

I'm NOT alright, Jack!

by Anna Salleh via quill - ABC Science Report *Monday, Mar 10 2008, 7:14pm*
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Nanotech in food poses 'unknown risks'

The food industry's increasing use of nanotechnology in ingredients, additives and packaging has prompted two new reports calling for better consumer protection.



The reports, one a review led by UK government scientists and the other by an international lobby group, add to growing calls for better safety assessment and regulation of nanotechnology in food.

Complicating the issue is debate about which sized particles can cross into the body's cells and whether the commonly used definition of nanotechnology is adequate.

Scientists writing in the latest issue of the journal *Food Additives and Contaminants* say the food industry, including Australia's, is already using some nanotechnology, and safety research is needed urgently.

Dr Qasim Chaudhry from the UK government's Central Science Laboratory in York, and his colleagues, say engineered nano-sized particles and other structures are being used to develop new tastes, textures, nutritional qualities, as well as improve shelf life and traceability of food products.

But they say there is not enough information to adequately assess the risk of these additives and ingredients.

The researchers say it would be prudent to consider action in the face of this uncertainty, especially where food and drinks containing nano-ingredients are likely to be consumed in large quantities by a large proportion of the population.

They say there is a growing body of scientific evidence that indicates nanoparticles can cross into the body's cells and cause damage.

Questions have been raised over whether nanoparticles and even larger micro-scale particles in the diet can inflame the gut, and testing is required to check if nano-food ingredients or additives affect nutrition.

They say current regulations do not fully cover nanotechnology in food and the European food

science professional body, the Institute of Food Science and Technology, recently recommended that nanoparticles be treated as new, potentially harmful materials, until testing proves them safe.

The same recommendation about nanoparticles in general was made by the UK Royal Society and Royal Academy of Engineering in 2004.

Regulators 'asleep at the wheel'

Georgia Miller of the Friends of the Earth Nanotechnology Project is co-author of a report released today that documents the international use of unlabelled nanomaterials in food.

The 'Out of the laboratory and on to our plates' report calls for engineered nanomaterials to be kept out of the food supply until further testing and public consultation.

Ms Miller says Australia's food regulator, Food Standards Australia New Zealand (FSANZ), is "asleep at the wheel" when it comes to nanotechnology.

She says Australian manufacturers are not required to declare when food ingredients are nanoscale and the nation's food regulator does not know which nanomaterials are in foods.

"We really don't think the burden of risk should be borne by the community," she says.

How big is nano?

Complicating the issue of regulation and safety is debate about the size of particles that can cross into body cells.

While the nanoscale usually refers to structures under 100 nanometres, Friends of the Earth points to evidence that 300 nanometres can present novel risks and should be checked for safety.

Dr Martin Garnett of the UK's University of Nottingham says in a 2006 paper in the journal *Occupational Medicine* that particles up to 300 nanometres can get into cells.

Dr Garnett, who studies how nanoparticles are distributed in the body, says coatings such as surfactants used to stop nanoparticles from aggregating can make it easier for nanoparticles to get into tissues.

He also says other experiments show particles larger than 100 nanometres accumulate in a range of different tissues, including the brain.

'Don't panic'

An expert in international nanotechnology regulation, Professor Graeme Hodge of Monash University in Melbourne, warns against a "gut reaction" to nanotechnology without considering the evidence.

"Don't panic up front," he said. He says the use of nanotechnology in some areas will be "quite benign".

But he says its use in food, cosmetics and medicines will require "serious and evolved debate" and careful consideration of risks.

He says the Australian Government has been proactive in commissioning a report to identify possible gaps in Australian regulations, which he helped prepare.

But he says it is too early to say if new regulations are really required, especially since international standard-setting bodies are only now officially defining the characteristics of nanomaterials.

Australia's food regulator FSANZ declined to comment on nanotechnology in food, directing queries to the federal Health Department.

"No policy has been developed in regards to a specific regulatory response to nanotechnology," reads a Health Department statement for FSANZ.

"FSANZ is not aware, nor has it been made aware, of any commercially sold foods in Australia that have been developed using nanotechnology."

The statement says FSANZ is gathering information and discussing the food safety implications of nanotechnology with international bodies and is yet to determine if a risk assessment is required for nanotechnology in foods.

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