What's Under Your Sink?
Potential Hazards of Home Cleaning Products

Chemicals in Household Cleaning Products: What Every Woman Should Know

How clean is clean? Americans have become increasingly concerned about their exposure to germs and the diseases they may cause. Advertisements tell us of new and improved products which will protect our family’s health by killing germs found on every surface we may touch. Unfortunately, such advertisements fail to mention that many cleaning products contain chemicals that may actually be harmful to our health.

This is of particular concern to women and children. Recent studies point to a link between certain chemicals in some cleaning products and asthma and reproductive harm. That means that children, pregnant women, women trying to get pregnant, and persons with asthma are especially vulnerable to these chemicals.

DIID YOU KNOW

...Women today are still doing over 70% of the housework in the average home.

...The cleaning industry in the U.S. employs about 3.4 million cleaning workers. Of those, women comprise nearly 90% of maids and housekeeping cleaners.

...Children are often more vulnerable to chemicals because their organs and immune systems are not yet fully developed, and certain chemicals may interfere with the development of their neurological, endocrine and immune systems.

...Many household cleaners contain chemicals, some of which are toxic. These chemicals may cause short-term health problems like skin and eye irritation when you use them and they may have long-term health impacts as well.

...Some chemicals in cleaning products have been linked to asthma, which is a growing chronic health problem. Several chemicals present in some household and industrial cleaning products have been identified as asthma triggers or are known to aggravate existing respiratory symptoms.

...Some chemicals in cleaning products have been linked to reproductive harm, which includes changes in sexual behavior, decreases in fertility, menstrual changes, changes in the onset of puberty, cancers of reproductive organs, miscarriage, premature birth and other effects. Many scientists now believe that chemical exposure, even at very low levels, can have adverse impacts on the reproductive system.

...Air fresheners deserve special attention because they may contain carcinogenic (cancer-causing) chemicals as well as chemicals associated with respiratory and reproductive harm. Unfortunately, little research has been done to specifically examine health risks associated with the use of air fresheners that contain these chemicals.

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We know very little about the long-term health impacts of chronic exposure to chemicals in household cleaning products. While additional studies are needed in order to fully ascertain the safety of using household cleaning chemicals over the course of a lifetime, the potential health impacts associated with exposure to certain chemicals present a significant cause for concern.

*But, aren’t cleaning products regulated for safety?*

- Tens of thousands of chemicals are used in American industry, placed in products, and released to our environment, with very little information on the potential consequences for human health and little oversight by the government.

- No legal requirements exist for ingredient labeling on household cleaning products. As a result, consumers have limited access to information about which products contain chemicals ingredients they may wish to avoid.

*These chemicals also harm the natural environment.*

Chemicals in cleaning products can pollute the environment when sprayed in the air or washed down the drain, jeopardizing the health of our ecosystems.

- The United States Geological Survey found breakdown products of laundry detergents in 70% of North American streams. These chemicals can cause harm to fish, frogs, turtles and other aquatic life. Studies have shown that even low-level exposure has reduced the number of fertilized trout eggs and caused reduced embryo survival and abnormal embryos in another fish, the Japanese Medaka.

*Actions you can take to protect your family from exposure to chemicals in household cleaning products:*

- Look to see if the products you use are listed on the fact sheet, *Household Cleaning Products Containing Chemicals of Concern*, (or Appendix 1 of the report, *Household Hazards*). If your products are not on the list, use the 1-800 number on the product package to call the manufacturer. Ask for a list of product ingredients and encourage them to provide this information on product labels.

- While the presence of a chemical of concern in a product does not necessarily imply the product will cause harm, the potential health risks associated with exposure do present a concern. From a precautionary standpoint, you may wish to avoid products containing these chemicals.

- Make your own effective, non-toxic cleaning products using simple and inexpensive ingredients like vinegar and baking soda.

- Buy only from companies that list all product ingredients on the package.

- Tell Congress to require companies to disclose all ingredients in household cleaners on product labels and to replace toxic chemicals with safer alternatives.

- Read WVE’s fact sheet, “WHAT YOU CAN DO: 7 Simple Steps to Help Reduce Your Exposure to Toxic Chemicals from Household Cleaning Products.”

- To review the report, read a complete list of action items, download non-toxic cleaning recipes, and review a list of chemicals of concern in cleaning products, visit [www.womenandenvironmont.org](http://www.womenandenvironmont.org).

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<th>Room</th>
<th>Manufacturers Say:</th>
<th>Reduce Your Usage &amp; Alternatives</th>
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<tr>
<td>Kitchen</td>
<td>Disinfect sinks, refrigerators, counters, stove tops, and high chairs on a daily basis.</td>
<td><strong>Reduce:</strong> If you practice good food safety, wash your hands (especially after handling raw meat), and do not leave cooked food on counters for longer than two hours, daily disinfection at home is simply unnecessary. You can learn more about safe food practices on page 18. <strong>Alternatives:</strong> To clean your sinks and counters without unnecessary exposure to disinfectants, try a creamy soft scrub made with baking soda, castile soap, and vegetable glycerin. Baking soda is great for neutralizing acid, and cleaning stainless steel and porcelain. For tough cleaning jobs, spray the surface first with vinegar, which will eliminate 90-98% of bacteria. Vinegar is safe enough to eat, making it a good choice for everyday cleaning!</td>
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<tr>
<td>Bathroom</td>
<td>Disinfect areas that get contaminated with germs, including counter tops, bath tubs, toilet bowls, and sinks.</td>
<td><strong>Reduce:</strong> Bathrooms are often small, poorly ventilated, or unventilated spaces; and fumes from antimicrobials can build up to problem levels fairly quickly. Focus on disinfecting only those areas that get frequent hand contact—like toilet flush handles, sink faucets, and light switches. <strong>Alternatives:</strong> Instead of using a tablespoon full of bleach to clean your toilet bowl, sprinkle the bowl with baking soda, drizzle with vinegar, let sit for 30 minutes, and scrub with a toilet brush. Vinegar not only deodorizes, it’s highly acidic, making it effective at destroying bacteria. Baking soda also deodorizes in addition to cleaning and polishing porcelain.</td>
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<td>Baby’s Room</td>
<td>Disinfect throughout the day, especially areas like changing tables, diaper pails, teething toys, and bottles.</td>
<td><strong>Reduce:</strong> Being a mom means constant cleaning. But cleaning and disinfecting are not the same (see the Glossary for definitions). The majority of messes, like food spills and spit up, can be cleaned without using antimicrobials. In fact, experts agree that the best way to prevent the transmission of germs to a baby is to wash your hands before handling her/him. <strong>Alternatives:</strong> Don’t keep disinfectant wipes near the changing table; you don’t want to confuse them with your baby wipes when you’re changing diapers! Instead, keep a spray bottle full of half vinegar, half water, and a few drops of essential oil for quick clean-up jobs. The vinegar deodorizes, and is as effective or nearly as effective as commercial disinfectant cleaners in reducing microbes like E.coli on a surface. Essential oils have natural anti-bacterial properties, not to mention give your baby’s room a pleasant (and non-toxic!) smell. Wash your baby’s bottle with soap and hot water instead of soaking it with bleach; soap and water is still the best way to get rid of germs, and won’t leave a bleach residue on a bottle lid that regularly goes into your baby’s mouth. If you need to sanitize the bottle (because milk was left in it for too long, for example) you can put it through your dishwasher—or just boil the parts in water for a few minutes to get rid of any lingering bacteria.</td>
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<tr>
<td>Laundry Room</td>
<td>Get clothes their whitest by using bleach.</td>
<td><strong>Reduce:</strong> You can get clothes white and keep colors bright by using less-toxic ingredients than bleach. Apart from health concerns around using bleach, overuse or misuse of bleach can also eat holes in your clothing. <strong>Alternative:</strong> Ditch the bleach for whitening your laundry and try a ½ cup of borax (a naturally occurring powdered substance) instead. Borax’s chemicals properties not only make it a good bleaching agent, but a great cleaner and freshener, too.</td>
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Common ingredients in fragrance, such as phthalates, synthetic musks, and allergens, have been linked to health impacts ranging from eye and skin irritation to hormone disruption, increased risk of breast cancer, and reproductive and developmental harm. If you choose to avoid fragranced products from the store, there are alternatives to ensuring a pleasant-smelling home.

