

Report suggests more rigorous assessment of nanosilver use

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These hand sanitizers and many other consumer products on the market contain nanosilver.

(PhysOrg.com) -- A new report published in the journal *Science* suggests the risks to the environment of nanosilver used in consumer goods should be examined more stringently.

Nanosilver is the most commonly used nanoparticle found in consumer goods, and is being used as an anti-odor, antibacterial agent in fabrics, deodorants, toothpastes, and even cement. It is also found in a wide range of other applications, including paints, medical devices, bandages, food containers, and electronics equipment and washing machines.

Silver is widely used because it is believed to be harmless to humans except in high concentrations, but it is known to be toxic to fungi,

bacteria and other microorganisms, and little is known about its effects on wastewater systems or the wider environment. Previous studies in Europe have shown that around 15 percent of the total volume of silver in wastewater is biocidal nanosilver originating in consumer goods and medicinal uses.

Author of the report, Dr. Bernd Nowack of the Swiss Federal Laboratory for Materials Science, Empa, said that while silver has long been known to be a biocide, nanosilver seems to have unique properties because of the [nano-scale](#) (less than 100 billionths of a meter) size of the particles. He said this suggests there should be more rigorous assessments of the risks to humans and the environment.

Dr. Nowack said one of the risks arises because some of the wastewater and sludge from [sewage treatment plants](#) ends up on farms in fertilizers, and could therefore enter the food chain. Another risk is that nanosilver could have a detrimental effect on the nitrifying bacteria that are vital to the effluent treatment processes, and could prevent treatment plants from working properly.

Nowack's report said in earlier studies some nanosilver had been shown to bond with sulfur in [sewage sludge](#) to produce non-toxic silver sulfide [nanoparticles](#), but it is not known how efficient sulfur is at removing biocidal silver.

In the US and many other countries manufacturers have no obligation to disclose the presence of nanoparticles in consumer goods.

More information: Nanosilver Revisited Downstream, Bernd Nowack, *Science* 19 November 2010: Vol. 330 no. 6007 pp. 1054-1055. [DOI:10.1126/science.1198074](https://doi.org/10.1126/science.1198074)

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