

**Briefing: Independent testing finds potentially harmful nanoparticles in common food products****16 September 2015**

Independent testing commissioned by Friends of the Earth has found potentially harmful nanoparticles of titanium dioxide (TiO<sub>2</sub>) and silica (SiO<sub>2</sub>) in a range of food products including M&Ms, Nestlé Coffee Mate Creamer, Old El Paso Taco Mix and Woolworths Homebrand White Sauce.

All 14 food products tested contained significant quantities of nanoparticles which have not been tested, labelled or approved for consumption in Australia by our food regulator – Food Standards Australia New Zealand (FSANZ). All of the SiO<sub>2</sub> analysed in the products was nano, as was a substantial proportion of the TiO<sub>2</sub>. Peer reviewed studies have raised health serious health concerns regarding the use of these nanoparticles in food.

**Products tested and the nanoparticles found**

Allen's Kool Mints (TiO<sub>2</sub>); Praise Caesar Salad Dressing (TiO<sub>2</sub>); Nice 'N' Tasty Chicken Salt (TiO<sub>2</sub>); Duncan Hines Frosting (TiO<sub>2</sub>); Eclipse Chewy Mints (TiO<sub>2</sub>; M&Ms (TiO<sub>2</sub>); Mentos Pure Fresh Gum (TiO<sub>2</sub>); Skittles (TiO<sub>2</sub>); Woolworths Homebrand Sour Straps (TiO<sub>2</sub>; Old El Paso Taco Mix (TiO<sub>2</sub>); Moccona Capuccino (SiO<sub>2</sub>); Nestlé Coffee Mate Creamer (SiO<sub>2</sub>); Maggi Roast Meat Gravy (SiO<sub>2</sub>); Woolworths Homebrand White Sauce (SiO<sub>2</sub>).

**Health concerns with nano titanium dioxide and silica**

*Nano titanium dioxide:* The European Chemicals Agency, ECHA, is currently reviewing the safety of TiO<sub>2</sub> - including the nano form - because of concerns it may be harmful to the environment and human health.<sup>i</sup> Nano TiO<sub>2</sub> is highly mobile in the body and has been detected in the blood, liver, spleen, kidney, lung, heart, and brain of animals. It has been found to cause oxidative stress, inflammatory reactions, DNA damage, and cell death.<sup>ii</sup>

Studies suggest nano TiO<sub>2</sub> can cross the blood brain barrier and the placental barrier.<sup>iii</sup> A study using pregnant mice found they transferred nanoparticles of TiO<sub>2</sub> to their offspring. This resulted in brain damage, nerve system damage and reduced sperm production in male offspring.<sup>iv</sup>

*Nano silica:* The European Commission's Scientific Committee on Consumer Safety (SCCS) recently found there is insufficient evidence to state that nano silica is safe for use in cosmetics.<sup>v</sup> Animal studies suggest that nano SiO<sub>2</sub> can be absorbed from the gastrointestinal tract, become systemically available, and accumulate in tissues. Some studies indicate that nano silica can cross the blood-brain barrier and possibly the placenta;<sup>vi</sup> A recent study in which rats were fed a form of nano SiO<sub>2</sub> - found that it caused fibrosis of the liver and accumulated in the spleen.<sup>vii</sup>

The failure of FSANZ to properly monitor and test for these nanomaterials in food is both inexplicable and inexcusable.

## FSANZ claims regarding nanoparticles in food

For almost two years FSANZ has maintained it is “not aware of any manufactured nanomaterials being used in food available in Australia,” based on the fact no one had applied for approval.<sup>viii</sup> FSANZ has consistently maintained that if products contain novel nanomaterials they must be subject to testing before being approved for commercial use.<sup>ix</sup>

### The significance of our results

We provided evidence to FSANZ over a year ago<sup>x</sup> that products such as these are highly likely to contain nanomaterials but the agency has not commissioned any testing of foods or even surveyed food companies to determine if their products contain nanomaterials.<sup>xi</sup>

Inevitably, FSANZ will try to dismiss its failure by claiming that there is sufficient evidence to conclude that these ingredients are safe to eat – a view not shared by European regulators.