**TIPS FOR REDUCING ODORS AROUND THE HOME**

| GENERAL | Open a window or turn on a fan and let in some fresh air! Good ventilation is one of the best ways to remove odors from your home. It can also help reduce levels of indoor air pollutants that commonly build up in our homes. |
| BATHROOM | Open the window in the bathroom to decrease humidity after a shower, reducing the potential for growth of mildew and mold. | Keep it clean! Even just a regular swish of your toilet with a brush can prevent toilet rings and reduce odors. |
| KITCHEN | Put an open box of baking soda in the fridge. | Sprinkle baking soda or coffee grounds in your trash can to mask odors. | Ground up a half lemon (you can use one you’ve just squeezed for juice) in your sink garbage disposal for a fresh lemon scent. |

**REPLACING AIR FRESHENERS**

If you want to add a particular scent to your home, here are some natural alternatives:

| FRESH OR DRIED FLOWERS | Setting out a fresh bouquet of flowers is not only pretty, but can add a lovely floral scent to your home. A bowl of dried flowers (potpourri) can have a similar effect – and lasts even longer. |
| COOKING UP SOME HERBS OR SPICES ON THE STOVE | Adding spices like cinnamon, vanilla, or even cut-up fruit like lemon or apple to a pot of boiling water and letting it simmer on the stove can infuse a scent throughout your home. Seasonal alternatives can also include flower petals, pinecones or pine needles. |
Unscented Alternatives to Store-Bought Scented Cleaning Products

<table>
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<tr>
<th>ALL PURPOSE CLEANER</th>
<th>Mix 1 part white distilled vinegar and 1 part water in a spray bottle.</th>
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<tr>
<td>SOFT SCRUB CLEANSER</td>
<td>Mix 2 cups baking soda, ½ cup liquid castile soap, and 4 teaspoons vegetable glycerin in a sealed glass jar.</td>
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<tr>
<td>CARPET DEODORIZER</td>
<td>Sprinkle baking soda on carpet. Let sit for an hour or overnight. Vacuum it up.</td>
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<tr>
<td>LAUNDRY DETERGENT</td>
<td>Mix 1 cup soap flakes (just finely grate a bar of unscented soap), ½ cup borax and ½ cup washing soda. Use just 1-2 tablespoons per load.</td>
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<tr>
<td>FABRIC SOFTENER</td>
<td>Add ½ cup white distilled vinegar to rinse cycle of your washer.</td>
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<td></td>
<td>Use wool dryer balls in your dryer to fluff up clothes and absorb static.</td>
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<tr>
<td>DRYER SHEETS</td>
<td>Hang your laundry out to dry in nice weather instead of using your dryer, for fresh smelling clothes and sheets. (You can also save loads on your electricity bill!)</td>
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Note on Essential Oils

Essential oils are liquids formed from the distillation of the leaves, stems, or flowers of a plant. They are very concentrated liquids, so a little (even just a few drops) goes a long way. They can be used to add a scent to the recipes and alternatives listed above. In addition, some essential oils have natural anti-bacterial properties and can be used as a preservative. They are commonly available in health food stores, and are sold online. With certain scents, there may be a concern for overharvesting sensitive or rare plants, so you want to look for essential oils marketed as “sustainably harvested.”

WARNING: It should be noted that some people can be highly sensitive to essential oils, leading to symptoms such as headaches, asthma exacerbation, skin irritation or other health effects. Essential oils, in their concentrated form, should be used with caution to avoid unintended health impacts. It is strongly recommended to dilute essential oils in water or another substance when you use them. Undiluted essential oils will evaporate, and can emit volatile organic compounds (VOCs) which can interact with other compounds in the air to form hazardous air pollutants. More research is needed to assess the impacts of these emissions on human health.

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EWG’s Healthy Home Tips for Parents

1. Choose better body care products. Just because a label says “gentle” or “natural” doesn’t mean it’s kids-safe. Look up your products on CosmeticsDatabase.com. Read the ingredients and avoid triclosan, BHA, fragrance, and oxybenzone.

2. Go organic & eat fresh foods. Opt for organic fruits and veggies, or use FoodNews.org to find conventionally grown produce with the least pesticides. Choose milk and meat without added growth hormones. Limit canned food and infant formula, as can linings contain bisphenol A (BPA).

3. Avoid fire retardants. Choose snug-fitting cotton pajamas for kids, and repair or replace worn out foam items.

4. Pick plastics carefully. Some plastics contain BPA, which is linked to cancer. Avoid clear, hard plastic bottles marked with a “7” or “PC” and choose baby bottles made from glass or BPA-free plastic. Don’t microwave plastic containers. Stay away from toys marked with a “3” or “PVC”. Give your baby a frozen washcloth instead of vinyl teethers.

5. Filter your tap water. Use a reverse osmosis system or carbon filter pitcher to reduce your family’s exposure to impurities in water, like chlorine and lead. Don’t drink bottled water, which isn’t necessarily better. Mix infant formula with fluoride-free water.

6. Wash those hands. In addition to reducing illness, frequent hand washing will reduce kids’ exposure to chemicals. Skip antibacterial soaps, since they can be bad for the environment, aren’t any better than soap and water, and can contain pesticides that are absorbed through the skin.

7. Skip non-stick. When overheated non-stick cookware can emit toxic fumes. Cook with cast iron or stainless steel instead.

8. Use a HEPA-filter vacuum. Kids spend lots of time on the floor, and household dust can contain contaminants like lead and fire retardants. HEPA-filter vacuums capture the widest range of particles and get rid of allergens. Leave your shoes at the door so you don’t bring more pollutants inside.

9. Get your iodine. Use iodized salt, especially while pregnant and nursing, and take iodine-containing prenatal vitamins. Iodine buffers against chemicals like perchlorate, which can disrupt your thyroid system and affect brain development during pregnancy and infancy.

10. Use greener cleaners & avoid pesticides. Household cleaners, bug killers, pet treatments, and air fresheners can irritate kids’ lungs, especially if your kids have asthma. Investigate less toxic alternatives. Use vinegar in place of bleach, baking soda to scrub your tiles, and hydrogen peroxide to remove stains.

11. Eat good fats. Omega-3 fatty acids can offset toxic effects of lead and mercury. They’re in fish, eggs, nuts, oils, and produce. Choose low-mercury fish like salmon, tilapia and pollock, rather than high-mercury tuna and swordfish, especially if you’re pregnant. Breast milk is the best source of good fats (and other benefits) for babies, and protects them from toxic chemicals.
Safer Cleaning Supplies for Your Home

Our homes aren’t safe and clean if the air inside is polluted with chemicals from household cleaners. Follow these simple tips to protect your family’s health while you clean your home.

1. Less is More
Dilute your cleaning supplies according to instructions and use only what’s needed to get the job done.

2. Open the Window
Clean with windows and doors open so you don’t trap air pollution inside your home.

3. Use Gloves and Other Precautions
Cleaning chemicals may harm or penetrate skin and eyes – check warning labels.

4. Keep Kids Away
Children are more vulnerable to toxic chemicals. If they like to help, let them clean with soap and water, not toxic cleaners.

5. Avoid “Antibacterial”
If your family is generally healthy, there’s no need to use potentially toxic “anti-bacterial” products, according to the American Medical Association. Wash your hands with plain soap and water.

6. Never Mix Bleach with Ammonia, Vinegar, or Other Acids
These combinations can produce deadly gases.

7. Don’t Be Fooled by Labels – Buy Certified Green Products
Label claims aren’t always true. Cleaning supplies certified by Green Seal or EcoLogo meet green standards.

8. Try Natural Alternatives
Experiment with non-toxic options like vinegar and baking soda.

9. Take Care with Pine and Citrus Oil Cleaners
Avoid using these cleaners especially on smoggy days, when the ingredients can react with ozone to produce cancer-causing formaldehyde.

10. Skip the Biggest Hazards
Avoid air fresheners, use a baking soda and water paste to clean the oven and tackle toilet stains, and use a mechanical snake to unclog the drain.

ENVIRONMENTAL WORKING GROUP  ewg.org/schoolcleaningsupplies
We know how important hormones are when it comes to governing everything from our weight to our moods. Now research reveals that these key chemicals are far more vulnerable than previously thought: Even the tiniest amounts of substances found in such everyday items as snack foods and countertop sprays may be interfering with their infinitely delicate dance.

IT WAS FOUR A.M., and I was wide awake, just as I had been at that hour every night for the past week and a half—or so it seemed. Wired and utterly exhausted at once, I lay in bed going from hot flashes, and violently kicking off the covers, to cold shakes, when I'd yank them back on again. Over the past 10 days, I'd spent every waking hour either crying, laughing, or totally spacing out. A few days earlier, in fact, my husband had become so alarmed by my erratic behavior that he'd rushed me to the ER, thinking that maybe I was having a stroke.

I was, to put it mildly, flipping my wig. I felt I'd been flayed open to the world, its joys and sorrows hitting me directly, and my responses to all of them laid out for everyone to see. I was so raw and sensitive to everything, it was as though there were no processing center to deal with my emotions and move me through my days.

The cause of all the mayhem, I eventually learned, was withdrawal from estrogen and progesterone, the hormones that govern the female reproductive process, in the wake of the hysterectomy I'd undergone nearly two weeks earlier. I'd succumbed to the surgery as a last resort after years of battling severe endometriosis, a condition that results in cells from the lining of the womb migrating to other areas of the body, and that can lead to excess bleeding and anemia. For the past decade or so, I'd also been living through another kind of hormone hell, driven by some combination of estrogen overload, adrenal fatigue, and a slightly underactive thyroid.

My malfunctioning female organs having been literally cut away, there was nothing left to oversee the job of orchestrating my hormonal function. I was eventually provided with an assortment of patches and creams intended to play that role, but when I asked my ob-gyn a simple question—"Why did this happen to me?"—his answer was vague: "It could just be genes," he said. "It could be stress. It could be having had a late-life baby [I gave birth when I was 40]. It could be something in the environment. There's just no way to really know."

Unfortunately, that seems to be the response a lot of women are getting these days. Canvassing my neighbors, I found that nearly every one of them is coping with some form of hormonal dysfunction; some are receiving
Chemicals found in plastics, pesticides, flame retardants, and household cleaners can create chaos by mimicking or interfering with natural hormones. Government agencies, endocrinologists, and corporations have gone back and forth for years about what constitutes an acceptable level of exposure to known endocrine-disrupting chemicals (EDCs). And though legions of scientists are on the job, questions about the safety of these ubiquitous substances persist.

The term Endocrine Disruptor was coined by a group of scientists in 1991 as they began to investigate the effects of environmental chemicals on the glandular systems of the body, explains Dr. Samuel Dagogo-Jack, chief of the Division of Endocrinology, Diabetes and Metabolism at the University of Tennessee Health Science Center, in Memphis. As the field is relatively new, there have been few gold-standard studies that can tell us just how much of a disruptor is tolerable before there is bodily malfunction, or how exposure to multiple disruptors might yield new or different symptoms.

