

GRENOBLE ECOLE DE MANAGEMENT

CONCOURS HEC SESSION 2013

EPREUVE ORALE D'ANGLAIS

Script n°12

Nano goods

By Grace Livingstone

The Independent, January 26, 2013

Hundreds of consumer goods now contain nano-particles. Babies' bottles, face-creams, tennis balls, easy-care shirts, trousers, razors, smart phones, sun-tan lotions, Tupperware, even our socks may now include the tiny chemical particles. Nano-technology is the science of the very tiny, with particles measuring as small as 1/100,000th of a human hair. It has the potential to revolutionize medicine and combat climate change, but when chemicals are used in this form, they have different properties, which are not fully understood.

Professor Dame Ann Dowling of the Royal Society of Scientists says: "Chemicals in a nano-particle form have very different properties because they have increased surface area and therefore increased reactivity. They move around in the environment or in people differently from larger particles. That's the reason they're exciting and bring new possibilities, but that is not fully represented in legislation or regulation."

Consumer products containing nano-particles are widely available, not only in many electronic goods such as i-pods and electric shavers, fridges and hair-curling irons, but also in a growing number of personal care products. Cosmetics manufacturers such as L'Oréal and Lancôme advertise the revolutionary potential of micro-particles in anti-wrinkle creams, Nutricare Co adds 'nano-liposomes' to its organic baby cream, while many leading brands of sun-tan lotions have nano-sized particles of titanium dioxide. The anti-bacterial properties of silver have encouraged companies to add tiny silver particles to plastic food containers, dishcloths, as well as a range of baby goods. Clothes-makers are also making use of the new technology. It is now possible to buy socks that stop your feet smelling or material that doesn't absorb water, so if you spill a cup of coffee over your shirt, the brown liquid quivers like a bubble on top of the material and can be wiped away without leaving a mark.

There is no evidence that nano-particles harm consumers. Manufacturers of consumer goods have to carry out safety tests and convince European regulators that their products are safe. The problem, say scientists, is that their testing methodologies are not made public or peer-reviewed, and there remains uncertainty about the uncontrolled release of so many new nano-particles on the environment and their long-term impacts. Companies do not have to inform any authority if they are creating a new nano-particle and they do not have to state on the label if a product contains nano-particles. If a manufacturer produces more than one tonne of a new chemical they must submit a hazard report to the European Chemical Authority, but if they produce less than a tonne, which is often the case with tiny nano-particles, there are no such requirements. Consequently there is no clear idea how much nano-material is being produced or by whom, although the European Commission estimates the annual total quantity of nano-materials on the global market is 11 million tonnes with a value of roughly 20bn euros.

Professor Vicki Stone from Herriot Watt University, is leading a European Commission funded project to fill in the gaps in our knowledge to enable the EC to draw up appropriate regulations. She says: "A company could be making a particle and could just change the way they make that particle to make it nano-sized. Currently companies don't have to do anything legally to notify anyone of that. That is a problem. Companies will say 'We haven't changed

the substance, we have changed the particle size.' They assume that the underlying chemistry or biological reactivity will be the same and that is not always the case."

Environmental groups such as Greenpeace and Friends of the Earth are calling for a moratorium on the sale of nano-materials in personal care products, food and clothing until regulations are in place and the impacts are better understood. Greenpeace scientist Dr David Santillo said: "There has been a lot of hype around nano-technology. It may well be that there are nanotechnology solutions that will ultimately help us to reduce environmental problems and address certain health issues, but before we pursue a technology that is very difficult to control once it enters the market place and the waste stream, we need to have a much higher degree of understanding about the potential health and environmental impacts. That will depend on having proper testing regimes in place, critically before they are put on the market. One of the biggest problems we face is that the testing is coming after the marketing and, even from a layperson's point of view, that is clearly unacceptable."

Mike Childs of the Friends of the Earth said there were potentially "immense societal benefits" from using nano-technology in cancer treatment or solar panels but the 'frivolous' use of nano-technology in clothing, food and cosmetics should be halted until we have assessed the risks.