



Safety Tips for Household Cleaning Products 1/2

Don't Mix It!

- **NEVER MIX ACIDS WITH BASES!**
- By themselves, this reactivity is generally low enough to be used safely, but mixed together, acids and bases can create severe hazards

*Common cleaning products that contain **acids** are:*

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

*Common cleaning products that contain **bases** include:*

Bleach & bleach-containing products

- Oven cleaners
- Glass & all-purpose cleaners
- Drain cleaners
- Laundry detergents
- Baking soda



Bleach & Bleach-Containing Products

- 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. 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!**



Safety Tips for Household Cleaning Products 2/2

Drain Cleaners

- Many 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 or with other cleaning products, 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
- **ALWAYS** flush drains with ample amounts of clean water before dumping used cleaning solutions/mixtures. This will help prevent the unintentional mixing of cleaning chemicals that could remain in drain lines



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

Tutorial on How to Clean any Room:

<https://www.mollymaid.com/cleaning-tips/schedules-charts-and-checklists/house-cleaning-checklist/>