Dagogo-Jack, a member of the American Association of Clinical Endocrinologists, acknowledges that disruptors have been identified in plastics, preservatives, pesticides, and fertilizers, and he recommends avoiding them where you can, especially if you’re among the groups most susceptible to their effects—the very young, the very old, and pregnant women. But he also recommends keeping a level head. “We are immersed in a sea of chemicals in the postindustrial era,” he says. “You can take steps to avoid chemicals, but you shouldn’t panic.”

Maybe not, but a study published this month in Endocrine Reviews, a journal of the Endocrine Society, suggests that we do need to be aware of the risks of EDCs, even in minute amounts. “Every cell in the body contains hormone receptor sites,” explains Laura Vandenberg, a postdoctoral fellow at the Tufts Center for Regenerative and Developmental Biology and the lead author of the report, which was based on a review of 800 scientific studies. “Think of them as locks and hormones as keys. We used to think that there was one lock for every key, but it turns out that these chemicals can act like keys too.” Estrogen can bind with estrogen receptors, for example, but so can bisphenol-A (BPA) and dozens of other chemicals. These dysfunctional keys can lock out the helpful keys, Vandenberg says, or so many keys can compete for a single lock that the cell might decide security has been breached to the point where everything needs to be locked down. If high exposure levels continue, the body may stop responding to certain hormones altogether.

And such effects can be triggered by even smaller amounts of the chemicals than previously thought. “Hormones work at extremely low doses,” Vandenberg says. “Parts per billion or trillion—we’re talking about one-twentieth of a drop of water in an Olympic-size pool.” Similarly tiny doses of EDCs can have “potent effects” on the body.

“We don’t really know how much of each chemical it takes to create these effects,” she says, but she is of the belief that there is “no such thing as a safe dose. Period.” Needless to say, Vandenberg and others in the EDC community were dismayed to learn, in late March, that the U.S. Food and Drug Administration had rejected a request to eliminate BPA from the nation’s food supply. While it acknowledged that studies have raised questions about the health effects of BPA, the agency said in its response to the petition, which was filed by the Natural Resources Defense Council, that there was “insufficient information to persuade [it] to issue a regulation prohibiting the use of BPA in human food and food packaging.” It plans to continue studying the matter.

My hormonal problems and those of my neighbors may have nothing to do with environmental causes like BPA, but that doesn’t mean that we shouldn’t fight to have these potentially harmful chemicals removed from our lives. “You have a right to demand that our regulatory agencies and the officials who represent us place a higher value on human health than on the industries making money on these chemicals,” Vandenberg says. She suggests lobbying for legislation that restricts or bans EDCs in food production and commerce, and exercising our power as consumers. “Once you’re educated about these chemicals,” she says, “you can take steps to reduce your personal exposure. Every little bit helps.”
KNOW YOUR ENEMIES
There's no need to freak out and plot your move to a bubble. The first step toward better hormone health is to understand where the risks lie. Here, our guide to some of the most problematic substances, along with advice for minimizing exposure and protecting yourself and your family.

**BPA, BISPHENOL-A**

**COMMONLY FOUND IN:** plastic bottles, canned food, cash register receipts

**THE LOWDOWN:** As if you needed another reason to stop buying plastic bottles. Exposure to bisphenol-A, or BPA, which is used in the bottles and in can linings, can have negative effects on brain development and reproductive function, and is especially problematic for young children. BPA is a known xenoestrogen, which means it can bind to the body's estrogen receptors and wreak hormonal havoc. According to Dr. Karlene ChinQuee, a gynecologist who runs the ChinQuee Center for Health & Wellness in New York City, too much exposure to BPA might be enough to tip the finely tuned balance of female sex hormones. "If you're in contact with too many xenoestrogens, you may start to notice symptoms like depression, irritability, sleeplessness, and weight gain," she says. "This is because xenoestrogens can cause you to develop excess estrogen, which throws your progesterone out of balance, and can lead to a cascade of negative hormonal effects." Exposure to BPA has also been found to produce insulin resistance in animal studies. In its March statement, the FDA said that it would continue to address questions and potential concerns raised by studies of BPA.

**PROTECTION PLAN:** Switch to glass water bottles and drinkware (especially if you're breast-feeding), and look for canned foods that are labeled "BPA-free." Use glass containers to store or refrigerate leftovers. Don't reuse plastic water bottles intended for recycling, and never microwave food in plastic. If you have a family history of uterine cancer or forms of breast cancer that are estrogen sensitive, Dagogo-Jack recommends especially careful avoidance of any products or containers that might contain BPA.

**ATRAZINE**

**COMMONLY FOUND IN:** nonorganic crops, especially heavily sprayed corn and soy

**THE LOWDOWN:** This pesticide, which is used throughout the United States, was banned in Europe in 2003 because of concerns about its presence in drinking water. Atrazine's effects on the nervous and reproductive systems of animals and humans have been widely documented, including the fact that concentrations as low as 0.1 parts per billion have been shown to alter the development of male sex characteristics in frogs.

**PROTECTION PLAN:** Buy organic fruits and vegetables. If this is financially prohibitive, refer to the Environmental Working Group's "Dirty Dozen" list of most-polluted foods (ewg.org) and spend your limited dollars on organic versions of those. (Currently, the list includes apples, celery, strawberries, peaches, spinach, imported nectarines and grapes, bell peppers, potatoes, blueberries, lettuce, and kale.) If you must buy conventional produce, be sure to wash it thoroughly.

**DIOXINS**

**COMMOMLY FOUND IN:** food, particularly meat, dairy, fish, and shellfish

**THE LOWDOWN:** In short, these are good old industrial wastes—found throughout the world and known to accumulate in the fatty tissues of humans and animals. You might know them as PCDDs, PCDFs, or TCDDs, all of which are members of this family of chemicals that has been linked to lowered sperm counts, breast cancers, and a host of reproductive and developmental disorders. "You really can't deny that signs of puberty are showing up in girls much earlier," says Dr. Christiane Northrup, an ob-gyn based in Yarmouth, Maine, and the author of Women's Bodies, Women's Wisdom. "Doctors are seeing breast budding and armpit and pubic hair as early as age eight." Northrup notes that other EDCs (BPA and phthalates) have also been linked to early puberty. About 80 percent of our exposure to dioxins comes through foods.

**PROTECTION PLAN:** Delete the meat, or at least minimize your exposure to fatty red meats, which are believed to pose the greatest risk. If you do eat meat, look for grass-fed animals, and go organic when you can. Also avoid nonorganic dairy, especially if you're buying full fat.
POLYCHLORINATED BIPHENYLS

COMMONLY FOUND IN: fiberglass, electrical equipment, oil-based paints, caulking, floor finishes, adhesives, and fluorescent light fixtures, plus soil and groundwater

THE LOWDOWN: These man-made organic chemicals were banned in the United States in 1979, but due to a loophole, they may still surround us in products such as transformers and light fixtures. PCBs have been linked directly to liver and stomach cancers and to problems with the immune, reproductive, nervous, and endocrine systems.

PROTECTION PLAN: Replace old appliances and light fixtures. High concentrations of PCBs are found in lake and river sediments, and large fish are thought to be more contaminated than small ones. Check fish advisories, and keep your shoes on when walking in gardens and rivers.

POLYBROMINATED DIPHENYLETHERS

COMMONLY FOUND IN: old couches, futons, car seats, electronics, and carpets

THE LOWDOWN: This class of chemical flame retardants was near ubiquitous before California banned the manufacture, distribution, and processing of products containing PBDEs outright, retail giant Walmart announced in 2010 that it would no longer carry household goods, toys, or electronics containing them. A growing body of evidence links the chemicals to problems in brain development and lowered thyroid and reproductive hormone function in laboratory animals.

PROTECTION PLAN: There might be good reason to bypass those thrift store finds and Craigslist deals. Furnishings, electronics, and clothing produced in the United States prior to 2006 are much more likely to contain PBDEs. The Environmental Working Group (EWG) advises making sure that coverings are intact if you can't replace foam furniture. PBDEs are commonly found in household dust, so use a vacuum fitted with a HEPA filter. Be aware that children's clothing especially pajamas labeled flame-resistant might be coated with toxins (similar to but different from PBDEs), and be hesitant to accept hand-me-downs. Flame retardants on fabric persist through at least 50 washings, and possibly even more, according to the EWG.

THE LOWDOWN: Known as "plasticizers," these chemicals are used as fixatives in the products outlined above—and that's just the short list. Phthalates are known carcinogens and endocrine disruptors, and may be especially hazardous to male sexual development. "This one needs to be on every pregnant woman's radar," says Dr. Louann Brizendine, founder of San Francisco's Women's Mood and Hormone Clinic and the author of The Male Brain, "especially if she knows she's carrying a boy." Phthalates can disrupt the neural development of the male fetus by binding with androgen receptors, she explains. "At about eight weeks of gestation, testosterone starts pumping and literally marinates the male brain," says Brizendine. Theoretically, she adds, "if there's something disrupting that process, you could end up with a child who develops female characteristics and even body parts, even though the genetic code is XY."

PROTECTION PLAN: Use green home cleaners, especially if you're pregnant, and look for unscented personal care items.
COMMONLY FOUND IN: antibacterial soaps, toothpastes, dishwashing liquids, and household cleaners

THE LOWDOWN: Any worried parent might be tempted to reduce infection risk by buying products that promise to stamp out bacteria. But most of these rely on triclosan, a chemical that's been found in animal studies to interfere with the expression of testosterone and also to affect thyroid hormones. The U.S. Food and Drug Administration says that the chemical is not currently known to be hazardous to humans, but it is in the process of a regulatory review.

PROTECTION PLAN: Stick to soap and water, and apply a little elbow grease as needed to keep yourself and your house clean. "Studies show that soap and water works just as well," says Jill Blakeway, a certified acupuncturist and the founder of Manhattan's YinOva Center.

