

Top 8 Nontoxic Cleaners You Can Use at Home

Analysis by [Dr. Joseph Mercola](#)

✓ Fact Checked

August 12, 2022

STORY AT-A-GLANCE

- › Once-weekly use of cleaning products for 20 years may be equivalent to smoking 20 cigarettes a day for 10 to 20 years. Cleaning agents and personal care products are also the second and third most frequent cause for calls to poison control in the U.S.
- › Long-term exposure to household cleaners and disinfectants has been linked to increases in asthmatic symptoms, nervous system damage, low sperm count, irregularities in menstruation and miscarriage
- › The most acutely dangerous cleaning products are corrosive drain cleaners, acidic toilet bowl cleaners and oven cleaners
- › Common household products also contribute to air pollution, not just inside the home but also outdoors
- › Clearing out your cleaning cabinet is a simple way to safeguard your family's health. Recipes and guidance on how to make your own homemade cleaning solutions using safe ingredients are included

This article was previously published January 16, 2019, and has been updated with new information.

With household cleaner use being as dangerous for your lung health as long-term smoking, clearing out your cleaning cabinet could be a really simple way of safeguarding your family's health. It's true, research¹ from the University of Bergen in

Norway has demonstrated that once-weekly use of cleaning products for 20 years may be equivalent to smoking 20 cigarettes a day for 10 to 20 years.

The authors postulate the damage could be attributed to the irritation most chemicals cause on the mucous membranes lining your lungs. Over time, this can result in persistent changes and airway remodeling. As noted by senior author Cecilie Svanes, Ph.D., professor at the University of Bergen Center for International Health:²

"[W]hen you think of inhaling small particles from cleaning agents that are meant for cleaning the floor and not your lungs, maybe it is not so surprising ...

The take-home message of this study is that in the long run cleaning chemicals very likely cause rather substantial damage to your lungs. These chemicals are usually unnecessary; microfiber cloths and water are more than enough for most purposes."

Household cleaning agents and personal care products are also the second and third most frequent cause for calls to poison control in the U.S., beating out both antipsychotics and antidepressants.³

Household Products Create as Much Air Pollution as Cars

Other recent research⁴ confirmed that many consumer products release volatile organic compounds (VOCs) as they evaporate, and once these chemicals migrate outside your home, they react with nitrogen oxides and heat, transforming into ozone. When exposed to sunlight, the VOCs transform into fine particulate matter.

In this way, common household products contribute to air pollution, not just inside the home but also outdoors. In fact, according to an air quality evaluation in the Los Angeles area, the amount of VOCs released by consumer products is two to three times greater than previously estimated.^{5,6}

While the list of VOCs is exceedingly long, study team member Jessica Gilman, a research chemist at the National Oceanic and Atmospheric Administration (NOAA),

notes that the easiest way to identify VOC-containing products is to look for the word "fragrances" on the label, as up to 2,000 different VOCs can be listed simply as "fragrance."⁷

Two popular ones are limonene and beta-Pinene, frequently used in cleaning products and air fresheners as they smell like lemon and pine trees. The investigation was inspired by earlier measurements in Los Angeles demonstrating concentrations of VOCs were higher than could be predicted by burning fossil-fuels alone.⁸

Previous estimates by the U.S. Environmental Protection Agency (EPA) had found 75% of VOC emissions were from vehicles, but this study places the split closer to 50%, suggesting new air quality models may have to be adopted in order to reduce air pollution originating from consumer products.⁹

These findings also highlight the importance of addressing your indoor air quality, as VOCs are typically seven times higher indoors than outdoors.¹⁰ A key strategy is to stop introducing toxic chemicals into your home, and cleaning products are a major source.

Exposure to Cleaning Agents Has Serious Health Ramifications

While exposure to cleaning products in the long term may be equivalent to smoking, you may also suffer more immediate health consequences. A 2015 study¹¹ evaluating exposure to cleaning products against short-term respiratory effects in women with asthma found the use of specific products at work exacerbated the participants' condition. Long-term or chronic exposure to household cleaners and disinfectants has also been linked to:

- An increase in asthmatic symptoms, increasing your risk of long-term effects associated with asthma, including chronic obstructive pulmonary disease, lung infections and scarred lung tissue.¹² Individuals who suffer from diseases that fall under the umbrella of chronic obstructive pulmonary disease may also experience frequent wheezing, coughing, chest tightness and increasing breathlessness¹³
- Nervous system damage¹⁴

- Low sperm count¹⁵
- Irregularities in menstruation¹⁶
- Miscarriage¹⁷

The most acutely dangerous cleaning products are corrosive drain cleaners, acidic toilet bowl cleaners and oven cleaners.¹⁸ Corrosive chemicals can cause severe burns, while chlorine bleach and ammonia-containing products produce fumes that are irritating to your eyes, throat and lungs.

