

## SUSTAINCOMP – Planning for a sustainable plastic future

***Sustainability in the plastics sector will become a more pressing issue in the future as legislation and public demand force companies to manufacture more environmentally friendly products. A European project has been developing alternative materials, production processes and even products like a composite bus seat which could, in time, replace oil-based plastic versions.***



© Fotolia, 2012

While oil-based plastic products have improved over the last 30 years, the nature of the raw material used in production means that the issue of sustainability has yet to be satisfactorily addressed.

The SustainComp project, financed by the EU's FP7 funding instrument, set out to develop a series of completely new wood-based composite materials – made up of several parts or elements – which could be used to create durable, inexpensive yet sustainable plastic products.

"If you're replacing something, you need to meet the demands of what you're replacing and that's what we have been trying to do," says project coordinator Mikael Ankerfors. "Oil-based products are good, but in time there will be more pressure to create sustainable materials which can do the same jobs – our composite wood fibres, bioplastics, and nanocellulose have shown real potential in this area."

By combining materials derived from natural sources, SustainComp has successfully addressed the sustainability question. Bioplastics and wood fibres are derived from renewable biomass while nanocellulose is simply wood fibre that has been carefully crushed into pieces, and then reformed into neatly woven nanoscale crystals and fibres. These can then be formed into a thick paste and shaped into any desired shape.

### **From composite bus seats to nanofoams**

One such form is the composite bus seat that SustainComp considers to be one of its main successes. "A wood-fibre biopolymer nanocellulose compound was created and rolled into a sheet on a traditional paper press which was then moulded into the frame of the bus seat," Mr Ankerfors explains. "The result is a cheaper, lighter, more environmentally friendly product with all the mechanical properties of the oil-based version."

The bus seat, produced by SustainComp partner Elatopoli Oy, is also a symbol of the cross-sector co-operation that SustainComp is promoting. "Our ambition is to bring the traditional forestry industry closer to sectors such as the automotive and electrical industries which use a lot of plastic," Mr Ankerfors says. With the European forestry sector under pressure due to its use of resources and the rising cost of its products, new market sectors are increasingly attractive, he adds: "If we can show that natural products can be used in traditionally plastic-dominated sectors, then both sides can benefit."

With legislation and public opinion likely to demand more sustainable products in future, car manufacturers and the consumer goods industry will look towards using more composite materials in their production processes. As existing machinery can be used to create composites with little adaptation, the costs associated with change would be minimal.

Others will also benefit. "Most plastics-part manufacturers are small and medium-sized businesses (SMEs)," continues Mr Ankerfors. "Including these in the chain will help them grow. Europe has identified SMEs as an area for increased growth and jobs and it is our hope that we can help to build a new sector in the plastics industry in which they can prosper."

With SustainComp also developing products such as nano-reinforced foams designed to replace styrofoams in the packaging and construction sector and nanostructured membranes with the potential for small-scale liquid applications in the medical field, there is significant potential for widespread composite material use in many industrial sectors in the future.

**Further information**

**See also**

**Project web site:** <http://www.sustaincomp.eu>

**Project information on CORDIS:**

[http://cordis.europa.eu/projects/rcn/89321\\_en.html](http://cordis.europa.eu/projects/rcn/89321_en.html)

**Contact(s)**

Unit A1 - External & internal communication,  
Directorate-General for Research &  
Innovation,  
European Commission  
Tel : +32 2 298 45 40

View the article online:

[http://ec.europa.eu/research/infocentre/article\\_en.cfm?id=/research/star/index\\_en.cfm?p=ss-sustaincomp&item=All&artid=28793](http://ec.europa.eu/research/infocentre/article_en.cfm?id=/research/star/index_en.cfm?p=ss-sustaincomp&item=All&artid=28793)