Going the Herbal Route

There are no miracle cures for endocrine problems. But herbs can be powerful allies, says herbalist Rosemary Gladstar, founder of the Sage Mountain Herbal Retreat Center, in East Barre, Vermont, and the author of Herbal Healing for Women. "Herbs are a gentle, natural way to help your body restore balance," she says. "And when you're working on one of the hormone systems, you're generally helping them all." Gladstar shares a few of her favorite formulas below; her proportions are for mixing liquid tinctures (which you can find at health food stores). Add 1/8 to 1 full dropper of the blended tinctures to a cup of water, and drink each formula two times a day.

FOR ADRENAL EXHAUSTION
A lot of women in their forties come in thinking they're in menopause, when in fact they have adrenal fatigue—the symptoms are so similar," says Gladstar. "The stress of modern living overworks the gland so that it's constantly pumping cortisol." Her herbal remedy relies on the Ayurvedic healers ashwagandha. "It's relaxing and energizing at the same time," she says, "and works particularly well with licorice." To create your own adrenal tonic, combine 2 parts ashwagandha, 1 part wild yam, 1 part Siberian ginseng, and 1 part licorice. (Note: Licorice can increase blood pressure; those with hypertension should cut the dose in half.)

FOR INSULIN RESISTANCE
"Cinnamon is great because it really stabilizes the blood sugar, plus it's yummy," says Gladstar. She combines cinnamon with gymnema sylvestre, which helps diminish cravings, and artichoke leaves, to stimulate the liver so that the body can process hormones more efficiently. Mix 2 parts cinnamon, 1 part gymnema, and 1 part artichoke leaf. This formula should also work to bring the hormones that regulate hunger into better balance. Gladstar adds that you can also use gymnema on its own when sugar cravings hit. "If you put a drop or two of gymnema tincture directly on your tongue, it makes sweets taste horrible."

FOR ESTROGEN OVERLOAD
It can be tricky for menstruating women to restore hormonal balance, since the levels of estrogen and progesterone are always on the move. "This is where herbs are at their best," says Gladstar. "Rather than entering the body with a single agenda, the way traditional medicines do, they nourish the system so that the body can balance itself." The formula is designed to encourage hormonal function, support the liver, and warm the reproductive system: 1 part vitex, 1 part black cohosh, 1 part wild yam, 1 part licorice, and 1/2 part ginger.

FOR OVERALL HORMONE WELLNESS
"The pituitary is the master gland, ruling and governing all the other glands," says Gladstar. "When you're treating one, you're treating every other part of the endocrine system." This daily support formula can treat existing imbalances and help ward off insults from environmental, dietary, and lifestyle stressors: 2 parts vitex, 1 part ashwagandha, 1 part dandelion, and 1/2 part Siberian ginseng.

PROTECTION PLAN: Learn to cook. Most problematic high-calorie intake is linked to processed foods. Organic whole grains, lean proteins, healthy fats, and fresh fruits and vegetables are the best bets for a balanced diet, says Dr. Rebecca Booth, an ob-gyn in Louisville, Kentucky, and the author of The Venus Week. If you need to lose weight, move toward the Mediterranean diet, and find a group of people who are also trying to shed pounds. ("The accountability factor is powerful," Booth says.) And stick to three meals a day to turn your hunger hormones (leptin and ghrelin) back on. "It takes four to five hours between meals for leptin to go down and ghrelin to go up, so it seems built into the system that we should be eating three squares, just like Mom said," notes Burstain. "If you wake up and aren't hungry for breakfast, you know you need to reset the hunger hormones."
CELEBRATE SUMMER WITH MARTHA
WEEKDAYS 10a/9c

THE MARTHA STEWART SHOW

Hallmark CHANNEL
A Chemical Reaction

Environmental toxins may be a fact of life, but when cancer got up close and personal with one woman's family, she vowed to banish them from her home by Deanna Duke

"MA'AM, DID YOU want your receipt?" The cashier held out the slip of paper, and I imagined toxins dripping from it onto the counter. I froze. Even if I could manage to grab it with my sleeve pulled down over my fingers, I knew I would look like a crazy person doing it. A few months earlier, I had made the decision to rid my body of harmful chemicals altogether. And in the course of my research, I'd learned that most receipts are coated in a powdery film of bisphenol A, or BPA, a chemical that's been shown to disrupt hormones and cause heart irregularities in women. The quest had turned even simple errands like this one into dangerous expeditions, with toxins lurking at every turn.

My journey had begun three years before that, on the day when my vibrant husband, then 37 years old, was diagnosed with blood cancer. After hearing yet another story from a friend or relative about yet another young, healthy loved one who had recently received a similar diagnosis, I began to wonder what might be triggering these devastating illnesses.

A dozen books and countless hours of Internet research later, I felt more disturbed than ever. Even though I didn't have any definitive proof of the cancer-chemical connection, the link seemed clear enough to me. I decided that my household could only benefit from a toxin-free environment, and so the mission crystallized: Within six months, I vowed, I would completely rid my body, my family, and my home of all dangerous chemicals.

I started by tracking down a lab that would perform a "toxic body burden" blood test, an expensive exam I'd read about that would quantify the amount of noxious chemicals in my body. I was shocked to learn that I had higher levels of parabens and phthalates—hormone disruptors found in foods, body care products, and cleaning supplies—than 95 percent of the American population. Apparently I had my work cut out for me.

I spent the following week tearing apart every closet, drawer, and cabinet in my home. I raked the offending cleaning products, snacks, cookware, and knickknacks into towering piles and then went through them one by one, checking their ingredient labels against the Environmental Working Group's chemical database (ewg.org/skindeep) for toxicity.

Bag after bag brimmed with discards bound for Goodwill or the dump—children's pajamas shrouded in toxic flame retardant, sparkly earrings spiked with cadmium or lead, tomatoes tainted by the steady leach of BPA from the lining of the can. Purging items more gradually would have been a more logical approach, obviously, but I was obsessed with ridding my home of toxins as quickly as possible.

My husband, then in the throes of chemotherapy, supported the purge with bemused humor, but my 10-year-old son, who is autistic, reacted severely...
to the disruptions. A few changes sparked full-out tantrums; in particular, he was wildly offended by the houseplants I'd added to clear the air of toxic particles. I eventually learned to space out my more dramatic efforts over several weeks. Meanwhile, my daughter, then 7, had become hypervigilant, inquiring worriedly, for example, whether this item or that might be harboring flame retardant. She began lecturing her fellow first graders, telling them that eating nonorganic apples would bring certain death. I realized that my project was frightening my children—they couldn't possibly understand the relative risks of the toxins I was attempting to remove—and so I made it a point to dial back the messages I was sending. I stressed that the drastic changes we were weathering were a part of my own effort, but that they didn't have to apply to everyone else. Gradually, after repeated assurances, the kids calmed down and decided to just let Mom do her thing. (It was less easy with my peers; when friends and coworkers politely asked how my project was going, I'd share whatever terrifying new research I'd just uncovered, only to watch several of them furrow their brows and turn a cold shoulder.)

With my closets emptied, I began the equally laborious process of tracking down safe alternatives. The replacements weren't always perfect. The first shampoos I tried made my long hair frizzy; I got so frustrated that I ended up just chopping it all off. And I still haven't won the battle against mold. Because of the chemotherapy, my husband's immune system is constantly compromised, and a moldy bathroom could present a serious health hazard for him. In Seattle, though, where we live, it's damp all the time, so the grime grows with impressive tenacity; I'd spend an hour scrubbing with borax and salt, sweat dripping into my eyes, only to rinse, sit back on my heels, and realize that the damn shower looked exactly the same as it had before I'd started. Defeated, I had to resort to occasionally wiping with diluted bleach, wondering which was worse for us: the dirt or the cleaner.

But some of the trade-offs have actually made us happier. I tossed my petrochemical pillow, for instance, and now sleep peacefully on fluffy goose down. I abandoned a smelly old vacuum in exchange for a powerful model with a high-efficiency particulate air (HEPA) filter, and I dotted my home with plants (my son is used to them now), lending our indoors a lovely outdoors feel.

Best of all, a follow-up toxic body burden test five months after the beginning of the purge revealed that my efforts had not been in vain: The levels of parabens, phthalates, and other chemicals in my blood had dropped to almost nothing.

My husband is still on long-term chemotherapy, and I'll confess that I occasionally reach for a spritz of one of the few bleach-based cleaners or traditional antiperspirants that I've (guiltily) returned to our shelves. The detox hasn't eliminated all of our family's problems, and sometimes—like the other night, when my husband was rushed to the hospital with an infection—I'm reminded that our health is, to a large extent, outside of our control. But it's a relief not having to weigh the relative risks of an artificially colored cookie or a chemically scented dryer sheet anymore. I've just said no. Our lives may be filled with uncertainty, but I do sleep a little better at night knowing that our cupboards and our closets are as healthy as they can be.


DO TRY THIS AT HOME
Unable to stage a full-scale cleanse? Here are Duke's top-tos for cutting down on toxins.

LOSE THE SCENTS
Avoid anything with "fragrance" or "parfum" on the label. An unexpected bonus: My sense of smell improved; now artificially scented candles small cloying but real flowers smell incredible.

DITCH THE ANTI-BACTERIAL SOAPS
Studies show that proper hand washing is as effective at keeping you well, and that the germ-killer triclosan is linked to compromised endocrine functioning and cancer. I try to remember to carry a little bottle of natural soap with me at all times.

