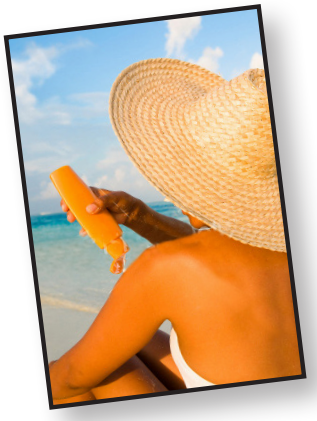

Nano-form zinc oxide in sunscreens

Zinc oxide is a white powder which is widely used in a variety of applications. One of these is in cosmetic products as a UV filter as well as a cosmetic colorant. It is generally considered to be safe for use, in good part because it does not get into the body. The zinc oxide particles are sometimes coated with another cosmetic ingredient in order to change how they look or how they react in a mixture. New technologies have recently allowed the use of nano-sized zinc oxide particles. The question here is whether zinc oxide "nanoparticles" used in sunscreens (at a concentration of up to 25%) are different to conventional zinc oxide in terms of physical and chemical properties and toxicity.

→ WHAT IS A 'NANO PARTICLE' OR A 'NANOFORM' ?

A so-called '*nano particle*' refer to materials and components that have at least one dimension in the size range 1 - 100 nanometer (one nanometer is one billionth of a meter). The fact that these particles are in the same size scale as the cells in the body brings up some questions as to the potential interactions between those 'nanoparticles' and the body. The evaluation or the possible impact on human health of these new nanomaterials is an on-going process.

→ IN SUN SCREENS, IS THE USE OF ZINC OXIDE IN THE "NANO FORM" AS SAFE FOR HUMAN AS THE USE OF COMMON ZINC OXIDE?

For the current assessment, a number of specific coated or uncoated zinc oxide raw materials in nano-form have been evaluated. The conclusion is that the use of the zinc oxide nanoparticles that have been tested can be considered as safe for use on the skin as conventional materials.

The available information suggests that the nanoparticles of zinc oxide do not get into the body through the skin. It also suggests that the amount of zinc ions, which may be released from zinc oxide nanoparticles and enter the body through the skin, is likely to be insignificantly small. Similarly, zinc ions could also be taken up when zinc oxide nanoparticles are accidentally swallowed, although it is unlikely that this happens to a large extent with sunscreen products. Either way, no health impact of the 'nano' nature of zinc oxide is expected.

Inflammation of the lungs has been observed when zinc oxide nanoparticles are breathed in, and thus the use of nano-sized zinc oxide in spray products is not considered safe. It is worth noting that, at the time of the current publication and according to the information from cosmetic companies, there are no sprayable sunscreens on the European market that contain nano-sized zinc oxide.

→ LIMIT OF THIS OPINION AND FURTHER RESEARCH

This opinion applies only to the zinc oxide materials tested and to materials of similar characteristics of size, purity, coating and solubility. Since the methodologies for evaluating the properties nanomaterials in general are still in development, in the future, additional data may be required for a full assessement of zinc oxide health impact in the nano-form.

This fact sheet is based on the scientific opinion "Zinc oxide (nano form)" adopted on September 18 2012 by the independent European Scientific Committee on Consumer Safety

The detailed and nuanced view of the European Scientific Committee on Emerging and Newly Identified Health Risks on this issue is available at

http://ec.europa.eu/health/scientific_committees/emerging/docs/scenihr_o_035.pdf