Sunscreens with titanium dioxide as nanoparticles

Health risks?

The increasing use of nanomaterials in a wide range of consumer products has prompted a re-evaluation of the safety of a number of substances, including titanium dioxide (TiO₂). Titanium dioxide, in the form of nanoparticles used to render creams and lotions transparent, is currently approved as a UV-filter in sunscreens. Are sunscreens with titanium dioxide nanoparticles safe? Do these nanoparticles behave differently than other particles of titanium dioxide? How are the risks of nanoparticles evaluated? This fact sheet tells you all about it.

New challenges in risk assessment of nanomaterials

This opinion refers to the titanium dioxide materials revised by the SCCS and to materials with similar characteristics of size, purity, coating and solubility. As the methodologies for evaluating the properties of nanomaterials in general are still in development, additional data may be required for a full assessment of the health impact of titanium dioxide in nano form. The development of new assessment methods is an ongoing process.

The SCCS published detailed guidance documents on the evaluation of risks of nanomaterials in cosmetics (SCCS/1484/12 and SCCS/1524/13).

For completeness, it should be noted that the impact of titanium dioxide nanoparticles released in the environment was not considered in this scientific opinion.

This fact sheet is based on the opinion of the independent Scientific Committee on Consumer Safety (SCCS): “Opinion on titanium dioxide (nano form) COLIPA n° S75” (April 2014).

This opinion is available at: https://ec.europa.eu/health/sites/health/files/scientific_committees/consumer_safety/docs/sccs_o_136.pdf

The safety assessment is based on the current scientific knowledge, which shows that neither titanium dioxide in nano form nor in non-nano form penetrates through the skin. This conclusion will need to be revised if new scientific evidence would arise, showing that nanoparticles behave differently.

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