

Is Your Shampoo Making You Sick?

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STORY AT-A-GLANCE

- › The Food and Drug Administration prohibits the use of 11 chemicals in the U.S. while the European Union bans over 1,300; only 1% of 84,000 chemicals in personal care products in the U.S. have been safety tested
- › Chemicals from your personal care products washed down the drain are poisoning groundwater supplies and finding their way into your drinking water; health hazards include cancers, poor sperm quality and ADHD
- › Consider using homemade personal care products, contacting your senator to express concern over chemicals in your tap water and consulting EWG's database about the store-bought products you use

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You may be mistakenly comforted by the perceived oversight by the U.S. Food and Drug Administration (FDA) over chemicals used in the manufacture of everyday products. For instance, the FDA prohibits the use of [mercury](#), chloroform and nine other substances in your personal care products. However, once you know the European Union (EU) prohibits the use of more than 1,300 chemicals in their personal care products, you may not feel as protected – and you would be right.

The number of chemicals restricted by the FDA is even more ridiculous when you consider there are over 84,000 different chemicals in use in your personal care products and only 1% of those have been evaluated for safety in humans.¹

The difference between chemical use in the EU and the U.S. is that in the EU manufacturers must prove chemicals are not a health hazard before they are allowed in products, whereas in the U.S. they can be added without mandatory safety testing and only removed after enough people have suffered to get the attention of watch groups or the FDA.

Women are at greater risk than men from exposure as they routinely use nearly double the number of products per day. Under the Federal Food, Drug and Cosmetic Act, products do not require FDA approval before being sold on the market.² According to the FDA, the agency monitors safety reports on the products, although often the available information is limited and many consumers never report problems they experience.

If there is enough information to support a claim that the product causes harm, the FDA may ask for a court injunction, request the products are seized, initiate criminal action or request the company recall the product. However, they do not have the ability to force a recall.³ The very last thing you may expect to find in your shampoos, conditioners, facial washes or [cosmetics is known carcinogens](#). But, if you live in the U.S., this is likely the case.

In 2009 the Campaign for Safe Cosmetics, a coalition of nearly 175 nonprofit groups, began pressuring Johnson & Johnson to remove two dangerous chemicals – 1,4 dioxane and the preservative formaldehyde, both of which are probable human carcinogens – from their merchandise, including their baby products.⁴ Three years later the company finally agreed to phase them out and by 2014 the chemicals were removed from their baby shampoo.⁵

Chemicals in Personal Care Products May Poison Water Supplies

One of every eight of the more than 84,000 ingredients in personal care products are pesticides, reproductive toxins, hormone disruptors or industrial chemicals.⁶ Many of these are degreasers, surfactants or plasticizers that are not biodegradable and may not be removed from wastewater prior to being released into the environment. Some of the

more hazardous chemical compounds include 1,4-dioxane, parabens, phthalates and toluene.

Once used in your personal care products, whether shampoo, facial wash, lotion or cosmetics, a large percentage is washed away down the drain. 1,4-dioxane is one of those chemicals commonly used in shampoos and soaps that are highly sudsy.⁷ This chemical is also commonly found in paint stripper, dyes and varnishes. The chemical is not readily biodegradable, so it sticks around in your [water supply](#).

In fact, it was just one year ago that a significant amount was detected in the water supply on Long Island, raising alarms with public health officials.⁸ But, this isn't just a problem along the East Coast as the chemical has been detected in drinking water across the U.S., having been found at over 31 Environmental Protection Agency (EPA) sites⁹ on their National Priorities List.¹⁰

According to the EPA, 1,4-dioxane migrates easily into groundwater and is resistant to biodegradation in water and soil.¹¹

According to the World Health Organization, the problem exists worldwide.¹² 1,4-dioxane is a potent environmental poison, listed as possibly carcinogenic and having organ toxicity, especially on the respiratory system and kidneys.¹³ It is also a skin and eye irritant and a common ingredient in shampoos.

