Safer Sanitizers & Disinfectants

Killing germs with less toxic chemicals – A factsheet from Toxic Free NC

Whether you are trying to reduce the spread of germs at school, child care, or just at home, you have several low-toxicity options for sanitizing and disinfecting!

Hydrogen peroxide is the active ingredient in many US EPA-registered disinfectants and sanitizers, as well as in medical-grade antiseptics for cleaning wounds.
Advantages: Unlike many other disinfectants on the market, hydrogen peroxide quickly breaks down to leave behind only oxygen and water. That means no health risks from indoor air pollution, and no water pollution when you rinse it down the drain!
Safety precautions: Any product containing hydrogen peroxide should be handled with care because it is caustic, especially in concentrated form. As with any disinfectant, follow all label instructions closely regarding dilution, safety procedures, and dwell or wait times.

Thymol and citric acid are plant-based active ingredients found in some US EPA-registered disinfectants and sanitizers.
Advantages: Unlike many other sanitizers and disinfectants, thymol and citric acid products do not carry significant health risks or cause environmental pollution.
Safety precautions: Products containing thymol or citric acid should be handled with care because they can be irritating to the skin, eyes, and respiratory system. As with any disinfectant, follow all label instructions closely regarding dilution, safety procedures, and dwell or wait times.

Borax (boric acid), **white vinegar** (acetic acid), and **lemon juice** (citric acid), are all mild antimicrobial cleaners with low-to-no toxicity, and they are not dangerous to handle. They are not registered as sanitizers or disinfectants and should not be used as such in regulated environments (child care, hospital, etc.). However, cleaning with one of these ingredients will help you cut down on germs as well as dirt and grime! “Dwell time” is important for these as for any other antimicrobial cleaner: these natural products will kill more germs if you let them sit on the surface to be cleaned for at least 10 minutes before wiping away. Long exposure to lemon juice can bleach fabrics, so use caution.

**Note that sanitizing and disinfecting products must be applied to a surface mostly free of dirt and debris in order to work well. That means for visibly dirty surfaces, you must wipe, scrub, or mop up the mess first. Then, use your sanitizer or disinfectant to kill germs, letting it sit on the surface for the recommended dwell time.

What are Sanitizers & Disinfectants?

Sanitizers are products used to reduce the level of microorganisms (including disease-causing bacteria, viruses, and fungi) on surfaces and non-living things to levels considered safe by public health and sanitation codes.
Disinfectants are usually stronger than sanitizers, and kill a broader range of disease-causing microorganisms. They are usually only used on hard, non-porous surfaces. Sanitizers and disinfectants can come in the form of sprays, liquids, or wipes. Most are registered with the US Environmental Protection Agency (EPA) as pesticides.

Health & Safety Concerns:

- Sanitizers and disinfectants are poisons. You must use extreme caution to avoid accidental poisoning and other health problems from these products.
- Some sanitizers and disinfectants are approved for use on people's skin, while others are not. Always check the label to be sure. Be extremely careful with disinfecting wipes – most are only labeled for use on counters and surfaces, NOT on your hands or on other parts of your body!
- Most sanitizers and disinfectants can cause irritation to the eyes, nose, skin, and throat. Some are caustic or corrosive and can cause burns and other serious injuries.
- The fumes from many sanitizers and disinfectants can cause asthma attacks. They are also known to increase the risk of developing asthma.
- When combined with other cleaning chemicals, bleach can release dangerous fumes. These include **chlorine gas**, a respiratory irritant and asthma trigger, and **volatile organic compounds** (VOCs), which can cause cancer.
- Some sanitizing and disinfecting chemicals, such as **triclosan** and **quaternary ammonium compounds** (or "quats"), remain toxic after you wash them down the drain. They can pollute waterways, harming fish and other aquatic life.

Bottom Line: In a typical household, the health risks from toxic sanitizers and disinfectants probably outweigh the benefits. Day-to-day household cleaning should be done with plain soaps and mild, natural germ-fighters such as white vinegar or lemon juice. Occasional use of disinfectants may be important for some kitchen and bathroom uses, and to reduce the spread of germs when someone is sick. When that is the case, choose safer sanitizers and disinfectants (see reverse) to avoid health and environmental risks!

References & Sources for More Information:
Use Safer Disinfectants & Disinfecting Practices, from GreenSchools.net: http://greenschools.net/article.php?id=278
Prevent Poisonings in Your Home from the US EPA: http://www.epa.gov/pesticides/health/poisonprevention.htm
Disinfectants from the US EPA: http://www.epa.gov/iaq/pesticid.html

www.ToxicFreeNC.org
info@toxicfreenc.org
1-877-NO-SPRAY

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