BAN BPA
Any can that doesn't say "BPA-free" probably contains the toxin. I buy dried beans in bulk and prep big batches in a pressure cooker—it may be time intensive, but it's worth it.
99% of Breast Cancer Tissue Contained This Everyday Chemical (NOT Aluminum)

By Dr. Mercola

New research examining parabens found in cancerous human breast tissue points the finger at antiperspirants and other cosmetics for increasing your risk of breast cancer.1

The research, which is also reviewed in an editorial published in the Journal of Applied Toxicology, looked at where breast tumors were appearing, and determined that higher concentrations of parabens were found in the upper quadrants of the breast and axillary area, where antiperspirants are usually applied.2

Parabens are chemicals that serve as preservatives in antiperspirants and many cosmetics, as well as sun lotions. Previous studies have shown that all parabens have estrogenic activity in human breast cancer cells.

Another component of antiperspirants, aluminum chloride, has been found to act similarly to the way oncogenes work to provide molecular transformations in cancer cells. According to the authors of the editorial review, the research shows "signals of concern that such compounds are not as safe as previously generally considered, and further research is warranted." Furthermore:

"The data from this latest study, the most extensive examination of parabens in human breast so far published, confirms previous work and raises a number of questions on the entire parabens, personal care product and human health debate, particularly relating to the source and toxicological significance of the paraben esters."

Ninety-nine Percent of Breast Cancer Tissue Samples Contain Parabens

The featured study by Barr et al. discovered one or more paraben esters in 99 percent of the 160 tissue samples collected from 40 mastectomies.3 In 60 percent of the samples, all five paraben esters were present. There were no correlations between paraben concentrations and age, length of breast feeding, tumor location, or tumor estrogen receptor content. The median values in nanograms per tissue for the five chemicals were:

1. n-propylparaben 16.8
2. methylparaben 16.5
3. n-butylparaben 5.8
4. ethylparaben 3.4
5. isobutylparaben 2.1

While antiperspirants are a common source of parabens, the authors note that the source of the parabens cannot be established, and that 7 of the 40 patients reportedly never used deodorants or antiperspirants in their lifetime. What this tells us is that parabens, regardless of the source, can bioaccumulate in breast tissue.

And the sources are many. Parabens can be found in a wide variety of personal care products, cosmetics, as well as drugs. That said, it appears the dermal route is the most significant form of exposure. In the featured editorial, Philip Harvey and David Everett explain why:

"...[T]he dermal route of exposure is considered more plausible when intact esters are detected, and other authors reporting human exposures and body fluid concentrations of paraben esters consider cosmetics of some form or..."
Parabens in Antiperspirants May Cause Breast Cancer

Safety of Parabens has NEVER Been Established...

As incredible as it sounds, despite the fact that parabens are used in such a wide variety of products, the toxicity of these chemicals has barely been investigated. There is a complete lack of modern toxicology studies on these ingredients, and according to the featured review, not a single study on the chemicals’ carcinogenicity follows acceptable regulatory standard carcinogenicity study protocols.

The authors point out that one rat study from 1955 is still used as “the pivotal evaluation upon which human safety is judged”

“This may be acceptable for certain chemicals for which there is limited human exposure but not for chemicals such as parabens for which such a large population is exposed, and which show significant tissue concentrations,” they write.

Furthermore, virtually all toxicology studies are based on the oral route of exposure, which means that risk assessment, according to Harvey and Everett, is “largely based on assumption, opinion and the technical regulatory instrument of GRAS (Generally Regarded as Safe).”

The Estrogenic Activity of Parabens

Estrogens, whether synthetic or natural are a primary risk factor for breast cancer. Approximately 20 different studies have established that parabens have estrogenic activity, which makes them relevant when it comes to estrogen-sensitive cancers. A common excuse used to defend the absence of toxicological studies is that parabens are weak in terms of potency. For example, propylparaben and butylparaben are approximately 30,000 and 10,000 less potent than estradiol, respectively.

“However, estradiol occurs in breast tissue in the picogram per gram of tissue range... but the results reported by Barr et al. [the featured study] show tissue concentrations of parabens, in the worst cases, in the microgram per gram of breast tissue range, which is one million-fold higher than that of estradiol. Clearly, the magnitude of exposure would seem to more than compensate for the reduction in potency,” Harvey and Everett write.

But that’s not all. A 2011 study reported that methylparaben promotes cell cycling and makes human breast cells more resistant to apoptosis, which, according to the authors can provide the molecular basis for malignant tumor proliferation. Harvey and Everett also cite another study from 2007, which found that propylparaben and butylparaben cause detectable DNA damage.

Rise in Breast Cancer Likely Linked to Chemical Exposures

Harvey and Everett point out that the hypothesis that chemicals in personal care products might be harmful to your health and contribute to breast cancer has a basis in two key observations:

1. Breast cancer rates have increased in recent decades, which correlates with many lifestyle factors that have undergone significant change during that time, such as diet, obesity, and use of personal care products containing untested chemicals

2. Tumors are disproportionately located in the upper, outer quadrant of the breast, and more tumors are found in the left breast than the right, suggesting it may be related to products applied topically to those areas (most people are right-handed, which could make you a bit more heavy-handed when applying products under your left arm than your right)

In my view, one of the key observations by Harvey and Everett is that:

“The tenet that there is no evidence that personal care products (antiperspirants or deodorants) are related to breast cancer is technically correct, but only because studies have not been conducted to investigate any relationships. Such arguments provide false assurance by masking the inadequacies of empirical evidence and knowledge.”

Aluminum—Another Cancer-Promoting Ingredient in Antiperspirants

Antiperspirants work by clogging, closing, or blocking the pores that release sweat under your arms—with the active ingredient being aluminum. (If you are using a deodorant-only product it is unlikely to contain aluminum but might contain other chemicals that could be a concern, such as parabens.) Not only does this block one of your body’s routes for detoxification (releasing toxins via your underarm sweat), but it raises concerns about where these metals are going once you roll them (or spray them) on.

Like parabens, aluminum salts can also mimic estrogen, and, just like the featured study, previous research has shown that aluminum is also absorbed and deposited into breast tissue. The researchers suggested raised levels of aluminum could even be used as a biomarker for identification of women at increased risk of developing breast cancer.

Aluminum salts can account for 25 percent of the volume of some antiperspirants, and a review of the common sources of aluminum exposure for humans found that antiperspirant use can significantly increase the amount of aluminum absorbed by your
body. According to the review, after a single underarm application of antiperspirant, about .012 percent of the aluminum may be absorbed. This may not sound like much until you multiply it by one or more times a day for a lifetime, which adds up to massive exposure to aluminum—a poison that is not supposed to be in your body, and may be more toxic than mercury. Aside from vaccinations, your antiperspirant may be your largest source of exposure to this poisonous metal!

Be Cautious with Natural Deodorants, Too

There are many brands of chemical-free, aluminum-free deodorants on the market, and many of these are safe alternatives. "Crystal" deodorant stones, which are a popular natural deodorant alternative often used by health-conscious shoppers looking to avoid aluminum, often claim to be aluminum-free, but some actually contain a different type of compound known as an alum, the most common form being potassium alum, also known as potassium aluminum sulfate.

Potassium Alum or Ammonium Alum are natural mineral salts made up of molecules that are too large to be absorbed by your skin. They form a protective layer on your skin that inhibits the growth of odor-causing bacteria. These deodorants are recommended by many cancer treatment centers, but while this may be a better alternative to most antiperspirants and deodorants on the market, it is not completely aluminum-free. Also remember to check the remaining ingredients, keeping a watchful eye out for parabens.

For the last few decades I have not used antiperspirants or deodorants—even natural ones. I noticed that they would cause a yellow stain in the armpit of my shirts. At first I thought the stain was due to my sweat but I quickly realized it was the chemicals in the antiperspirants. I routinely substitute soap and water in my armpits and that seems to work. Although last year I noticed that if I sunbathe my axilla regularly, the UV light actually sterilized my armpits in addition to raising my levels of vitamin D. There is no odor even without using soap and water. Essentially you tan your armpits. The effect is not long lasting and the bacteria repopulate in a day or so unless you expose your armpits to sunlight.

What Can You Do to Prevent Breast Cancer?

Aside from skin cancer, breast cancer is the most common cancer among U.S. women. Unfortunately, while the American Cancer Society widely encourages women to get mammograms, they do not do nearly enough to spread the word about the many ways women can help prevent breast cancer in the first place. The following lifestyle strategies will help to lower your risk of breast cancer:

- Radically reduce your sugar/fructose intake. Normalizing your insulin levels by avoiding sugar and fructose is one of the most powerful physical actions you can take to lower your risk of cancer. Unfortunately, very few oncologists appreciate or apply this knowledge today. The Cancer Centers of America is one of the few exceptions, where strict dietary measures are included in their cancer treatment program. Fructose is especially dangerous, as research shows it actually speeds up cancer growth.

- Optimize your vitamin D level. Ideally it should be over 50 ng/ml, but levels from 70-100 ng/ml will radically reduce your cancer risk. Safe sun exposure is the most effective way to increase your levels, followed by safe tanning beds and then oral vitamin D3 supplementation as a last resort if no other option is available.

- Maintain a healthy body weight. This will come naturally when you begin eating right for your nutritional type and exercising using high-intensity burst-type activities, which are part of my Peak Fitness program. It's important to lose excess weight because estrogen is produced in fat tissue.

- Get plenty of high quality animal-based omega-3 fats, such as those from krill oil. Omega-3 deficiency is a common underlying factor for cancer.

- Avoid drinking alcohol, or limit your drinks to one a day for women.

- Breastfeed exclusively for up to six months. Research shows this will reduce your breast cancer risk.

