

## COVID-19: Tips for Household Cleaning Product Safety

During the COVID-19 outbreak, good housekeeping practices are essential to safety in both the workplace, and also in the home. Most of us probably have a cabinet full of household cleaning products that we have come to rely on to protect ourselves and our loved ones from the risk of SARS CoV-2 and COVID-19.

But even household cleaners, if used improperly, can create serious dangers. With so much focus on preventing COVID-19 and the increased use of these products, we must remember to handle them safely to avoid further risks in the home. Here, we'll talk about some general precautions and best practices you should exercise to help you avoid some of the most common hazards of household cleaning products.

### General Precautions When Using Household Cleaners

1. **NEVER** mix cleaning agents together unless the instructions specify to do so!
2. **NEVER** store incompatible chemicals together in the same location, or in hazardous conditions (e.g. near heat sources, open flames, combustibles, etc.)
3. **ALWAYS** read full labels on cleaning products prior to use
4. **ALWAYS** label ALL containers in which cleaning products are mixed and stored (e.g. buckets, spray bottles, etc.)
5. **ALWAYS** use appropriate personal protective equipment (PPE) including gloves, goggles, respirators, aprons, rubber boots, etc.
6. **ALWAYS** maintain thorough ventilation when using ANY cleaning products
7. **NEVER** reuse any packages/containers originally filled with commercial cleaning products
8. **ALWAYS** wash hands after handling or using cleaning products
9. **ALWAYS** keep cleaning products out of reach from children during storage and use
10. **ALWAYS** be conscious of the presence of other cleaning products on surfaces or containers before using any cleansers or disinfectants

### Don't Mix It!

#### Acids & Bases

Most cleaning products contain some form of an acid or base to produce their cleaning action. By themselves, this reactivity is generally low enough to be used safely, but mixed together, acids and bases can create severe hazards. **NEVER MIX ACIDS WITH BASES!**

Common cleaning products that contain **acids**:

- Hard water/mineral deposit removers
- Toilet bowl cleaners
- Rust removers
- Tub and tile cleaners
- Mold removers
- Vinegar

Common cleaning products that contain **bases**:

- Bleach & bleach-containing products
- Oven cleaners
- Glass & all-purpose cleaners (often contain ammonia)
- Drain cleaners
- [Laundry detergents](#)
- Baking soda

## Bleach & Bleach-Containing Products

Bleach is one of the most common and effective household disinfectant cleaning products, but it is also one of the most dangerous, especially when mixed with other common household cleaners. Here are a few common household cleaners that should **NEVER** be mixed with bleach or bleach-containing products:

- **Bleach + Vinegar**  
Mixing bleach and vinegar produces **chlorine gas** which, even at low levels, can cause coughing, breathing problems, lung damage, skin burns, eye damage, or even death
- **Bleach + Ammonia**  
Bleach and ammonia produce a toxic gas called **chloramine** that creates similar hazards as mixing bleach and vinegar. Many glass and window cleaners contain ammonia, so never mix those with bleach.
- **Bleach + Rubbing Alcohol**  
Alcohol reacts with sodium hypochlorite in bleach and produces **chloroform** gas (yes, the same chloroform you've seen used in the movies to incapacitate unsuspecting victims). Chloroform can cause dizziness and unconsciousness, damage nervous and respiratory systems, eyes, skin, kidneys, and other organs. Remember! **A primary ingredient of many aerosol disinfectant sprays is alcohol!**

For additional precautions on using bleach and bleach-containing cleaners, visit the National Institutes of Health (NIH) website [here](#).

## Drain Cleaners

Some drain cleaners contain strong bases (e.g., sodium hydroxide or sodium hypochlorite), while others contain strong acids (e.g., sulfuric acid or hydrochloric acid). When mixed together, the reaction can produce toxic gas, intense heat or even explosions resulting in burns, melted plastic/PVC pipes and other potential hazards. **DO NOT** mix drain cleaners with other cleaning products, including other drain cleaners.