As the FDA does not require manufacturers to list all chemicals in their ingredients, it can be difficult to tell if the product you're using contains this solvent, or any other chemical of concern. You may search your products on the EWG's Skin Deep database to see what chemicals are used.¹⁴

Another chemical commonly found in your personal care products that leaches into groundwater, poisoning your drinking supply, is parabens. These chemicals are widely used in cosmetics and other personal care products to preserve the product and prevent the growth of bacteria, yeast and mold.¹⁵ They are also endocrine disruptors as they mimic estrogen in the body and disrupt your own hormonal system.

Parabens easily react with free chlorine resulting in halogenated byproducts not easily filtered from your drinking water and more persistent in the environment than the original paraben species.¹⁶ Parabens have been found in groundwater in multiple areas around the U.S. as they are commonly used and disposed of in wastewater and garbage.¹⁷

1,4 Dioxane May Be Absorbed and Consumed

1,4-Dioxane is a common ingredient in shampoos or body baths that suds well. In 2013 the EPA conducted their own risk assessment and found it was "likely to be carcinogenic to humans."¹⁸ The U.S. Centers for Disease Control and Prevention (CDC) determined you may be exposed to the chemical in the air, on your skin or consumed in the water you drink.¹⁹ The chemical is readily absorbed through your lungs and gastrointestinal tract but less noticeably through your skin.

At lower doses, such as exposure on your skin or at low concentrations through your gastrointestinal tract, your body readily absorbs the chemical. At higher doses your body excretes the excess through your lungs and kidneys and it is eliminated without accumulating.²⁰ As far back as the 1970s the CDC measured 1,4-dioxane in municipal water supplies at levels of 1 parts per billion (ppb).

In 1988 California placed 1,4-dioxane on their official list of cancer-causing chemicals as they recognized the dangers it posed for their citizens. Every year the EPA does an evaluation of chemicals currently in use, following the mandate of the Toxic Substances Control Act law passed in 1976.

However, the EPA has not yet made the decision to regulate the chemical under the Safe Drinking Water Act that controls levels of chemicals found in your **drinking water**.

It has currently set a limit of 0.35 parts per billion (ppb) in public water supplies to mitigate cancer risk, but this is not a legal limit. An EPA database shows that 27 states now have levels of 1,4-dioxane at levels higher than this, increasing your risk of

absorption through your skin when bathing and showering — a route your body readily accepts.

Parabens in Your Beauty Products Raise the Price Tag on Health Care

Parabens are commonly used preservatives found in deodorants, cosmetics and shampoo.²¹ They were introduced as a preservative in the 1930s and are odorless, tasteless and colorless,²² making them a perfect addition to a cosmetic product as they do not change the experience for the consumer. Scientists have also found parabens in nearly 90% of products on your grocery store shelves, making it very difficult to avoid exposure.²³

Their chemical structure mimic estrogen, which means they're **endocrine disruptors**. The debate over whether parabens are responsible for the development of breast cancer in women has not been settled. However, in one study from England researchers found parabens in 99% of breast cancer biopsies taken in 160 tissue samples.²⁴ In 60% of those samples all five paraben esters were detected.

The study also revealed higher concentrations of paraben esters in the upper quadrant of the breast tissue and axillary area where antiperspirants are usually applied. There is also research evidence that exposure to parabens reduces testosterone levels²⁵ in males and may be a contributing factor to the nearly 60% of men who suffer from gynecomastia, or enlarged breast tissue.²⁶

Men experience another considerable medical condition from exposure to parabens that may have a long-term effect on the population. **Low testosterone levels** after exposure to parabens lead to poor sperm quality and lower fertility rates.²⁷ Researchers found concentrations of paraben esters in the participants' urine were strongly associated with an increase in the percentage of sperm presenting abnormal morphology and in sperm with DNA damage.

