

Here are the top hidden dangers in mainstream cleaning products

Cleanliness is an important part of a healthy lifestyle. Keeping your immediate environment clean not only helps keep you safe from external threats, but it also affects your mental health positively.

According to studies, a dirty environment contributes to the spread of infectious diseases. Because pathogens like bacteria and viruses can survive on surfaces for long periods, they can easily get on your hands or other items and contaminate your food and drinks.

For instance, in the kitchen, you may place grocery bags on the countertop without knowing that they're contaminated. If you then use that countertop to prep food, potentially harmful microbes can get on your food and kitchen utensils.

That's why cleaning and disinfecting are very important for maintaining a healthy home. Cleaning helps get rid of not only visible dirt, grease and stains, but also a large number of microbes that may be present on surfaces. Soaps and detergents are the most common cleaning products used around the house.

But because cleaning only *removes* contaminants from surfaces, it could inadvertently spread microbes around, which is why you need to disinfect after thorough cleaning. Disinfecting destroys microbes completely, eliminating threats that might remain on surfaces after you clean. Disinfectants come in the form of liquids, sprays and wipes.

Although cleaning products and disinfectants are useful to have in your home, you should beware of commercial ones. Many cleaning supplies sold in stores can irritate your eyes and throat and cause other health problems. Some of them also release volatile organic compounds (VOCs), which can trigger allergic reactions, headaches and chronic respiratory problems.

VOCs are also considered to be indoor air pollutants. A 2008 report by the French Agency for Environmental and Occupational Health Safety found that the use of household products such as air fresheners, glass cleaners and carpet and floor cleaning products can lead to high indoor VOC concentrations. What's more, some of these products also release formaldehyde, a chemical classified by the International Agency for Research on Cancer as a human carcinogen.

In a study published in the *International Journal of Occupational and Environmental Health*, researchers also reported that commonly used professional cleaning products contain a variety of chemicals that can harm your skin and respiratory tract. These chemicals include fragrances, glycol ethers, surfactants, solvents, phosphates and pH-stabilizers, among many others.

After testing 105 professional cleaning products, the researchers identified a total of 132 different chemicals in them. They found that 75% of the products contained known irritants, while 28% contained corrosive substances. Over 50% also contained chemicals that are harmful to the eyes and skin, while 60% contained chemicals that can cause serious harm when ingested.

Toxic chemicals you may not know are hiding in commercial cleaning products

Today, most cleaning products you'll find in stores are formulated with questionable ingredients. Despite this, manufacturers advertise them as "natural" or "green," to the detriment of many consumers. People fall for these false labels because, sadly, the law doesn't require manufacturers to list all the chemicals they use in their products.

That's why, for your safety, you need to be aware of the dangers lurking in commercial household products. Aside from online articles that aim to raise consumer awareness, many studies have also been conducted on commercial cleaning supplies and the health problems linked to their hazardous ingredients.

To help you avoid these products, here are seven of the top toxic chemicals found in mainstream cleaning products that you need to watch out for: [7]

1,4-Dioxane

A common solvent used in the manufacture of cosmetics, detergents and shampoos, 1,4-dioxane is a clear liquid with a faint, pleasant odor. But this synthetic petrochemical is a toxic contaminant that can rapidly enter your body through your nose or skin. 1,4-Dioxane has also been identified as a **possible human carcinogen** and linked to liver and kidney injuries. [9]

According to the *U.S. Food and Drug Administration* (FDA), 1,4-dioxane forms as a manufacturing byproduct of chemical ingredients such as detergents, foaming agents, emulsifiers and solvents like polyethelene, polyethylene glycol and polyoxyethylene. This is why despite not serving an actual cleaning purpose, 1,4-dioxane is still present in many household cleaning products.

1,4-Dioxane can irritate the eyes, nose, throat, lungs and skin. Inhalation or exposure to high levels can also cause poisoning. Symptoms of 1,4-dioxane poisoning include nausea, vomiting, stomach pains, vertigo and drowsiness. Severe cases of poisoning could result in kidney and liver damage, coma and death. Animal studies have also found that exposure to 1,4-dioxane can trigger the growth of malignant tumors in the nasal cavity and cause liver and gallbladder cancer.

2-Butoxyethanol

Commonly found in window, kitchen and multipurpose cleaners, this chemical gives products a mild, sweet smell. 2-Butoxyethanol belongs to a group of solvents known as glycol ethers, which have been found to cause sore throat when inhaled. Glycol ethers have also been linked to narcosis, pulmonary edema and severe liver and kidney damage. Unfortunately, the law does not require 2-butoxyethanol to be listed on product labels.

According to information published by the Agency for Toxic Substances and Disease Registry, exposure to 2-butoxyethanol occurs mainly through

inhalation or skin contact with products that contain the chemical. Breathing in large amounts could irritate your eyes and nose and cause headache and vomiting.