- Watch out for excessive iron levels. This is actually very common once women stop menstruating. The extra iron actually works as a powerful oxidant, increasing free radicals and raising your risk of cancer. So if you are a post-menopausal woman or have breast cancer you will certainly want to have your Ferritin level drawn. Ferritin is the iron transport protein and should not be above 80. If it is elevated you can simply donate your blood to reduce it.

References:

2 Journal of Applied Toxicology February 1, 2012: 32(5): 305-309
5 Pharmacology and Toxicology April 2001: 88(4):156-87

Sources:
The Food and Drug Administration announced early this spring that it would not ban BPA from food containers. "The scientific evidence at this time does not suggest that the very low levels of human exposure to BPA through the diet are unsafe," the agency said.

FDA officials stressed that they would continue to assess the safety of BPA and expect to issue another update later this year. Here’s what you need to know now.

BPA, short for bisphenol A, is used to make some hard plastic containers and the linings of food and drink cans (it protects the metal from reacting with the contents). It’s also found in a slew of consumer products, from CDs to eyeglass lenses to cash register receipts. Nearly everyone in the United States has traces of it in their body.

What’s wrong with that? BPA is an estrogen "mimic" that may disrupt the normal hormonal control of tissues by activating the same receptors on cells that naturally occurring estrogen activates. Traditional toxicity tests typically find no harm from BPA. However, the National Institute of Environmental Health Sciences, a part of the National Institutes of Health, continues to have "some concern"—based on newer kinds of toxicity studies in animals—about BPA’s "effects on the brain, behavior, and prostate gland in fetuses, infants, and children."

Researchers are now looking at BPA in humans. Here’s what they’re finding:

- The higher the levels of BPA in the urine of pregnant Cincinnati mothers, the more their daughters were anxious, depressed, and hyperactive and the poorer their emotional control when they were three years old.¹
- British men and women who were diagnosed with cardiovascular disease were more likely to have had higher levels of BPA in their urine 11 years earlier than similar people who weren’t diagnosed with heart disease.²
- Men and women in the U.S. National Health and Nutrition Examination Surveys who had higher levels of BPA in their urine were more likely to have coronary heart disease or type 2 diabetes, though the surveys couldn’t tell which came first, higher BPA levels or the diseases.³,⁴
- Among men seeking treatment at a Massachusetts fertility clinic, higher urinary levels of BPA were linked to lower sperm concentration and motility and to greater damage to sperm DNA.⁵

Bottom line: There’s no smoking gun, but it makes sense to try to avoid BPA.


**HOW TO MINIMIZE YOUR EXPOSURE**

BPA is everywhere in the environment, so you can’t avoid it entirely. “But if you’re concerned, you can take steps to reduce your exposure,” says Linda Birnbaum, director of the National Institute of Environmental Health Sciences (NIEHS).

Here’s how:

1. Avoid polycarbonate. Polycarbonate is a plastic that contains BPA, and the compound can leach into food that comes into contact with the plastic. Polycarbonate is typically hard and clear, and carries the recycling No. 7 on the bottom. Not everything labeled 7 is polycarbonate, though. The number is a grab bag category for miscellaneous plastics.

   One big change that has already taken place: BPA is no longer used in baby bottles and sippy cups, according to the FDA.

2. Watch the heat. Since heat can accelerate the leaching of BPA, “do not put very hot or boiling liquid that you intend to consume in plastic containers made with BPA,” cautions the FDA. And “discard all bottles with scratches, as these may harbor bacteria and, if BPA-containing, lead to greater release of BPA.”

3. Be gentle. Don’t microwave polycarbonate food containers or run them through the dishwasher, says NIEHS, because the plastic can break down with repeated exposure to high temperatures.

4. Minimize canned foods and drinks. "Consumers concerned about BPA in canned food can eat fresh or frozen foods," suggests NIEHS’ Linda Birnbaum. There’s also bottled or dried food or food in shelf-stable packaging. Last year, Harvard researchers found that when volunteers ate a serving of canned soup every day for five days, BPA levels in their urine jumped more than tenfold.¹

   Some companies—Amy’s, for example—have switched entirely to BPA-free cans. So has Eden for most of its canned foods. Still others, like Del Monte, Muir Glen, Trader Joe’s, and Whole Foods, have started to use BPA-free cans. Ditto for brands like Campbell’s Soup and Hunt’s Tomatoes.

   To find out about a specific food, you’ll need to check the company’s Web site or call customer service.⁶

It's no secret that we're living in an increasingly toxic world—and researchers are learning more every day about what they refer to as our toxic "body burden" or "pollution in people." For instance, bisphenol A (BPA), a petroleum-derived compound that mimics estrogen in the body and is most commonly found in a wide range of plastics, has been associated with increased risks for cardiovascular disease, miscarriages, breast and prostate cancer, reproductive and metabolic dysfunction, diabetes, and neurological and behavioral disorders.

Meanwhile, phthalates—found in products including toys, personal care items, pharmaceuticals and cleaning supplies—have been linked to breast and liver cancers and the disruption of male and female reproductive systems.

Although companies and policymakers are working to better regulate or even eradicate such toxins in consumer products, the dangers continue to lurk in a shocking number of places. "People are exposed to several hundred chemicals that we know of on a regular basis and studies show that many of them have adverse health effects in people," says Ted Schettler, M.D., M.P.H., California-based science director for the Science and Environmental Health Network (seh.org). Scary as that sounds, there's a lot you can do to lower your own body burden. In fact, a study published in 2011 in the journal Environmental Health Perspectives found that when test subjects consumed a fresh diet devoid of canned or packaged foods for just three days, the BPA levels in their blood dropped by 66 percent and their phthalate metabolites by up to 56 percent. "You can never fully eliminate your exposures to hazardous chemicals, but you can certainly minimize them," says Jane Houlihan, senior vice president of research for the Environmental Working Group (EWG) in Washington, D.C. To do that, you need to know where the toxins are hiding and what you can do about them—which is precisely why we put together this guide.

Cars

You know that many automobiles are bad for the environment, but they can be just as hazardous to your health when you're sitting inside of them—and the stronger that "new car smell," the worse off you could be. According to research from the Ann Arbor, Mich.-based Ecology Center, the average American spends more than 1/4 hours in a car daily, breathing in chemicals including hazardous flame retardants, plasticizers, lead and heavy metals that off-gas from such interior parts as the armrests, dashboard, seats and steering wheel. The health problems that have been associated with these chemicals include allergies, birth defects, impaired learning, liver toxicity and cancer. "Since these chemicals are not regulated, consumers have no way of knowing the dangers they face," says Jeff Gearhart, the Ecology Center's research director. The good news is that many automobile manufacturers are taking steps to make their interiors safer: 17 percent of new vehicles now have interiors free of polystyrene (PVC) and 60 percent are produced without brominated flame retardants, according to the Ecology Center.

Smart solutions Vacuum the interior of your vehicle regularly to reduce toxic dust, and open windows and/or doors for five minutes before getting into your vehicle. Gearhart advises. Then, while driving, keep windows closed to prevent exposure to engine and roadway pollutants and crank the A/C (sans outside air intake). "Using recirculation ventilation settings can reduce levels of interior chemicals by up to 1/2 times," Gearhart explains. "Higher fan settings reduce levels more quickly." There's another reason to keep your car interior cool, too. "High levels of ultraviolet rays and heat can cause chemicals to break down into more hazardous chemicals," Gearhart says. So park it: shaded areas or garages whenever possible and use sunscreens to help deflect the rays and reduce interior temps. If you're in the market for a new car, check out the Ecology Center's consumer guide to toxic chemicals in cars at healthstuff.org. Topping the list of safest picks in 2012: The Honda Civic, Toyota Prius and Honda CR-Z.

Food Packaging

Of course plastic containers, as well as food and drink cans with resin linings, should be avoided to minimize exposure to BPA and phthalates in particular. But less obvious sources of chemicals are also found in grease-resistant coatings used in products including many fast food containers, microwave popcorn bags and even pet food bags. These can leach harmful perfluorinated chemicals (PFCs)—which have been linked to smaller birth weight and size in newborn babies, elevated cholesterol, abnormal thyroid hormone levels, liver inflammation and weaker immune defense against disease—into food. Research has also found high levels of phthalates in delivery pizza boxes made from recycled cardboard. Meanwhile, a study in the October 2011 issue of The Journal of Steroid Biochemistry and Molecular Biology found not just BPA and phthalates,
but also endocrine-disrupting organotins and the carcinogen benzophenone among the many toxic chemicals that can migrate from packaging into food.

“Printing inks, adhesives, recycled cardboard and plastic containers all can introduce unwanted chemicals into a single food product,” notes study author Jane Muncke, Ph.D., an environmental toxicologist in Cham, Switzerland, who adds that chemicals may degrade over time or form new compounds that migrate into food, which are challenging or even impossible to regulate or measure.

Smart solutions Fresh, whole foods are almost always better than packaged ones for averting chemicals and simply ensuring a healthier diet in general. To really cut down on toxic food packaging, stock up on items from bulk bins, which is also better for your budget and the environment (see “Get in with the bin crowd,” pg. 16). Glass, ceramic, stoneware, aluminum and stainless steel containers are all safer storage options than plastic, according to the National Resources Defense Council (NRDC), headquartered in New York City. When purchasing cling-wrapped food from the supermarket or deli, the NRDC suggests slicing off a thin layer where the food came into contact with the plastic and storing the rest in a glass or ceramic container.