Additionally, chlorine and ammonia pose a further threat as they react with other chemicals to form damaging gases. Fragrances added to many cleaning solutions can also trigger headaches and migraines.¹⁹

Mixing Cleaning Products Can Have Lethal Effects

Your cleaning products may also have lethal effects if you mix them together. For instance, mixing bleach with an ammonia-based product produces a toxic gas called chloramines, exposure to which may trigger chest pain, wheezing, shortness of breath and pneumonia.²⁰

Ammonia is commonly found in glass and window cleaners or interior and exterior paints, making bleach a poor choice for cleanup after painting.²¹ Combining bleach with an acid-based cleaner produces chlorine gas, which when combined with water will make hydrochloric and hypochlorous acids.²²

Even low levels of exposure for a short time will result in eye, nose and throat irritation. Higher-level exposure will result in chest pain, vomiting, breathing difficulty and chemical-induced pneumonia. Vinegar is a mild acid, and mixing bleach with this common household liquid can result in chemical burns of your eyes and lungs.²³ Other acid-based products include drain cleaner, toilet bowl cleaner and automatic dishwasher detergents.²⁴

Bleach will also react with oven cleaners, hydrogen peroxide and some insecticides to produce toxic gas. Mixing bleach with products that contain isopropyl alcohol, such as rubbing alcohol, can produce gasses that have the potential to damage your nervous system, eyes, lungs, kidneys and liver.²⁵

Ultimately, mixing any two commercial cleaners or drain cleaners together is a dangerous proposition, and the hazard inherent in the use of these cleaners is significant enough without the additional risks associated with mixing unknown chemicals.

8 Nontoxic Household Cleaning Products You Can Use

One of the primary reasons for cleaning your home regularly is to clear out many of the toxic chemicals accumulating in your dust. Flame-retardant chemicals and phthalates are among them, along with thousands of species of bacteria and fungi.²⁶

A clean and decluttered home is a sanctuary from the outside world, but if you use rubber gloves and spray harsh chemicals to get the job done, you're likely doing more harm than good. Research shows even products labeled green, natural and organic emit hazardous air pollutants.²⁷

The good news is you really don't need to buy chemical cleansers to keep your home spick-and-span. Keeping a few natural and nontoxic staples on hand will allow you to clean your home from top to bottom, saving you money to boot. Core staples to consider include the following. In the sections that follow, I'll provide guidance on how to use them all.

1. Baking soda
2. White vinegar
3. Lemons (both juice and peel)
4. Castile soap
5. Coconut oil

6. Essential oils (citrus essential oil being a good overall choice)
7. Hydrogen peroxide
8. Rubbing alcohol or vodka

Two Powerful Multiuse Cleaning Agents

In preparation for the Statue of Liberty's 100th anniversary in 1986, 99 years' worth of coal tar had to be removed from its inner copper walls, without causing damage. Baking soda – more than 100 tons – was the cleaner of choice,²⁸ so there's a good chance it can remove dirt and grime around your home too. Here are a few examples of how it can be used:

- **Nonscratch scrub** for metals and porcelain.
- **Nontoxic oven cleaner** – Sprinkle 1 cup or more of baking soda over the bottom of the oven, then cover the baking soda with enough water to make a thick paste. Let the mixture set overnight. The next morning, the grease will be easy to wipe off. When you have cleaned up the worst of the mess, dab a bit of liquid detergent or soap on a sponge and wash the remaining residue from the oven.
- **Drain cleaner** – To unclog a drain, pour one-half to 1 cup of baking soda down the drain, then slowly pour one-half to 1 cup of vinegar in after it. Cover the drain and let sit for 15 minutes. If it bubbles like a volcano, it means it's working as planned. Flush with a gallon of boiling water.
- **Carpet deodorizer** – Liberally sprinkle baking soda over the carpet. Wait at least 15 minutes, then vacuum thoroughly.

Distilled white vinegar is another cleaning staple that has a long history of use. Depending on your age, you may recall your grandmother washing windows with a mixture of white vinegar and water. Indeed, it makes for a great window cleaner, but it also has disinfectant properties, with research showing white vinegar is useful for disinfection against *Escherichia coli* (E. coli), provided it's a freshly prepared solution of at least 50% vinegar.²⁹

For disinfecting purposes, one study found spraying vinegar, followed by hydrogen peroxide, was effective for killing a variety of bacteria, including E. coli, Listeria and Salmonella.³⁰ You can also spray white vinegar onto a dusting of baking soda to clean your tubs and tile floors.

