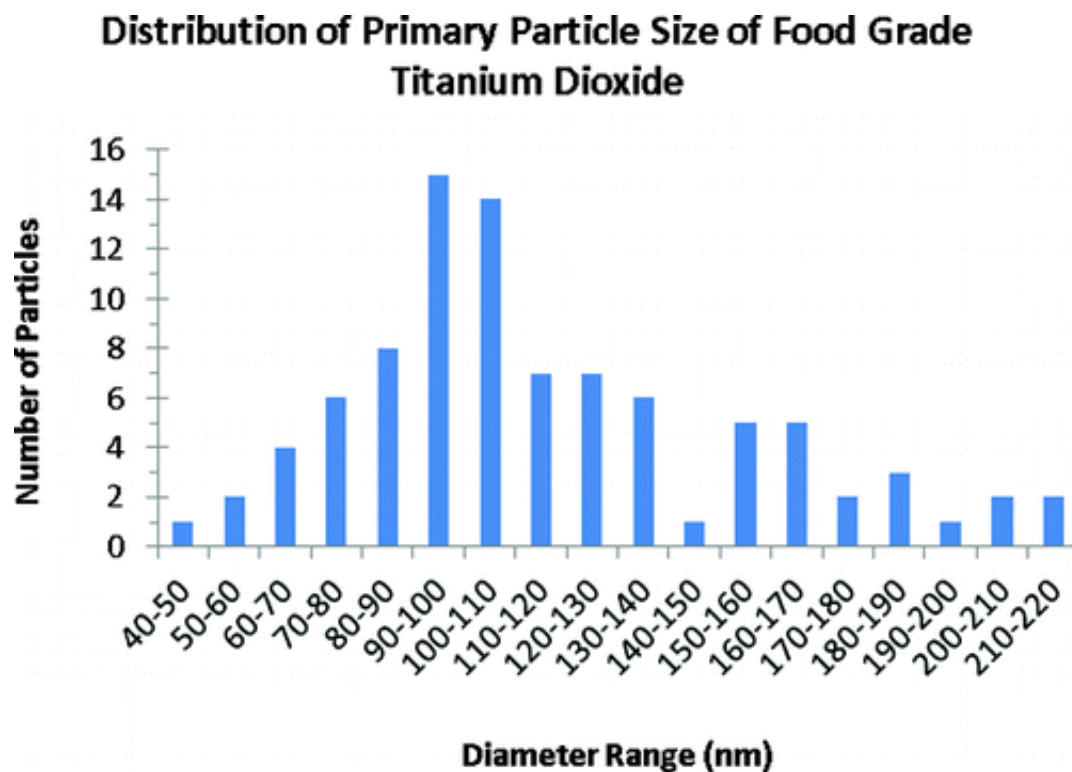


Children may have highest exposure to titanium dioxide nanoparticles

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Children may be receiving the highest exposure to nanoparticles of titanium dioxide in candy, which they eat in amounts much larger than adults, according to a new study. Published in ACS' journal, *Environmental Science & Technology*, it provides the first broadly based information on amounts of the nanomaterial – a source of concern with

regard to its potential health and environmental effects – in a wide range of consumer goods.

In the study, Paul Westerhoff, Ph.D., and colleagues point out that titanium dioxide is a common additive to many consumer products, from food to paint to cosmetics. Westerhoff explained that the body releases the [nanoparticles](#) in feces and urine, sending them to wastewater treatment plants, which cannot prevent the smallest particles from entering lakes and rivers. Only one previous study, done a decade ago, reported on titanium dioxide content in a few commercial products. To fill the knowledge gap about the sources of humans' exposures, the researchers bought and tested food, personal care products, paints and adhesives and measured how much titanium dioxide they contain.

The group found that children consume more titanium dioxide than adults because sweets like candies, marshmallows and icing are among the products with the highest levels. The paper lists the names of the products tested and their titanium dioxide content. Westerhoff recommends that regulators shift their focus from the type of [titanium dioxide](#) used in paints and industrial processes to food-grade particles, because those are much more likely to enter the environment and pose a potential risk to humans and animals.

More information: Titanium Dioxide Nanoparticles in Food and Personal Care Products, *Environ. Sci. Technol.*, Article ASAP. [DOI: 10.1021/es204168d](https://doi.org/10.1021/es204168d)

Abstract

Titanium dioxide is a common additive in many food, personal care, and other consumer products used by people, which after use can enter the sewage system and, subsequently, enter the environment as treated effluent discharged to surface waters or biosolids applied to agricultural land, incinerated wastes, or landfill solids. This study quantifies the

amount of titanium in common food products, derives estimates of human exposure to dietary (nano-) TiO₂, and discusses the impact of the nanoscale fraction of TiO₂ entering the environment. The foods with the highest content of TiO₂ included candies, sweets, and chewing gums. Among personal care products, toothpastes and select sunscreens contained 1% to >10% titanium by weight. While some other crèmes contained titanium, despite being colored white, most shampoos, deodorants, and shaving creams contained the lowest levels of titanium (

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