboo in clothing is, unfortunately, not as sustainable as it might appear from their marketing, with the use of such toxic solvents as carbon disulphide by certain manufacturers.

Using natural polymers in a product, even if mixed with traditional polymers or produced by environmentally unfriendly means, is touted as kind to the environment and a selling point - what in the UK we refer to as "Green washing".

These developments raise the question of what will this mean for conserving and preserving this most fugitive class of materials (biopolymers) for museum collections? Some hard choices will have to be made. Will phantoms such as Helen Storey's "disappearing dress" be curated purely in photos and films as such items will be too difficult to preserve in permanent collections?