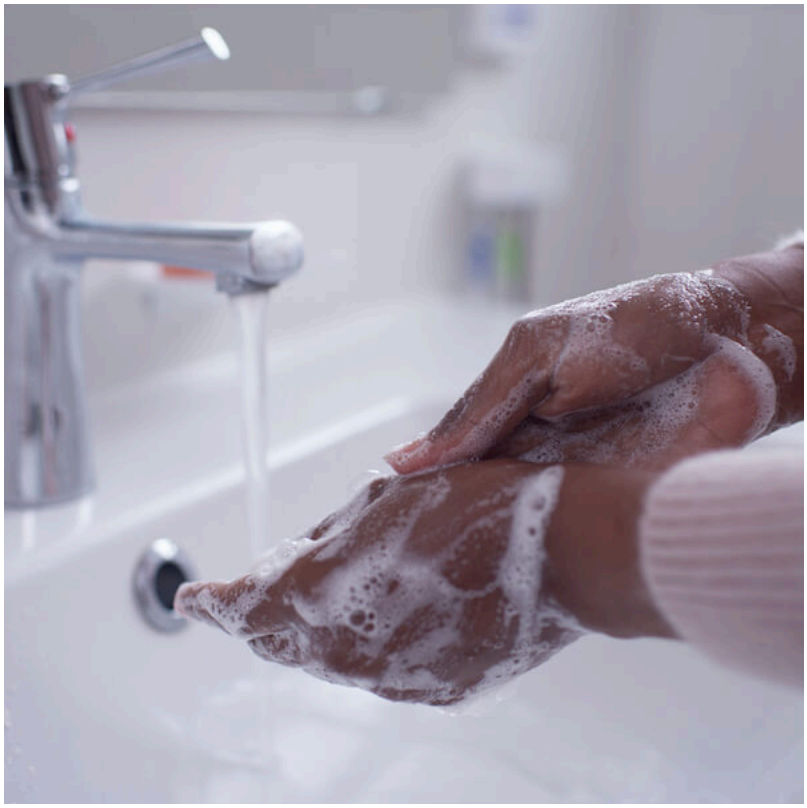
Triclosan

Triclosan and triclocarban are commonly used antimicrobial agents found in many soaps and detergents.[1] The Center for Disease Control and Prevention has identified triclosan in the urine of 75 percent people tested.[2]



Widespread use with few regulations has led to concerns regarding their effects on humans and the environment, such as endocrine disruption, bioaccumulation, and the emergence of bacteria resistant to antibodies and antibacterial products.

WHAT IS TRICLOSAN?

Triclosan is an antimicrobial agent found in a wide variety of antibacterial soaps and detergents, as well as in many deodorants, toothpastes, cosmetics, fabrics and plastics. It was initially developed as a surgical scrub for medical professionals, but in recent years it has been added to a host of consumer products, from kitchen cutting boards to shoes, in order to kill bacteria and fungus and prevent odors.

Triclocarban was first introduced in the market in 1957 as an antimicrobial agent. Over the past few decades, consumption of triclocarban has increased in the US and worldwide. Today, triclocarban is mostly found in bar soaps, but can be found in other types of soaps, clothing, carpets, plastics, toys, and more.

Triclosan and triclocarban have proved to be both dangerous and unnecessary. In 2005 the FDA found no evidence that antibacterial washes containing either triclosan or triclocarban were superior to plain soap and water for protecting consumers from bacteria,[3] and in 2013 the FDA announced a draft rulemaking process that would require manufacturers to demonstrate their safety and efficacy for use in soaps and body washes.[4] This process will not be finalized until 2016 and does not include hospital-based use. As more evidence mounts for triclosan and triclocarban's toxicity, efforts have begun to diminish their inclusion in consumer products.[5]

Found In

- Antibacterial soaps and detergents
- Toothpaste and tooth whitening products
- Antiperspirants/deodorants
- Shaving products
- Creams
- Color cosmetics.

What to look for on the label

- Triclosan (TSC)
- Triclocarban (TCC)

Health Concerns

Endocrine disruption: There is evidence that triclosan is an endocrine disruptor and impacts thyroid function and thyroid homeostasis.