### Conclusions and Recommendations

FSANZ needs to stop acting on behalf of big business and ensure that safety first and our right to know are put first and foremost. FSANZ must also ensure that its laws are upheld.

### What needs to happen?

1. Because there is no evidence that these foods are safe, these products must be removed from the supermarket shelves until they are fully and properly tested;
2. FSANZ must issue an urgent order that any food product containing titanium dioxide or silica be tested by the manufacturer or importer for the presence of nanomaterials;
3. In line with the government commissioned Blewett Review of labelling, foods containing nanomaterials must be labelled. The public has a right to know what is in the food they are eating and that right is being ignored by FSANZ.

<sup>i</sup> ECHA (2013) Justification document for the selection of a CoRAP substance – Titanium Dioxide

<sup>ii</sup> LUBW (Landesanstalt für Umwelt, Messungen und Naturschutz Baden-Württemberg) (2010) Nanomaterialien: Toxikologie/Ökotoxikologie, <http://www.lubw.baden-wuerttemberg.de/servlet/is/62024/U10-S05-N10.pdf?command=downloadContent&filename=U10-S05-N10.pdf>; Rollerova, E. & Kuricova, M. (2015). Titanium Dioxide Particles: some aspects of toxicity/focus on development. *Endocrine Regulations*, **49**:97-112.

<sup>iii</sup> *Ibid.*

<sup>iv</sup> Takeda, K. *et al.* (2009) Nanoparticles Transferred from Pregnant Mice to Their Offspring Can Damage the Genital and Cranial Nerve Systems. *Journal of Health Science* **55(1)**:95–102, [http://jhs.pharm.or.jp/data/55%281%29/55\\_95.pdf](http://jhs.pharm.or.jp/data/55%281%29/55_95.pdf).

<sup>v</sup> Scientific Committee on Consumer Safety (SCCS) (2015) Opinion on Silica, Hydrated Silica, and Silica Surface Modified with Alkyl Silylates (nano form). SCCS/1545/15.March 2015, p. 56. [http://ec.europa.eu/health/scientific\\_committees/consumer\\_safety/docs/sccs\\_o\\_175.pdf](http://ec.europa.eu/health/scientific_committees/consumer_safety/docs/sccs_o_175.pdf)

<sup>vi</sup> Dekkers S, Bouwmeester H, Bos P, Peters RJ, Rietveld A, Oomen AG (2013) Knowledge gaps in risk assessment of nanosilica in food: evaluation of the dissolution and toxicity of different forms of silica. *Nanotoxicology* **7**:11

<sup>vii</sup> Van der Zande, M. *et al.* (2014) Sub-chronic toxicity study in rats orally exposed to nanostructured silica. *Particle and Fibre Toxicology* **11**:8

<sup>viii</sup> FSANZ, response to Questions on Notice, Senate Estimates, SQ14-000086, February 2014.

<sup>ix</sup> Food Standards Australia New Zealand (2014). Nanotechnology and Food. <http://www.foodstandards.gov.au/consumer/foodtech/nanotech/Pages/default.aspx>; FSANZ Response to Questions on Notice, Senate Estimates SQ-14/000074. February 2014.

<sup>x</sup> FoEA (2014) *Way too little: our government's failure to regulate nanomaterials in food and agriculture*, p. 10, [http://emergingtech.foe.org.au/wp-content/uploads/2014/05/FOE\\_nanotech\\_food\\_report\\_low\\_res1.pdf](http://emergingtech.foe.org.au/wp-content/uploads/2014/05/FOE_nanotech_food_report_low_res1.pdf)

<sup>xi</sup> FSANZ, Response to Questions on Notice, Senate Estimates, SQ-14/000082. February 2014.