

Australians risking skin cancer to avoid nanoparticles

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More than three in five Australians are concerned enough about the health implications of nanoparticles in sunscreens to want to know more about their impact. And while the initial scientific information released suggests little cause for alarm, it does justify the community's confusion.

That's the message that emerges from a survey and three research papers on nanoparticles in sunscreens presented at the 2012 International Conference on Nanoscience and Nanotechnology (ICONN) in Perth this week.

Researchers reported that:

• some sunscreens that claim to be nano-free do in fact contain nanostructured material - highlighting the need for clear nano definitions;

• claims of the dangers of nano metal oxides in sunscreen might be overstated; and

• a very small amount of zinc from zinc [oxide particles](#) in sunscreens is absorbed through human skin

The Cancer Council of Australia reports that we have one of the highest rates of [skin cancer](#) in the world, with over 440,000 people receiving medical treatment for skin cancers each year, and over 1,700 people

dying of all types of skin cancer annually.

The survey of public attitudes towards sunscreens with nanoparticles, commissioned by the Australian Department of Industry, Innovation, Science, Research and Tertiary Education and conducted last month, showed that about 17% of people in Australia were so worried about the issue, they would rather risk skin cancer by going without sunscreen than use a product containing nanoparticles.

Scientists from Australia's National Measurement Institute and overseas collaborators reported on a technique using the scattering of synchrotron light to determine the sizes of particles in sunscreens. They found that some commercial sunscreens that claim to be 'nano-free' do in fact contain nanostructured material. The findings highlight the need for clear definitions when describing nanomaterials.

Researchers from RMIT and Nanosafe Australia reported on studies using human cells that show zinc oxide and titanium oxide particles used in sunscreens are as well-tolerated as zinc ions and conventional chemical sunscreens in human cell test systems.

A joint CSIRO and Macquarie University study found that a very small amount of zinc from zinc oxide particles in sunscreens is absorbed through human skin under normal conditions of sunscreen use but that it is a very small fraction of the levels of zinc normally found in blood. It is not known if the absorbed zinc is in the form of soluble zinc ions or zinc oxide particles.

When zinc oxide and titanium dioxide in sunscreens are reduced to the nanoscale they make the sunscreen transparent. The Australian Therapeutic Goods Administration has released a statement on safety of [sunscreens](#) containing nanoparticles that concluded: "the current weight of evidence suggests that TiO₂ (titanium dioxide) and ZnO ([zinc](#)

[oxide](#)) [nanoparticles](#) do not reach viable skin cells, rather, they remain on the surface of the skin and in the outer layer of the skin…"

More information: More at www.tga.gov.au/pdf/review-sunscreens-060220.pdf

The full survey data is available at: www.innovation.gov.au/nets-pace-research

For more information on nanoparticles and sunscreens: [cancer.org.au/cancersmartlives ... ticles_sunscreen.htm](http://cancer.org.au/cancersmartlives...ticles_sunscreen.htm)

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