## Hydrogen Peroxide

- **DO NOT** mix hydrogen peroxide and vinegar. These two seemingly safer alternatives to harsh chemical cleaning agents, when mixed, produce **peracetic acid** which is potentially toxic and can irritate the skin, eyes, and respiratory system.
- **NEVER** mix hydrogen peroxide with ammonia, acetone, any base (e.g. bleach) or any flammable liquids, including many petroleum-based solvents
- **NEVER** use hydrogen peroxide on metal surfaces, especially copper, iron, or chromium

## Other Common Household Cleaning Hazards

### Quaternary Ammonium (QUAT) Sanitizers

[QUAT sanitizers](#) are potent disinfectants commonly **found in disinfectant wipes, sprays and other household cleaners**. They are potent enough, in fact, to be certified by the EPA as pesticides.

Remember, ammonia compounds should **NEVER** be mixed with bleach or other chlorine-containing cleaning products. This includes using them on surfaces where bleach residues may be present.

QUAT sanitizers are also commonly sold as concentrated solutions, and must be diluted with water prior to use. In concentrated form, QUAT sanitizers are **HIGHLY TOXIC**. Proper mixing is also essential to safe use of QUAT sanitizers, including use on food contact surfaces.

### Antibacterial Soaps

Many antibacterial soaps contain **benzalkonium chloride, a form of QUAT sanitizer** that can create respiratory and skin irritation hazards. Prolonged use of antibacterial soaps should be done with proper ventilation and PPE. Be sure to remember the safe use guidelines when handling products containing ammonia.

### Allergic Reactions

Many cleaning chemicals can cause allergic skin reactions in people who may not know they are sensitive to some cleaning compounds. Allergies can develop after just two exposures; first is the sensitization reaction where your body recognizes a new chemical exposure, the second exposure triggers the body's immune system and causes the allergic reaction when exposed to the chemical (even at very small amounts).

### Household Use of Industrial/Commercial Cleaners

The EPA recently published its [List of Disinfectants for Use Against SARS-CoV-2](#), and identifies chemical cleaners approved for use against coronavirus and COVID-19. The majority of these chemicals are designed to be sold and used for industrial cleaning applications, but with consumer cleaning supplies in short supply, many people are turning to the internet to get their hands on whatever they can—including industrial cleaning supplies.

Industrial cleaners are often sold in concentrated forms, and handling concentrated industrial cleaning chemicals is **HIGHLY HAZARDOUS**. Industrial cleaners should not be used in the home, if avoidable. If an industrial cleaner must be diluted, it should be done according to directions, including the use of specialized PPE.

### Indirect/Secondary Exposures

Indirect/secondary exposure can occur when users come into contact with cleaning chemicals *after* use. Always wash your hands after using any cleaning products, and use proper PPE to prevent contamination of clothes and other materials. For example, concentrated QUAT sanitizer compounds are acutely toxic, and while indirect/secondary exposure from activities such as eating or smoking with unwashed hands is unlikely to cause death, it can cause severe illness.



## Food Safety

Many industrial and consumer cleaning products are only approved for non-food contact surfaces, and can cause negative health effects if ingested. When preparing food on your home kitchen countertop, be sure that cleaning products with non-food contact warnings are not used where food is handled. Additionally, many cleaners are only effective on hard, non-porous surfaces, or may require being left on surfaces for a specific amount of time to be fully effective.

## VelocityEHS Can Help!

To help consumers ensure the safe use of chemical cleaning products during the COVID-19 outbreak, VelocityEHS is offering [free access to our MSDSonline database](#) containing up-to-date SDSs for the products on [EPA's approved list of disinfectants against SARS-CoV-2](#).

[Click Here to Access SDSs for EPA-Approved Disinfectants](#)

Also be sure to check out our [VelocityEHS COVID-19 Resource Site](#) that features a growing library of helpful articles and free tools to help protect against COVID-19 and manage safety in both the home and workplace during this challenging time.

If you have any questions, please [Contact Us](#) at any time. We're here to help.