A vinegar and water mixture makes a great all-purpose countertop cleaner as well, but for stone counters, use rubbing alcohol or vodka with water instead, as the acidity of the vinegar may harm surfaces such as marble and granite. For heavier-duty cleaning, like mildew on your bathroom grout, spray vinegar straight onto the area, let set for 30 minutes, then scrub with a sponge and warm water.

15 Ways to Clean With Lemons

Lemons, both the juice and peel, can be used throughout your home for cleaning and deodorizing. For example, you can use them to clean and freshen your:

Garbage disposal — Freeze lemon slices and vinegar in ice cube trays. Place a few frozen cubes down your disposal for cleaning and freshening. Alternatively, simply run some lemon peel through your disposal.

Refrigerator — Soak a sponge in lemon juice and let it set in your fridge for a few hours; it works better than baking soda to remove odors.

Room freshener — Simmer a pot of water with lemon peels, cloves and cinnamon sticks on your stove.

Humidifier — Add lemon juice to the water in your humidifier, then let the machine run for deodorizing.

Fireplace — Dried citrus peels can act as kindling in your fireplace, adding a wonderful smell and acting as a flame starter. Simply set the peels out to dry for a few days before using.

Trash cans — A few lemon peels added to your garbage can will help with odors.

Cutting boards — Sprinkle coarse salt on your cutting board then rub with a cut lemon to freshen and remove grease. This trick also works for wooden salad bowls and rolling pins.

Coffee maker — Run a cycle with plain water, then add a mixture of lemon juice and water to the water tank. Let it sit for several minutes, then run the cycle through. Repeat this process once more, then run another plain water cycle (you'll want to wash the coffee pot and filter afterward to remove any lemon taste).

Furniture polish — Combine lemon oil, lemon juice and olive or jojoba oil to make a homemade furniture polish. Simply buff with a cloth.

Hardwood floors — Combine lemon and vinegar for a grime-fighting nontoxic floor cleaner.

Cat box — Place lemon slices in a bowl near your cat box to help freshen the air.

Windows — Lemon juice cuts through grease and grime on windows and glass. Try combining it with one-fourth cup white vinegar, 1 tablespoon of cornstarch and 2 cups of warm water³¹ for a phenomenal window cleaner.

All-purpose cleaner — Combine water, baking soda, vinegar, lemon juice and lemon essential oil for a wonderful kitchen or bathroom cleaner.

Hands — Add lemon juice while washing your hands with soap to help remove stubborn odors like garlic.

Breath — Drinking lemon water helps freshen your breath (rinse your mouth with plain water afterward since lemon juice may erode your teeth).

All-Natural Antibacterial Cleaning Suggestions

Castile soap is natural, biodegradable, chemical-free and incredibly versatile. You can use it for personal care, laundry and cleaning around your home. For instance, mixing baking soda with a small amount of liquid castile soap makes an excellent paste for cleaning your tub and shower.

For a homemade antibacterial solution, mix 2 cups of water with 3 tablespoons of castile soap and 20 to 30 drops of tea tree oil. Spray onto the surface (such as toilet seat or sink), then wipe off. You can even make a homemade dishwasher detergent by mixing equal parts of liquid castile soap and water.

Hydrogen peroxide is another antibacterial option. For general cleaning around the house, simply add 20 to 30 drops of citrus essential oil to a spritzer bottle filled with 3% hydrogen peroxide. Spray surface and wipe off. It's great on greasy surfaces such as your kitchen counters.

Coconut oil also has antiviral, antibacterial and antifungal compounds that have been shown to inactivate microorganisms such as bacteria, yeast and fungi. Around the home, coconut oil is particularly useful for cleaning, sanitizing and conditioning wood items, such as cutting boards and furniture, but you can also use it for lubricating squeaky hinges and sticky mechanisms instead of WD-40.

It also works well for moisturizing and softening leather goods in lieu of leather conditioners and for removing chewing gum from virtually any area, including carpets and hair.

Essential Oils Have Countless Uses

Essential oils deserve a category of their own, as their uses for household cleaning are only limited by your imagination. Many essential oils have antibacterial, antifungal and antiviral activity and can be added as a boost to your homemade cleaners.

For instance, to make a homemade cleaning scrub with antibacterial activity, simply add a few drops of lavender oil to baking soda. Some of the most popular essential oils for cleaning include lemon, peppermint and tea tree, with tea tree showing antiviral activity

against viruses like influenza A.³² Sweet orange is another option, which has been shown to work against E. coli and Salmonella.³³

Essential oils can also be diffused around your home for a natural, therapeutic air freshener. Ditch the toxic sprays, candles and plug-ins for an essential oil diffuser instead. They not only smell wonderful but can have beneficial effects on your mood and stress levels.

