



August 2020

## **Never Mix Cleaning Agents: *Play it Safe When Using Chemicals to Clean and Disinfect***

The emergence of Covid-19 has prompted everyone to take extra care in following the proper safety precautions when cleaning and disinfecting surfaces in their workplaces and households. However, in the process of trying to destroy germs, we need to ensure we don't create unintended hazards by mixing various cleaning agents.

### **The Hazards of Bleach-Based Products**

Did you know that bleach-based products can create life-threatening hazards when mixed with other acid-based cleaners and ammonia? For example, when chlorine bleach and ammonia are mixed together, they create chloramine gas, which can be highly toxic when even small amounts are inhaled. Mixing **any** bleach-containing cleaning product and acidic cleaner can release chlorine gas that can cause respiratory ailments even at small doses – especially if the worker has asthma or other pre-existing conditions.

### **Cleaning Methods for the Prevention of COVID-19**

One of the official sources for approved cleaning products is the Environmental Protection Agency (EPA). If you're interested in making your own homemade cleaning solutions, the Centers for Disease Control and Prevention (CDC) has a page dedicated for this purpose. However, prior to selecting a cleaning product or making your own, it's important to first begin by understanding the proper cleaning methods recommended for the prevention of COVID-19. Let's review the differences between cleaning, sanitizing and disinfecting.

The Differences between Cleaning, Sanitizing and Disinfecting	
<b>Cleaning</b>	Cleaning involves using soap (or detergent) and water to remove dirt and debris from frequently touched surfaces so that disinfectants can be more effective. If the dirt and debris are removed first, then a disinfectant can work directly on the germs, viruses and bacteria.
<b>Sanitizing</b>	Sanitizing is meant to reduce, not kill, the occurrence of growth of bacteria, viruses and fungi to a safe level, as judged by public health standards or requirements. <sup>1</sup> Examples of sanitizers include diluted solutions of bleach and alcohol.
<b>Disinfecting</b>	Disinfecting is using cleaners that have properties that will “kill” the germs on surfaces or objects and lower the risk of spreading infection. See below to learn about the EPA’s “List N,” which provides information on selecting and using disinfectants.

**Cleaning Agent Selection and Tips for Use**

The EPA has developed a reference called “List N” that features registered disinfecting agents in the use against SARS-CoV-2, the virus that causes COVID-19. This can be utilized in the selection of cleaning materials and development of cleaning procedures. Click on the following link for the list: <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>

Most common EPA-registered household disinfectants will work to disinfect. You can find the EPA registration on a product label, the safety data sheet (SDS) or by contacting the manufacturer or distributor. The EPA registration number of a selected product can be checked against List N to determine the active ingredient(s), the product name and the required contact time. “Contact time” is the amount of time the surface should be treated. Please note that the surface should be visibly wet for the duration of the contact time. Disinfectants should also be appropriate for the surface.

Important tips to follow when using disinfectants:

- Always follow the manufacturers’ instructions when using cleaning products.
- Read the safety data sheet (SDS), labels and follow all warnings.
- Never mix products that contain ammonia with products that contain chlorine bleach.
- Be aware that bleach may be listed as another name, such as sodium hypochlorite.
- Long-term exposure to disinfectants can create respiratory health problems later in life.

## Homemade Cleaning Solutions

You can also reference the CDC website for updated information on cleaning and safe homemade cleaning solutions.

Just a few examples of homemade cleaning options include:

- Diluting household bleach: 5 tablespoons (1/3 cup) of bleach per gallon of water; or 4 teaspoons per quart of water.
  - Follow the manufacturer's instructions for application and proper ventilation.
  - Unexpired household bleach will be effective against coronaviruses when properly diluted.
  - Never mix household bleach with ammonia or other cleanser
- Alcohol solutions containing at least 70% alcohol.

Click the following link for more information: <https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/cleaning-disinfection.html>

## New Methods for Cleaning and Disinfecting

New methods for cleaning and disinfecting are being explored to combat SARS-CoV-2. One concept is to apply disinfecting agents via fumigation. Acceptable disinfecting agents are found on the EPA's List N. The EPA states that manufacturers' instructions must be strictly followed for proper use of any designated disinfectant. If a disinfectant is to be used as a fumigant, the manufacturer must provide instructions specific for that use. The process of fumigation can be impacted by factors such as temperature, humidity, air currents, ventilation and other environmental factors. EPA List N disinfectants must be in contact with surfaces for a specified time, as noted on the list. If the disinfectant is improperly applied or environmental factors adversely impact the surface contact time, the disinfectant may be ineffective. Please refer to the EPA link below for additional information about fumigation as a method for disinfecting: <https://www.epa.gov/coronavirus/can-i-use-fogging-fumigation-or-electrostatic-spraying-help-control-covid-19>.



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<sup>1</sup> <https://www.cdc.gov/flu/school/cleaning.htm>