Samples were taken from 315 men who presented at a fertility clinic with reproductive challenges. Lead author Joanna Jurewicz, Ph.D., of the Nofer Institute of Occupational Medicine in Poland, recommended:²⁸

"We have observed an impact of parabens on semen quality. To avoid parabens is very difficult because they are widespread, but we can try to minimize the exposure by only using personal care products with label information saying that there are no parabens in the particular product."

The study found an association between butylparaben and an abnormal shape, size and motility of sperm and an association between ethylparaben and an association only with atypical size and shape of sperm.

Chemicals in Cosmetics Associated With Significant Health Hazards

During the 114th U.S. Congress (2015 to 2016), Sen. Dianne Feinstein (D-CA) introduced bill 1014 called the Personal Care Products Safety Act²⁹ as a means of legally addressing loopholes and regulating the structure for the release of personal care products. Many consumer groups supported the bill,³⁰ which was referred to the Committee on Health, Education, Labor and Pensions, where it remains to this day.

This bill was designed to give federal agencies more power to remove damaging chemicals from products you purchase at the store. Health dangers from chemicals found in your personal care products are not limited to your reproductive system as many are not inert substances but have biological activity. Scientists speculate that 1 in 5 cancers may develop after exposure to environmental chemicals, including those chemicals that have been deemed "safe" on their own.³¹

One analysis, however, found that the cumulative effect of noncarcinogenic chemicals may act in concert to produce carcinogenic activity on organ systems, cells and tissues. This essentially makes testing for carcinogenic chemicals more difficult as they are almost exclusively found in combination in products.

Endocrine disrupting chemicals are associated with a number of different health conditions as your endocrine system controls nearly all of your cells. These conditions include:³²

Undescended testicles in young males

Breast cancer in women

Thyroid cancer

Prostate cancer

Attention deficit hyperactivity disorder (ADHD)

Developmental effects on the nervous system in children

Protect Your Health Using Safe Products on Your Skin

Following measurements of 1,4-dioxane in the municipal water supply on Long Island, New York Sens. Charles Schumer and Kirsten Gillibrand introduced Senate Bill 519 to amend the Safe Water Drinking Act to set maximum levels for a list of contaminants, including 1,4-dioxane.³³ In a statement to the press, Schumer said:³⁴

"This likely cancer-causing toxin serves no purpose in these products and is not even identified on packaging, so it's time we drain it from everyday products to make Long Island's water safer."

Other states have already set limits below 1 ppb, including California, Colorado, Massachusetts and New Hampshire.³⁵ Consider contacting your senator to express concern over the chemicals found in your drinking water, using the U.S. Senate website.³⁶ As the wheels of politics turn slowly, consider taking steps in your own home to reduce your exposure to toxic chemicals and protect your health.

You may use the Environmental Working Group's (EWG) Skin Deep database to check the ingredients in your personal care products.³⁷ There's also an app for that. When out shopping for personal care products, the app Think Dirty builds on the EWG's database and recognizes nearly 70,000 different products, giving you a rating on their "dirty meter" to help you make healthier purchasing decisions.³⁸

Your skin is an exceedingly large and permeable organ. Almost everything you put on your skin ends up in your bloodstream and distributed through your body. This is why I'm so fond of saying "don't put anything on your body that you wouldn't eat if you had to."

Be aware that products boasting "all-natural" labels can still contain harmful chemicals, so be sure to check the full list of ingredients. Look for simple ingredients that you recognize and know to be safe.

You may also simplify your routine by making your own products. A slew of lotions, potions and hair treatments can be eliminated with a jar of coconut oil and high-quality essential oil, if you like, for scent. For starters, try Tree Hugger's natural deodorant recipe³⁹ below and for more information, check out the infographic below.