In a series of animal studies conducted under the National Toxicology Program, researchers found that 2-butoxyethanol when inhaled – the primary route of human exposure – showed cancer-causing activity mostly in female rats and mice. The main organs affected by 2-butoxyethanol were the kidneys, liver and stomach.

Ammonia

Laundry detergents contain alkaline compounds that can neutralize acids and help remove dirt, stains and grease from fabrics. One of the most versatile and commonly used alkaline additives is ammonia, a colorless but highly irritating gas with a sharp, suffocating odor. Ammonia is also used in many household and industrial-strength cleaning solutions. In fact, industrial cleaning solutions contain higher concentrations of ammonia and can easily cause irritation and burns.

Despite its versatility, ammonia poses significant harm to your health. Exposure to high levels can irritate and burn your skin, mouth, throat, lungs and eyes. Acute exposure to ammonia can also cause bronchitis – inflammation of the tubes that carry air to and from your lungs. Inside the body, ammonia reacts with water to form ammonium hydroxide, a corrosive chemical that can damage healthy cells.

If swallowed, ammonia can cause drowsiness, unconsciousness and death. A study published in the journal *Occupational & Environmental Medicine* also reported that the use of cleaning products containing irritants like ammonia can negatively affect lung function and worsen asthma.

Perchloroethylene (PERC)

Classified as a neurotoxin and possible human carcinogen, PERC is a common ingredient in dry-cleaning solutions, spot removers and carpet and

upholstery cleaners. PERC is also known as tetrachloroethylene, and exposure to this chemical can cause irritation of the eyes, skin, nose throat and respiratory system, according to the *Centers for Disease Control and Prevention*.

In a report published by the *Environmental Protection Agency* (EPA), the agency noted that short-term inhalation of high levels of PERC can cause kidney dysfunction and neurological effects such as reversible mood and behavioral changes, dizziness, impairment of coordination, headache, sleepiness and unconsciousness. Meanwhile, long-term inhalation exposure can impair cognitive and motor neurobehavioral performance.

In a 2014 study published in the journal *Environmental Health Perspectives*, researchers found suggestive evidence that PERC can cause bladder cancer, non-Hodgkin lymphoma and multiple myelomas in humans. Meanwhile, early life exposure to drinking water contaminated with PERC has been linked to long-term neurotoxic effects.

Phthalates

Often called “everywhere chemicals” because they can be found everywhere, phthalates are a family of industrial chemicals commonly used in soaps, detergents, air fresheners, personal care products, medical devices and cosmetics. Phthalates are also used as solvents in fragrances, so expect them to be present in scented cleaning products. Manufacturers only use the word “fragrances” in product labels because they’re not required to disclose the chemicals in their scents.

Phthalates are notorious for their many adverse effects. According to studies, exposure to phthalates can irritate the skin, eyes and the mucus membrane of your oral and nasal cavities. Phthalates are also known endocrine disruptors and can alter the hormone-dependent structures of the human reproductive system, particularly of males. And like hormones, they exert their effects at low doses.

Phthalates also have a negative effect on the development of unborn babies. According to a study of mothers and children in Norway, pregnant mothers exposed to high levels of phthalates from household products are highly likely to give birth to babies with an increased risk of attention-deficit hyperactivity disorder.

Quaternary ammonium compounds (QUATS)

Frequently found in fabric softeners, disinfectant sprays, hand soaps and household detergents, QUATS are widely used as antibacterial agents. According to studies, QUATS possess chemical properties that allow them to bind to certain microbes and disrupt their cell membranes over time. QUATS tend to be most effective against Gram-positive bacteria, which include some of the most significant human pathogens.

But in recent years, researchers have raised concerns about the overuse of disinfectants, particularly those that contain QUATS. As noted by researchers from South Africa, bacterial pathogens are rapidly developing resistance not just to antibiotics, but also to commonly used disinfectants that contain QUATS.

Prolonged use of products that contain QUATS have also been linked to several health issues. Like many harsh chemicals, QUATS can irritate your skin and cause rashes. They can also contribute to asthma and other breathing problems. Animal studies also show that QUATS can reduce fertility and sperm motility, as well as cause birth defects in newborns.

Triclosan

A common ingredient in soaps, laundry and dishwashing detergents, hand sanitizers and cleaning supplies, triclosan is another chemical with antibacterial properties. It was originally developed for use in hospital settings and is said to impair the production of bacterial lipids. But recent studies have found that bacteria exposed to triclosan can develop antimicrobial resistance.

In 2016, the FDA banned the use of triclosan in hand soaps due to health concerns associated with triclosan use. As an endocrine disruptor, triclosan has been reported to interfere with the functions of certain hormones that directly affect the brain. Triclosan also negatively affects the human immune and reproductive systems.

According to the *Department of Public Health*, triclosan is harmful to children because it increases their risk of allergy. Triclosan is also an environmental pollutant that is highly toxic to aquatic organisms. Aside from being detected in many waterways in the U.S., this chemical has also been reported to hang around in the environment and accumulate to toxic levels inside the human body.