

BfR recommends that nano-silver is not used in foods and everyday products

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Manufacturers of foods, cosmetics or everyday products have long been taking advantage of the antimicrobial properties of silver ions. Lotions may contain silver salts as preservatives and refrigerators or athletic socks and other textiles are equipped with silver compounds in order to inhibit the growth of germs or avoid the development of odours. In recent times, nanoscale silver compounds have also increasingly been used for these purposes. The Federal Institute for Risk Assessment (BfR) finds that a conclusive assessment of health risks associated with the widespread use of nano-silver is not possible at this time.

Nanoparticles are particles with a diameter of less than 100 nanometres (nm). Several particular properties of these extremely small particles facilitate their use in various fields. Yet nanoparticles can also have adverse effects within the human organism. BfR finds that there is a need for research to clarify essential questions in regard to the use of nanoscale silver as antimicrobial agent: To what extent are consumers exposed to nanoscale silver particles? What are the effects of nano-silver in humans and how great is the potential to develop resistance towards silver and the spread of resistance towards silver or antibiotics?

It is a known fact that the silver ions released from various silver compounds can damage living cells in different ways. The antimicrobial effect of silver is based on this mechanism. Nano-silver presents a particular situation. While the antibacterial effect of nano-silver is also based on the release of silver ions, due to the considerable surface-volume ratio and their special behaviour in the human body, they may also include other mechanisms of action. The nanoformulation of silver may cross biological barriers into the cell. These intracellular nano-silver particles constitute a deposit that continually releases silver ions.

BfR recommends manufacturers to avoid the use of nanoscale silver or nanoscale silver compounds in foods and everyday products until such time that the data are comprehensive enough to allow a conclusive risk assessment which would ensure that products are safe for consumer health.

The full version of this BfR Opinion is available in German on http://www.bfr.bund.de/cm/216/bfr_raet_von_nanosilber_in_lebensmitteln_und_produkten_des_taeeglichen_bedarfs_ab.pdf