

Senate Community Affairs Committee

ANSWERS TO ESTIMATES QUESTIONS ON NOTICE

HEALTH PORTFOLIO

Additional Estimates 2016–17, 1 March 2017

Ref No: SQ17-000399

OUTCOME: 2 – Health Access and Support Services

Topic: Titanium Dioxide Exposure

Type of Question: Written Question on Notice

Senator: Rice, Janet

Question:

A recent peer-reviewed paper (Food-grade TiO₂ impairs intestinal and systemic immune homeostasis, initiates preneoplastic lesions and promotes aberrant crypt development in the rat colon. <http://www.nature.com/articles/srep40373>) found that long-term exposure to nanoparticles in the food additive titanium dioxide (TiO₂) can trigger and accelerate the early stages of colorectal cancer among rats.

- a) On a number of occasions FSANZ has asserted the safety of nano-titanium dioxide on the basis of the safety of larger particles of titanium dioxide and claimed there is no evidence of harm from the consumption of nano-titanium dioxide. Would FSANZ agree that there is now evidence of harm?
- b) FSANZ indicated in media reports that it was reviewing the study. Has that review been completed?
 - i) If yes, what has FSANZ concluded?
 - ii) If no, who is conducting the review and when will it be completed?
- c) FSANZ has previously disputed the claim that children have high exposure levels to titanium dioxide from exposure through food. This study confirms that children have exposure rates in the UK and US 2 to 5 times higher than adults. Does FSANZ accept that this is likely to be true here as well?
- d) FSANZ has previously claimed there is no evidence of widespread use of nanoparticles in food. This study also notes the widespread presence of nano-titanium dioxide in food. Does FSANZ now accept that this is the case?
- e) Will FSANZ now reassess the safety of food grade and nano titanium dioxide?
 - i) If not: why not?
 - ii) If yes: will you also require a recall of foods containing food grade and nano-titanium dioxide?
 - iii) If no: So FSANZ is prepared to put children at risk in the absence of certainty?

Answer:

- a) No. Food Standards Australia New Zealand (FSANZ) have reviewed the aforementioned study (Bettini et al) and concluded that its design has a number of limitations which restrict its relevance to humans. The findings are also inconsistent with the body of evidence from previous animal studies which have shown that titanium dioxide was not associated with any tumour type in carcinogenicity studies in mice or rats following oral ingestion, even at very high exposure levels.
- b)
 - i) Yes. See above.
 - ii) Not applicable.
- c) The Bettini et al study does not contain any new information on exposure levels of humans to titanium dioxide, for either children or adults. It references a study by Weir et al which was considered as part of an independent expert review on titanium dioxide commissioned by FSANZ, and published on our website in 2016. This review considered that it would be reasonable to assume exposures of Australians to titanium dioxide would be of a similar order to that of the UK population.
- d) FSANZ has not disputed the presence of nanoscale materials in food. The FSANZ website states that foods are naturally composed of nanoscale materials including sugars, amino acids, peptides and proteins, many of which form organised, functional nanostructures.

The Bettini et al study does not provide any new information on levels of titanium dioxide in food or alter the conclusions of the FSANZ commissioned expert review published on its website. This expert review already notes that some studies in the literature have reported that a proportion of titanium dioxide used as a food additive has nanoscale dimensions.

- e) No.
 - i) Based on FSANZ's review of the aforementioned study, further risk assessment is not warranted at this time.
 - ii) Not applicable.
 - iii) FSANZ considers food-grade titanium dioxide safe for human consumption when used according to the permissions in Standard 1.3.1 – Food additives and Schedule 3 – Identity and purity in the *Australia New Zealand Food Standards Code*.

The FSANZ-commissioned review of the safety of titanium dioxide found there is no evidence of health risks from consumption of the food grade material. This is consistent with a recent 2016 European Food Safety Authority opinion which also concluded that the use of titanium dioxide as a food additive is not of concern for human health.

FSANZ continues to monitor the evolving science around nanotechnology used in food products. If we were to become aware of any public health issue with nano- titanium dioxide then we would work with the state and territory enforcement agencies to develop appropriate risk management measures.