Furniture Being a couch potato is dangerous in more ways than one. Polybrominated diphenyl ethers (PBDEs) are a class of toxic chemicals used to make a wide range of common household products, including foam-padded furniture, computers, television screens and carpet padding, flame-resistant. EWG studies have found these chemicals in the dust of every home and in the body of every participant tested, with levels in babies and toddlers three times higher than that of their mothers. “Children often have higher exposure levels than adults because they’re frequently putting their hands in their mouths,” notes Schettler. Because of health concerns including brain and nerve damage, two forms of PBDEs known as penta and octa are no longer made in the United States. However, these chemicals are still found in furniture and foam items manufactured before a 2005 phase-out. And although several U.S. states and major manufacturers have agreed to eliminate various flame retardants in their products, they continue to be widely used and largely unregulated: “There’s also an issue with furniture made out of pressed board or particle board, which is often held together with formaldehyde-based glue,” Schettler notes. “This can be an important source of formaldehyde releases, which are known to be carcinogenic as well as irritating to the respiratory tract, among other things.”

Smart solutions Your best bet is to use furniture with lower levels of PBDEs and, because dust inhalation is an important source of exposure, clean your home as often as possible, says Schettler. “Vacuums with HEPA filters are best because they don’t just re-discharge airborne chemicals back into the environment,” Schettler notes. The latest studies from former NASA research scientist Bill Wolverton, Ph.D., author of Plants: Why You Can’t Live Without Them (Roli Books), show that the lady palm, rubber plant, peace lily, English ivy and golden pothos are among the best plants for removal of common household toxins. Wolverton recommends one or two medium-size (2- to 3-foot) plants per 100 square feet of floor space to help clean the air in an average home or office.

Because the chemicals that are being used in place of PBDEs in foam have not been fully tested for their health effects, seek out furniture made from less flammable materials like leather, wool or cotton—replacing older pieces in your home that contain synthetic foam if you can afford to do so. (Although older pieces may have off-gassed chemicals over time, materials like foam may have deteriorated, which means the flame retardants or other components will get into the indoor environment.” Schettler notes.) Just know that newer products also may be treated with toxic flame retardants, so find out which ones, if any, were used before purchase. If you can’t afford to replace items, cover older furniture with sturdy cloth and vacuum and/or wet mop around them frequently.
RECEIPTS

You probably didn’t count on this hidden cost on your shopping bill: In July 2010, laboratory tests commissioned by the EWG found high levels of BPA on 40 percent of thermal paper receipts (the kind that change color when you scratch them) sampled from major U.S. businesses and services. In some cases, the amount of BPA measured was as much as 1,000 times greater than that found in common sources of BPA, such as canned foods and infant formula. Although most research has focused on BPA levels from ingested sources, a study published in July 2011 found that BPA transfers readily from receipts and can penetrate the skin to such a depth that it can’t be washed off.

Obviously this poses problems for shoppers, but it’s even more of a risk for the 76 million people who work as retail salespeople and cashiers—the occupations with the highest employment, according to the U.S. Department of Labor. “A typical employee running a register could handle hundreds of contaminated receipts in a single day,” notes Houlihan.

Smart solutions Fortunately many retailers use receipt paper without BPA, and the EWG has called on the companies whose receipts tested positive for BPA to change to BPA-free receipt paper. Until that happens, be sure to wear gloves if your job requires you to handle thermal paper frequently, only take receipts when you need them (some stores now offer to email them to you) and scrub your hands well after contact with the thermal ones.

TAP WATER

Most people in the U.S. take the safety of their drinking water for granted—potentially to their detriment. In fact, 315 pollutants have been detected in the tap water Americans drink, according to an EWG analysis, and more than half—including many that have been linked to cancer, reproductive and developmental toxicity, and immune system damage—are not subject to health or safety regulations and can legally be present in any amount. The federal government has health guidelines for others, but even many of those—including known carcinogens like arsenic—have been found in one place or another at levels above the guidelines.

Smart solutions Find out what’s in your water by plugging your ZIP code into the search engine at ewg.org/tap-water. Then use the EWG’s online water filter guide to get information on which types will best reduce your family’s exposure to impurities like chlorine and lead. Schecter also recommends researching drinking water treatment options at the National Sanitation Foundation’s website (nsf.org). “The NSF is a certification organization that has plain English discussions of which water filters take care of which contaminants,” he notes. “If you know what’s in your water, you can pick your filter accordingly.” Don’t rely on bottled water, which isn’t necessarily better, adds the EWG. Instead, save your health—and the environment—by toting your own filtered tap water in a stainless steel, BPA-free Klean Kanteen (kleankanteen.com) or using a Bobble (waterbobble.com), a bottle free of BPA, phthalates and PVC with a built-in carbon filter that cleans your water as you drink it (each filter equates to 300 single-serve bottles).

DETOX YOUR SYSTEM

It’s impossible to completely avoid toxins, but there are certain steps you can take to help your body get rid of them. “A variety of supplements and functional foods can help with liver detoxification in particular,” says Boston-based naturopath Cathy Wong, N.D., C.N.S., author of The Inside-Out Diet (Wiley), who notes that one of the ways that’s achieved is with a process called glucuronidation. “Glucuronic acid binds with toxins, such as BPA, phthalates and solvents, in the liver,” Wong explains. “The complex is picked up in bile and then eliminated from the body in stool or urine.” Wong suggests these foods and supplements for assisting with detoxification:

- **CALCIUM D-GLUCARATE**: This chemical, which is similar to the glucuronic acid found naturally in the human body and in a variety of fruits and vegetables, helps to remove toxins that mimic estrogen in the body (e.g., BPA), as well as prevent the reabsorption of toxins including solvents, BPA and phthalates, says Wong. Try: Source Naturals Calcium D-Glucarate ($35 for 60 tablets; vitaminshoppe.com).

- **CHLOROPHYLL**: The pigment that gives plants their green hue is good for liver detoxification of heavy metals, such as mercury, and pesticides, notes Wong. “Research suggests that chlorophyll may modulate the activity of detoxification enzymes, protect against free radical damage and bind to toxins, promoting their elimination,” she says. Try: Drinking 2 to 4 ounces of wheatgrass juice several times a week.

- **CRUCIFEROUS VEGETABLES**: These are rich in sulfur-containing glucosinolates, which support glucuronidation and glutathione formation, says Wong. “They are also rich in vitamin C and fiber, which help with detoxification,” she adds. Try: Adding a cup of raw broccoli or kale to green smoothies or juices.

- **FIBER**: “If you don’t have regular bowel movements, chemicals that have been detoxified by the liver and eliminated in the bowels will get reabsorbed into the bloodstream,” Wong notes. Try: Getting 25 to 35 grams of soluble fiber per day, along with plenty of water, suggests Wong, who recommends sources including oatmeal, beans, citrus fruits, pears, plums and carrots, as well as psyllium seeds, chia and ground flaxseeds.

- **PROBIOTICS**: When your gut bacteria isn’t in balance, the gut releases an enzyme that breaks down glucuronidation complexes in the intestines. “Toxins are then released for reabsorption in blood,” says Wong, who notes that getting 10 billion CFUs of probiotics per day can restore the balance of bacteria in your belly. Try: Enzymatic Therapy Pearls Elite High Potency Probiotic ($25 for 30 capsules; vitaminshoppe.com).
Here's the problem (but we promise there's a solution): The air inside your house is likely teeming with toxins, from cleaning products, central heating and cooling, even furniture. The EPA says these indoor pollutants are one of the top five threats to human health—but common houseplants can help. They're some of the most effective air filters out there, says environmental engineer Bill Wolverton, Ph.D., who spent years studying this topic for NASA. Some plant leaves absorb airborne chemicals, while others trap pollutants in their roots, converting them into food and energy. The plants that do the best job of purifying: lady palms, rubber plants, golden pothos, peace lilies, and syngonium. "One or two placed where you spend most of your time should help you maintain clean, healthy air," Wolverton says. "Isn't it truly amazing how nature works?" Answer: Yes! —RIM TRAVELL
Decoding the Labels

Confused by the labels on cleaning products? EWG helps you sort facts from hype.

Active Ingredient
"Active ingredients" in cleaning products are usually antimicrobial pesticides added to kill bacteria, viruses or molds. Avoid them – they’re hazardous chemicals, and you rarely need them to get your house clean.

Many common dish and hand washing soaps contain the pesticide triclosan. They don’t clean any better than plain soap and water or provide extra protection against illness. But they do wash down the drain, where they are often toxic to aquatic algae, fish and wildlife. Overuse of products containing pesticides can promote development of bacteria that are resistant to antibiotics, and that does endanger our health.

Antibacterial
"Antibacterial" means that the product contains pesticides that kill bacteria, viruses or molds. Pesticides are listed as "active ingredients" on the label. Avoid these cleaners.

Biodegradable
"Biodegradable" ingredients break down in the environment once they enter wastewater treatment plants, rivers and streams or landfills. Cleaning supplies makers often advertise their products as biodegradable to make them seem safer or greener than they really are. But since no one regulates the use of this term on cleaning product labels, you can’t assume that a product with the label is better than one that isn’t.

Some ingredients do biodegrade quickly into harmless substances. Others linger in the environment for years or decompose into harmful contaminants. For instance, bacteria in sewage treatment plants and the environment transform nonylphenol ethoxylates, once common in laundry detergents and other cleaners, into potent, hormone-disrupting chemicals. EWG’s investigation of over 2,000 cleaning products on the market today found some still contain nonylphenol ethoxylates.

Chlorine-free/Bleach alternative
Products labeled “chlorine-free” do not contain chlorine bleach. They may contain oxygen bleach instead. Both kinds of bleach are irritating or corrosive and must be handled with care, but chlorine bleach can release traces of harmful chlorine gas. Frequent users of chlorine bleach are at increased risk of developing asthma and other respiratory problems. EWG recommends avoiding chlorine bleach and using chlorine-free alternatives when necessary.

