

## Nanotechnology Presentation by Keith Ball from the Soil Association

Saturday 23<sup>rd</sup> of February 2008, 09.00. Krakau Room CCN Ost Ebene 2.

Soil Association published what we believe were the first standards restricting nanotechnology in 2007. The exact wording is as follows.

### Prohibited

You must not use ingredients containing manufactured nanoparticles, where:

- the mean particle size is 200nm or smaller, and
- the minimum particle size is 125nm or smaller.

Note – we recognise that this standard will have implications for some established manufacturing processes that produce nanoparticles incidentally. Until we research these more fully, we will not apply this standard to them. This standard does apply to engineered nanoparticles.

Significantly this wording appears in 3 places in our standards. In section 3 related to agriculture, in section 40 relating to food processing and in section 50 relating to health and beauty products.

The standard is printed with significant guidance. I would just like to read a few sections as these show some of our thoughts.

Nanotechnology involves the manipulation of materials and the creation of structures and systems at the scale of atoms and molecules. This can be either through simple physical processes or by specific engineering. Nanoparticles are commonly defined as measuring less than 100nm – one hundred millionths of a millimetre.

Nanomaterials include:

- nanoparticles and nanoemulsions
- nanostructures including nanocapsules, nanotubes, fullerenes (buckyballs), quantum dots and nanowires.

The properties of nanomaterials can differ significantly from those at larger scales because quantum effects start to occur at the nanoscale. These differences may be in chemical reactivity and biological activity, solubility and mobility, colour and transparency, among others. Nanomaterials may therefore introduce new or heightened risks of toxicity, which are currently little understood. The possible effects of these nanomaterials on the environment, human and animal health are currently unknown.

Some examples of uses of nanotechnology that we are aware of include:

- In food uses planned or already available are delivery flavouring, enhanced absorption of nutrients or modifying texture and solubility of components.
- In health and beauty, such as in transparent mineral sunscreens, antioxidant delivery and make-up products
- In packaging, including UV light filters, nanoclays as gas barriers and carbon nanotubes to alter strength-to weight ratio and tracing systems.
- In medicine, such as targetting drug delivery and other advanced therapies
- In Industry, such as fuel additives and window coatings
- In agriculture such as delivery of pesticides in nanoemulsions
- In textiles, such as stain and water resistant coatings.
- As antimicrobial coatings of Silver and titanium in paints, plastics etc

We also acknowledge that there are many cases of naturally occurring nanoparticles, for example, in wood smoke; these fall outside the scope of our standards.

The main reason behind our concern over nanotechnology is the precautionary principle. Contrary to views of scientists in the UK, who have roundly criticised us, we are not against science and believe that nanotechnology may provide solutions to many problems. Its use in medicine etc are positive developments that should generally be encouraged. But all new developments must be properly evaluated. At present we believe that nanotechnology is moving forward unrestrained and without proper evaluation of all safety aspects.

We believe that all these uses must be properly evaluated before it can be permitted.

We just don't know what this technology will do and until that is clear we believe that it has no place in organic production.

Therefore we are pleased to have the opportunity to speak at this seminar and look forward to discussing the issue. We would certainly like to see agreement on recommendations to the commission to bring restrictions on use of nanotechnology into the EU regulation.