Safer household cleaning and disinfection

The pandemic has heightened the world’s focus on hygiene. The desire to sanitize our homes and workspaces continues to drive increased use of cleaning supplies and disinfectants to try to kill SARS-CoV-2, the coronavirus that causes COVID-19. This sometimes leads people to mix various cleaning agents, thinking that this will produce more effective disinfection. However, mixing household cleaners can be dangerous due to the chemical makeup of the unique cleaners.

Being aware of the danger is particularly important when dealing with bleach solutions. Bleaches are made up of highly reactive agents, which is why they are effective at killing bacteria and viruses. But this reactivity can create new and sometimes toxic substances when bleach is combined with some chemicals.

Some combinations of household cleaners that should never be mixed, include the following:

- **Ammonia and bleach:** Mixing ammonia and bleach creates chloramine gas, which is very toxic and can cause symptoms such as chest pain, coughing and breathing difficulty, and can be fatal at high concentrations.
- **Bleach and vinegar:** When vinegar is mixed with bleach, chlorine gas is produced that with prolonged exposure can damage eyes, nose and lungs.
- **Bleach and rubbing alcohol:** Bleach reacts with alcohol to form chloroform and chloroacetone, both of which can be toxic and dangerous. Chloroform can produce unconsciousness at high concentrations whereas chloroacetone is irritating.
- **Hydrogen peroxide and vinegar:** This can form a compound called peracetic acid, which is toxic and corrosive, and can damage or break down the surface it’s applied to, including skin and eyes.

Which cleaning products can fight COVID-19?

Not all cleaning products are effective on all types of germs, so be aware of which products experts recommend for use against COVID-19. The U.S. Environmental Protection Agency (EPA) provides a full searchable list of disinfectants for use against the SARS-CoV-2 virus. Some common effective products are found in many households and include:

- **Disinfecting sprays and wipes**
- **Isopropyl alcohol**
- **Hydrogen peroxide**

Cleaning the house from top to bottom each day is not necessary, rather, focus on disinfecting the areas that are hot spots for germs. This can help reduce the risk of infection.

Some helpful tips for safer use of cleaners and disinfectants:

1. **Safety:** Secure products, including hand sanitizer, and out of reach of children and pets.
2. **Read directions on the label.**
3. **Wear protective gear such as gloves, mask or eye protection as specified by the label.**
4. **Use products in a well-ventilated area.**
5. **Never mix chemicals unless directed to do so by the label.**
6. **When making a dilute bleach solution, use only room temperature water.**
7. **Wash hands with soap and water after using household cleaning products.**

For more information, visit UL.com.

Sources:

1. Ashley Laderer, The household cleaners that you should never mix at the risk of creating toxic gasses, Insider Intelligence, March 31, 2020, www.insider.com/cleaning-chemicals-not-to-mix

UL and the UL logo are trademarks of UL LLC © 2020.