A special caution: never mix cleaners containing chlorine bleach with products containing vinegar, acidic chemicals, ammonia or oxygen bleach. They can generate dangerous chlorine and chloramine fumes.
**Combustible/Flammable**
A "combustible" or "flammable" substance is easily ignited and can burn quickly. Cleaning supplies that contain flammable ingredients may pose a fire hazard if stored or used around high heat or open fire. To be safe, store all of your cleaning products away from heat sources.

**Corrosive/Caustic**
"Corrosive" or "caustic" substances can cause serious chemical burns to the skin, eyes or lungs. Bleach, oven cleaners and drain openers are primary offenders. Avoid these products at home, and keep them far from children's reach.

**Design for the Environment**
This term refers to a voluntary program overseen by the U.S. Environmental Protection Agency that works with manufacturers to make products that are safer for people and the environment. Companies may carry the Design for the Environment Seal if they formulate products with ingredients that meet standards developed through the program. When developing standards, EPA scientists look closely at available scientific data to ensure that product ingredients are safer than those used in traditional products. Like EWG, Design for the Environment is pushing all its partners to fully disclose cleaning product ingredients on the label. The EPA has established an auditing process to verify that products continue to meet Design for the Environment criteria. EPA has completed an inventory of the partners and products recognized by the program and lists their audit status on Design for the Environment's website: [http://www.epa.gov/dfe/pubs/projects/formulat/formpart.htm](http://www.epa.gov/dfe/pubs/projects/formulat/formpart.htm).

However the Design for the Environment list of safer chemical ingredients, which are allowed for use in their certified products, includes some substances that EWG is concerned about. For example, a fluorinated surfactant is approved by Design for the Environment for use in specialized industrial products; and DEGME (butoxydiglycol) is allowed in consumer cleaning products as a solvent. Both of these compounds have toxicity concerns. And a chemical called methylchloroisothiazolinone (MCIT), which Design for the Environment approves for use as a preservative, is toxic to the environment and can cause allergies. This is why EWG has chosen not to include Design for the Environment certification in our guide at this time.

**Do not induce vomiting**
A person who swallows a substance bearing this warning can suffer serious harm or die if he or she tries to expel it by throwing up. In some cases, vomiting can cause a toxic substance to enter the lungs, leading to significant damage or death. Also, some types of cleaners are caustic and will damage the throat on the way out as well as on the way in. If someone has swallowed a cleaning product, call Poison Control at 1-800-222-1222.

**Green Seal / EcoLogo**
Green Seal and EcoLogo are organizations that provide independent, third party certification of environmentally friendly cleaners and authorize approved products to bear their seals of approval. Both programs restrict certain toxic chemicals. Both require manufacturers to submit data showing that their products are effective and to undergo regular audits to make sure they meet current green standards. Currently, both seals of approval are found more often on commercial cleaners than on household products. EWG recommends that you use these third-party certified products when you can – their standards are the best out there today.

**Enzymes**
These proteins are added to cleaners to help break down and remove soils and stains. Enzymes can cause asthma and respiratory problems in factory workers who make cleaning supplies. There is no evidence that consumers who use cleaners with enzymes are at risk. But don't assume that enzymes are safe simply because
they are natural. Approach them with the same safety questions you bring to other ingredients or products. Also, be aware that boric acid, a chemical toxic to the reproductive system, is often added to stabilize enzymes in cleaning supplies.

**Essential oils**

Essential oils are plant extracts that emit distinct, often appealing scents. Some contain naturally occurring chemicals that can irritate skin, trigger allergic reactions or cause other toxic effects. Don't assume that essential oils are safe simply because they come from plants. Approach them with the same safety questions you bring to other ingredients or products.

When trying a new product containing an essential oil, always use a small amount at first to see if you have an allergic reaction. Never apply pure essential oils directly to your skin. Avoid using products that are old or that have been exposed to light, because some essential oils react with air and sunlight to produce new and sometimes more hazardous chemicals.

**Fragrance or scent vs. free & clear/free of perfumes and dyes**

Many cleaning companies market their products' scents – or the absence of added scent. Added fragrances are unnecessary and can provoke allergic reactions. The term “fragrance” on an ingredient list means the product contains a chemical cocktail that may consist of dozens of substances for which there is limited safety data. EWG recommends that you choose products free of unnecessary, undisclosed ingredients such as fragrance and dye. Products labeled “Free & Clear” are better bets, though a few may contain a scent to mask the smell of other ingredients. Check EWG's Guide to Healthy Cleaning or call the manufacturer for more information.

**Inert**

This term often refers to the non-pesticide ingredients in antibacterial cleaning supplies. There is no requirement to list them on the product label – only pesticides must be listed. “Inert” does not mean safe. Inert substances can include petroleum-derived solvents, preservatives or fragrances. In some cases these ingredients are irritating to the skin and respiratory system or can cause long-term adverse health effects such as neurological damage. EWG recommends that you choose products that list all ingredients whenever possible. That way you'll know what “Inert” ingredients are in the product.

**Irritant**

An “irritant” is a substance that causes temporary inflammation, redness and often itching of the skin, eyes or lungs. Irritation can be caused by either physical damage or an allergic reaction. It can range from mild to severe, but by definition there is no permanent tissue damage, which is called “corrosion”. EWG recommends that you test new products in small amounts, use gloves and keep windows open to limit exposure whenever possible.

**Natural/Plant-based**

On a cleaning product, the word “natural” can mean anything or nothing at all – there is no regulation of the word's use. Some manufacturers use the term to mean that some or all of the ingredients come from plants or minerals rather than petroleum, but they rarely disclose how much or little of those ingredients is present. The term “natural” can mislead consumers to think that a product is safer or more environmentally friendly than it actually is. Take this claim with a grain of salt, and look for a full ingredient list on EWG's Guide to Healthy Cleaning. “Natural” is not the same as “organic.”

**Non-toxic**

This common marketing term implies that the ingredient or product will not harm human health or the
environment. There is no standard definition in the cleaning products industry, so this term is no help in choosing the safest cleaners.

**Optical brightener**
An optical brightener, found in some laundry detergents, makes fabrics appear brighter. It coats clothing in the washing machine and sticks to fabric even after rinsing. Optical brighteners can cause skin irritation. Some, like triazine-stilbenes, do not break down easily and can accumulate in the environment, where they can be toxic to aquatic life. These chemicals are not allowed in some third-party certification standards for green cleaners. Avoid them when you can.

**Organic**
The word “organic” can mean anything on a cleaner – or nothing at all. There are no legal constraints on the word’s use. Organic implies that ingredients are from plants grown without use of synthetic fertilizers or pesticides, but only products bearing the U.S. Department of Agriculture’s “Certified Organic” logo are legally bound to comply with that claim. Some manufacturers mislead consumers by using the term as a chemist would, to mean ingredients made mostly of carbon atoms (petroleum-based ingredients can fall in this category). Take this claim with a grain of salt. If you don’t see the USDA Organic logo, look for a full ingredient list in EWG’s Guide to Healthy Cleaning.

**Pesticide**
A pesticide prevents, kills or repels pests. Pesticides are added to cleaners to kill bacteria, viruses or fungi, such as mold. Most pesticides can be harmful to people, animals and the environment. Handle and dispose of products that contain pesticides with particular care. Always ask yourself if a pesticide-free product – which is safer for the environment and everyone living in the household – would do the job. If yes, choose it instead!

**Phosphate-Free**
Phosphate ingredients, once common in laundry and dishwashing detergents, can trigger harmful algae blooms when wastewater is discharged into rivers, lakes and the ocean. That’s why 25 states banned phosphates in household laundry and dishwashing detergents, causing manufacturers to remove them from products nationwide. The common “phosphate-free” marketing claim is almost meaningless because few detergents still contain these ingredients.

**Sensitizing**
A sensitizing ingredient can cause a dramatic immune system response, typically an allergic reaction such as hives and or an asthma attack. First-time exposure to a sensitizing substance frequently does not cause a reaction, but repeated exposure can trigger one. Use EWG’s Guide to Healthy Cleaning to avoid products with sensitizing ingredients. When you are cleaning, open a window or run a fan to improve ventilation. Wear gloves when you can, especially when product directions indicate it.

**Solvent**
A solvent is a liquid that keeps other ingredients mixed in a solution. Solvents can also be used as specialized cleaners for tough soils and stains. Water is a non-toxic solvent, but many other solvents are flammable and release volatile organic compounds into the air. When inhaled, solvents can cause respiratory impairment, neurological damage, reproductive and developmental harm and cancer. Choose the safest products you can. When using solvents or other cleaners, ventilate well to minimize inhalation. Spilling and disposing of solvents pollute the environment, so contact your local hazardous waste collection facility to dispose of them properly. Down the drain is not a safe place to dump any solvent but water.
**Surfactant**
Surfactants are chemicals that loosen dirt and grease from surfaces so that they can be washed away. They are essential for cleaning, but some are safer than others. Some, like nonylphenol ethoxylates, are toxic to aquatic life and decompose very slowly. Find products with safer surfactants in EWG's Guide to Healthy Cleaning.

**Toxic**
A toxic substance is any chemical or mixture that may be harmful to the environment or human health if inhaled, swallowed or absorbed through the skin. Many products used for home cleaning contain toxic substances. Some products labeled "non-toxic" (see above) may still contain hazardous ingredients. Marketing claims on labels need not be backed up by facts. We recommend that you stick to cleaners that disclose all their ingredients and are rated as safer in EWG's Guide to Healthy Cleaning. Consider cleaning with basic kitchen supplies such as vinegar, baking soda and lemon.

**Volatile organic compounds**
Often abbreviated “VOCs,” volatile organic compounds are air contaminants that form smog. Some chemicals in this general category are linked to more severe health effects. The state of California places strict limits on VOC emissions from cleaners. Use no- or low-VOC cleaning supplies whenever possible.
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