Homemade Natural Deodorant With Coconut Oil

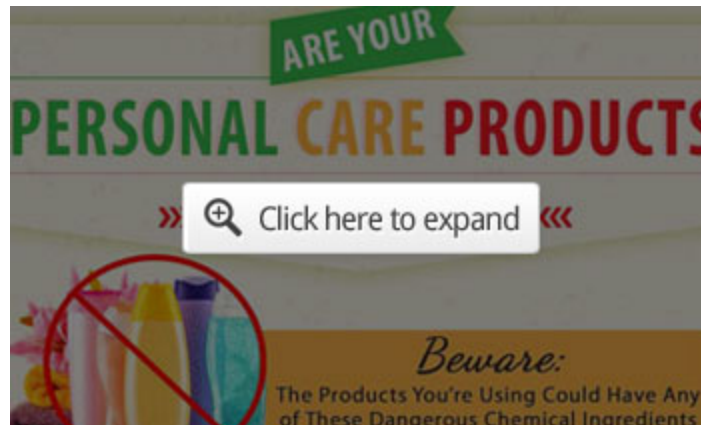
Ingredients

- 3 tablespoons [virgin coconut oil](#)
- 2 tablespoons shea butter
- 3 tablespoons [baking soda](#)
- 2 tablespoons cornstarch
- 5 drops essential oil of your choice

Directions

1. Make a double boiler by placing a half-pint glass jar in the middle of a small pot of water. Bring water to a simmer. Add coconut oil and shea butter to the jar and let melt. Turn off the heat, add baking soda and cornstarch and stir until completely smooth. Mix in the essential oil of your choice. Let cool.
2. At room temperature the deodorant is hard. You can scrape out a small ball and apply it directly to your armpits, or transfer it to an old deodorant tube for

easier application. In warmer months, you'll need to keep this deodorant in your refrigerator to prevent the coconut oil from liquefying.



Sources and References

- ¹ CNN, October 26, 2010
- ² U.S. Food and Drug Administration, March 2, 2022
- ^{3, 30} Time, April 5, 2016
- ⁴ CBS News, August 15, 2012
- ⁵ New York Times, January 17, 2014
- ⁶ David Suzuki, "The Dirty Dozen" Cosmetic Chemicals to Avoid
- ^{7, 35} Mother Jones, September 7, 2017
- ⁸ New York State, February 11, 2017 (Archived)
- ^{9, 11} Environmental Protection Agency, Technical Fact Sheet
- ¹⁰ Environmental Protection Agency, National Priorities List (NPL) Sites - by State
- ¹² World Health Organization, 1,4-Dioxane in Drinking Water
- ¹³ Environmental Working Group, 1,4-Dioxane
- ¹⁴ Environmental Working Group, Skin Deep Database
- ¹⁵ Huffington Post, January 23, 2014
- ¹⁶ Water Research, 2015;68:1
- ¹⁷ Journal of Cleaner Production, Volume 347, 1 May 2022, 131244
- ¹⁸ Environmental Protection Agency, 1,4-Dioxane
- ^{19, 20} Centers for Disease Control and Prevention, ToxGuide for 1,4-Dioxane
- ²¹ US Food and Drug Administration, Parabens in Cosmetics
- ²² Huffington Post, October 24, 2014
- ²³ Scientific American, Should People Be Concerned About Parabens in Beauty Products?
- ²⁴ Journal of Applied Toxicology 2012;32(3):219
- ²⁵ Food and Chemical Toxicology, 2002;40(12):1807
- ²⁶ CBS News, December 1, 2010
- ²⁷ Journal of Occupational and Environmental Medicine 59(11):p 1034-1040, November 2017

- ²⁸ Reuters, August 17, 2017
- ²⁹ Congress.gov, S.1014 Personal Care Products Safety Act
- ³¹ Carcinogenesis, 2015;36(1): s254
- ³² World Health Organization, February 19, 2013
- ³³ Congress.gov, S.519
- ³⁴ Schumer, April 13, 2017
- ³⁶ U.S. Senate, Contact Your Senator
- ³⁷ Environmental Working Group Skin Deep Cosmetic Database
- ³⁸ The Atlantic, April 2, 2014
- ³⁹ Tree Hugger, March 4, 2014 (Archived)