A 2009 study found that triclosan decreased thyroid hormone concentrations,[6] and another showed that triclosan enhanced the expression of androgen and estrogen sensitive genes.[7]

Several studies report triclocarban as a unique type of endocrine disrupting compound that amplifies endocrine activity when paired with naturally occurring hormones in the human body.

Research has shown that triclocarban enhances the strength of estradiol and testosterone, even though it does not have a direct effect on endocrine activity on its own.[8],[9],[10] Hormone sensitive breast cancer cells lines treated with triclocarban demonstrated increased cell proliferation (growth and multiplication) and increased hormone response.[11],[12] Studies performed on mammalian cells suggest that triclocarban may disrupt thyroid activity[13] and that it also exhibits weak estrogenic activity in fish.[14]

Triclosan-resistant bacteria: Since 2000, a number of studies uncovered triclosan-resistant micro-organisms, and there is mounting evidence linking the use of triclosan with the promotion of bacteria that are resistant to both antibiotic medications and antibacterial products.[15],[16] For instance, triclosan-resistant strains of microorganisms such as E. coli and salmonella have been identified.[17],[18],[19] Studies indicate that use of triclosan provides a suitable environment for the emergence of antimicrobial drug-resistant bacteria, even at the low concentrations found in products and cosmetics.

Because triclosan's mode of action and target site in bacteria are similar to those of antibiotics, there are concerns that bacteria that become resistant to triclosan will also become resistant to antibiotics. A 2010 report by the European Commission's Scientific Committee on Consumer Safety determined that even low concentrations of triclosan can trigger antibiotic resistance in bacteria.[20]

Bioaccumulation/Environmental Toxicity: Triclosan is lipophilic, meaning that it accumulates in fatty tissues. Studies have found concentrations of triclosan in three out of five human milk samples.[21],[22] Triclosan has also been found in the umbilical cord blood of infants.[23] These results raise concerns for the fetus during vulnerable periods of development, and make the bioaccumulative and endocrine-disruptive potential of triclosan even more alarming.

Although touted as effective microbe-killing agents, triclosan and triclocarban are actually many times more likely to kill algae, crustaceans, and fish.[24] Because of their proliferative use, large quantities of these two chemicals often end up in sewage systems, persisting in forestry and non-agricultural settings which can lead to decade long exposure of plants, soil-dwelling biota, and their predators over multiple generations.[25] Biosolids (nutrient-rich organic materials extracted from sewage sludge) are important for crop plant cultivation. Biosolids derived from triclocarban and triclosan have adverse effects on these crops; a study observed a significant decrease in shoot mass for lettuce plants exposed to triclocarban.[26] Furthermore, there is evidence that triclosan is accumulating at high levels in fish and other aquatic life.[27]

Vulnerable Populations

Babies & Children (https://www.safecosmetics.org/population/babies-children/), Pregnant Women (https://www.safecosmetics.org/population/pregnant-women/), Teenagers (https://www.safecosmetics.org/population/teenagers/)

Regulations

Triclosan is restricted in cosmetics in Canada and Japan; triclocarban is restricted in cosmetics use in the European Union and is classified to be toxic or harmful by the Environment Canada Domestic Substance List.[28] The EPA regulates triclosan as a pesticide and is currently updating its assessment of the effects of triclosan as a pesticide.[29]

How to Avoid?

Avoid products that indicate triclosan and triclocarban on the label. Stick with plain soap and water—the FDA found no evidence that antibacterial washes containing triclosan are any more effective at protecting against bacteria.[30]

Explore other Chemicals

Mica (https://www.safecosmetics.org/chemicals/mica/)

Quaternium-15 (https://www.safecosmetics.org/chemicals/quaternium-15/)

Titanium Dioxide (https://www.safecosmetics.org/chemicals/titanium-dioxide/)

Benzophenone & Related Compounds (https://www.safecosmetics.org/chemicals/benzophenone/)

Nanomaterials (https://www.safecosmetics.org/chemicals/nanomaterials/)

Formaldehyde And Formaldehyde-Releasing Preservatives (https://www.safecosmetics.org/chemicals/formaldehyde/)

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