Unlike synthetic fragrances, which pollute your air, essential oils may actually help to improve indoor air quality. In the case of fungi and mold, for instance, essential oils from heartwood, marjoram, cinnamon, lemon basil, caraway, bay tree, fir, peppermint, pine, cedar leaf and manuka may be helpful, as they all have antifungal properties.³⁴

In addition, you can easily freshen your laundry without risking your family's health simply by spritzing your wet laundry with a mix of water and a few drops of essential oil before placing it in the dryer. Alternatively, add a dozen or so drops to an old wool sock, and put it in the dryer with your laundry.

Homemade Laundry Detergent and Bleach Alternative

Once you dip your toe into the world of natural cleaning, you'll realize there's virtually no reason to resort to toxic chemical sprays and powders. You can reach a superior level of clean using simple ingredients you probably have in your kitchen right now. And feel free to be creative, as some of the best combinations are found through experimentation.

You can even make your own laundry detergent, adding in any essential oils you like for a natural scent. Here's a recipe from Mommypotamus to get you started.³⁵ Happy natural cleaning!

Homemade Natural Laundry Detergent

Ingredients

- 6 cups washing soda
- 3 bars coconut oil soap (4.5 to 5 ounces each)
- Lemon essential oil (optional)

Instructions

1. Cut soap into small chunks. Add to a food processor along with the washing soda.
2. Blend until you have a fine powder. You may want to lay a dish towel over the top of your food processor to prevent a fine mist of powder from floating into the air.
3. Also, let it settle a bit before opening the container or the powder will float onto your kitchen counter.
4. Pour the powder into a clean container. Keep the essential oil next to the jar and add 5 drops with each load.

For whites, consider this recipe for a bleach alternative, courtesy of Beyond Toxics.³⁶

Bleach Alternative Formula

Ingredients

- 1/2 cup Basic Liquid Formula (see below)
- 1/4 cup borax
- 1/4 cup lemon juice or vinegar
- 6 drops lemon essential oil

Basic Liquid Formula

Ingredients

- 2 1/4 cups liquid castile soap

- 1 tablespoon glycerin
- 3/4 cup water
- 10 to 15 drops lemon essential oil (or other essential oil of your choice)

Instructions

1. This recipe makes enough for one load of laundry. Keep lemon juice separate until ready to use. Combine all ingredients into a plastic container, and shake once or twice before adding to the wash.

Sources and References

- ¹ American Journal of Respiratory and Critical Care Medicine, 10.1164/rccm.201706-13110C
- ² Science Daily, February 16, 2018
- ³ Clinical Toxicology 2017 Dec;55(10):1072-1252
- ⁴ Science February 16, 2018 DOI: 10.1126/science.aag0524
- ^{5, 9} Medicine Net, February 15, 2018
- ⁶ EWG.org February 12, 2018
- ^{7, 10} Atlantic February 21, 2018
- ⁸ New York Times, February 16, 2018
- ¹¹ BMJ Journals, 2015; 72(11):757
- ¹² VeryWell Health, December 19, 2017
- ¹³ EurekAlert! September 10, 2017
- ^{14, 15, 16, 17} Occupational Safety and Health Administration, Understanding Chemical Hazards
- ¹⁸ Organic Consumers Association, How Toxic Are Your Household Cleaning Supplies
- ¹⁹ Air Qual Atmos Health. 2016;9(8):861-866
- ^{20, 22} Washington State Department of Health, Dangers of Mixing Bleach with Cleaners
- ^{21, 24} Utah Department of Health, Common Cleaning Products May Be Dangerous When Mixed
- ²³ BuzzFeed, September 26, 2013
- ²⁵ ThoughtCo.com, April 17, 2017
- ²⁶ Proceedings of the Royal Society B September 7, 2015
- ²⁷ Environmental Health Perspectives 2011 Jan; 119(1): A16
- ²⁸ Arm & Hammer, History Milestones
- ²⁹ J Appl Microbiol. 2015 Nov;119(5):1245-52
- ³⁰ Food Microbiology October 1997; 14(5): 439-448
- ³¹ Crunchy Betty June 19, 2017
- ³² Antiviral Res. 2011 Jan;89(1):83-8

- ³³ J Food Sci. 2011 Aug;76(6):M433-8
- ³⁴ Rev Environ Health. 2017 Oct 27
- ³⁵ Mommyotamus, How to Make Natural Laundry Detergent
- ³⁶ Beyond Toxics, Bleach