



## How to Clean, Sanitize, and Disinfect Surfaces

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### Introduction

Cleaning, and sanitizing or disinfecting household surfaces is something everyone should do regularly. How often will depend on the surface material and how often the surface is used or touched. High-touch areas or surfaces such as tables and countertops may need to be cleaned daily, or even more frequently. Let's go through the steps on how to clean, and sanitize or disinfect surfaces.

### Safety first

Figure 1 provides an overview of safety tips for using household chemical solutions. For example, read the label; pay close attention to hazard warnings and directions. We recommend you clean, and sanitize or disinfect in well ventilated areas to prevent breathing irritating fumes. Wear disposable gloves and glasses to prevent unintended contact with skin, and potential irritation. Discard gloves when done and wash hands after, to avoid cross-contamination.

### Cleaning

After assessing safety, the first step is to clean dirty surfaces using water and soap. To start, scrape and rinse surfaces with water to remove stuck on, or loose food, grease, dirt, or other substances. Then wash the surface with water and a soap/cleaner/detergent solution. Next, thoroughly rinse the surface with clean water (removing any remaining substances including dust, food debris and detergent). Your surface is ready for application of a sanitizer or disinfectant (proceed to the next step). If you do not need application of a sanitizer or disinfectant, you may either let the surface air-dry, or wipe dry with a single-use paper towel or a clean towel, and then use.



Figure 1. Safety tips when using chemical solutions (Figure by Reza Ovissipour).

## Choose whether to sanitize or disinfect

Choosing whether to sanitize or disinfect a cleaned surface will depend on what kind of germs you want to reduce (see [FST-386NP](#)), and how often you touch/use the surface, utensil, piece of equipment, or object. Make sure to read the label to know how to mix, use the solution, and that it will be safe to use on the surface or object you want (e.g., on your kitchen countertops (food contact surface) vs. in your bathroom (non-food contact surface)).

## Preparing a sanitizer or disinfectant solution

When preparing your own sanitizer or disinfectant solution, we recommend preparing them in a sink or something with raised edges (e.g., rimmed tray, large bucket, in the bathtub, etc.) so it is easy to contain and clean if you spill. It is best to have a set of supplies to prepare these solutions separate from any supplies you will use to cook with. You may also want to keep disposable towels ready to contain any spills.

Mix the chemicals with water according to the label instructions to make either a sanitizing or disinfecting solution, appropriate for use on the surface or object selected. Use water at room temperature, unless stated otherwise on the label.

## Using Prepared Solutions on Household Surfaces

Once made, apply the solution to the already cleaned surface so that it is evenly covered. Do not rinse or wipe dry. Leave the solution on the surface for as long as it is indicated on the label instructions. This is known as the contact time. Contact times are important to allow germs to be killed.

If the label says that it can be used on “Food Contact Surfaces”, then you can use it on surfaces such as dishes, cooking utensils, and countertops.

Sometimes the label may indicate the need to rinse the food contact surface with water, such as after disinfecting (this is common for disinfecting solutions since the chemical concentrations are typically higher, compared to sanitizing solutions). This rinse will wash away any residue left behind which can rub off onto your food (i.e., cross-contaminate).

## Commonly used sanitizers and disinfectants

Some of the most commonly used chemicals for surface sanitizers and disinfectants include:

- Bleach (sodium hypochlorite)
- Quaternary ammonium
- Hydrogen peroxide
- Alcohol solutions (at least 70% alcohol)

You can mix your own according to label instructions, or you can buy pre-mixed sanitizer and disinfectant solutions.

If you are looking for disinfectants which are tested for use against SARS-CoV-2, make sure to review the label for a claim and/or you can review the [Environmental Protection Agency’s List-N](#) for products which are tested for use against SARS-CoV-2.

## Using a pre-mixed sanitizer or disinfectant solution

If buying solutions that are already pre-mixed, make sure it can be used on the selected surfaces (e.g., food contact surfaces or non-food contact surfaces), and that it is effective against the germs (e.g., bacteria, viruses, parasites, and fungi) you want to reduce/kill.

If using prepared wipes, it may be necessary to use more than one wipe to properly clean the surface and keep it wet for the stated length of contact time for sanitizing or disinfecting.

## Assessing your Household Surfaces

The label provides information on recommended surfaces for use. Usually, these surfaces are hard and will not absorb the soap, water, and chemical solution used (this means they are “non-porous”). Some examples of these surfaces include, and are not limited to:

- Non-wood tables or countertops (stone, concrete, composite)
- Handles (sinks, refrigerator, cabinets, drawers, doorknobs)
- Sink basins and bathtubs (including faucets)
- Toilets
- Light switches
- Electronics (phones, tablets, touchscreens, keyboards, and remote controls. Always check the manufacturer's instructions for additional steps or considerations.)

## Additional safety tips (Figure 1)

- Do not use these solutions to clean or sanitize foods. Direct contact of these solutions with foods can leave a residue in the food that can be toxic. Only use as indicated on the label.
- Follow the instructions on the label. It is important to not mix different chemicals, for example bleach with ammonia. They do not make each other “stronger,” instead they can cause serious harm (like off gassing, which may cause a person to pass out).
- Keep these chemical compounds and solutions away from where children and pets can reach them. If you suspect they have come in contact with them, call Poison Control (1-800-222-1222). A secondary container for chemicals is a best practice, in case, accidental leakage.
- Do not eat, drink, breath or inject chemicals into your body and never apply directly on your skin (on people or pets). Most chemicals are skin irritants and may cause burns, rashes, or other reactions.

## References

United States Centers for Disease Control and Prevention (CDC). 2021. How To Clean and Disinfect Schools To Help Slow the Spread of Flu. Available at: <https://www.cdc.gov/flu/school/cleaning.htm>

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EPA. 2021. What's the difference between products that disinfect, sanitize, and clean surfaces? Available at: <https://www.epa.gov/coronavirus/whats-difference-between-products-disinfect-sanitize-and-clean-surfaces>

## **Additional Resources**

*Cleaning, Sanitizing, Disinfecting, and Sterilizing. What is the difference?* FST 386NP. Available at: <https://resources.ext.vt.edu/contentdetail?contentid=3198&contentname=Cleaning,%20Sanitizing,%20Disinfecting,%20and%20Sterilizing.%20What%27s%20the%20difference%3F>

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