

Packaging interest in Swan nanotubes

Several packaging companies are interested in using UK-manufactured carbon nanotubes in market applications.

Thomas Swan, a specialist chemical manufacturer, has been selling research samples of nanotubes since April 2004, in conjunction with Cambridge University. Its pilot plant can produce 6kg of purified material per month.

'There are three major areas where nanotubes can benefit packaging: conductivity, thermal properties and strength,' says Harry Swan, CEO.

'I believe that strength benefits are further down the line, but in the short-term we will see nanotubes being used in antistatic packaging for electrical equipment.'

Thomas Swan carbon nanotubes



Source: Thomas Swan

Swan says that, should development go well in 2006, the company's nanotubes could be used in commercial applications next year.

The nanotubes could also be used in RFID applications, and Swan says he would be delighted to work with companies interested in that area. The company has also had interest from the composites, electrical and fuel cell markets.

Most of the company's customers are in Europe, says Swan, although some are US-based, and the East is a growing market.

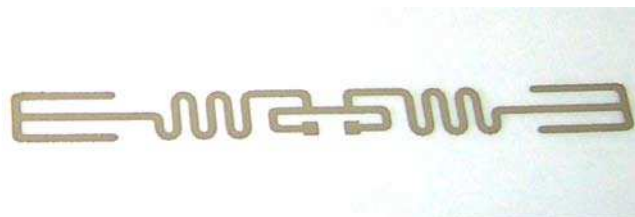
The company is continuing to develop the materials, and is particularly concerned with improving their dispersion in host materials – according to Swan, the number one problem with carbon nanotubes.

Swan believes that his company has an advantage over other nanotube producers because of its history as an established chemical company since 1926, having solid experience in managing product quality and consistency.

Nanocoating could add scratch resistance to packaging

High-end goods packaging, which needs a pristine

RFID antenna printed on desktop inkjet printer



Source: Cima NanoTech

appearance, could benefit from a new scratch-resistant nanocoating.

Ottawa, Canada-based CG2 Nanocoatings has developed the technology, and is in early-stage talks with a number of companies about bringing the product to market. One area of interest is consumer electronics.

'We've spoken to a couple of large companies,' says Amlan Gupta, president and co-founder. 'To a certain degree our approach has been to focus on the larger companies, as they have the technical expertise and resources to find and develop applications for the technology.'

Gupta predicts that the product will be commercialised in the second half of 2007, and adds that CG2 is very open to approaches from smaller companies that have proposals for niche applications.

The anti-scratch coating is made of ceramic nanoparticles, and has been tested on PMM (polymethyl methacrylate). 'We have the feeling it could be adapted for any standard polymer-type

substrate,' says Gupta. The coating is virtually see-through, and is between 100–150nm thick, although more layers can be added if required.

Other advantages include low-porosity and ease of processing. Gupta says the cost of lab materials is around \$40–50 to cover between 4–8m², but that as production was scaled up, more efficient processing would mean reduced costs.

CG2 works on a technology licence business model, and would not manufacture the coating itself.

Gupta says that the company is also working on using carotenes to create nanocomposite polymers, which show attractive thermal and mechanical enhancements.

Companies invited to UMass nanotech consortium

In two weeks the University of Massachusetts Amherst (UMass) will invite companies to get involved in the research and development of nanotechnology at its first industry presentation.