

Safe Sanitizing & Disinfecting

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Understanding the Terms

Although the terms *cleaning*, *sanitizing*, and *disinfecting* are often used interchangeably, they have significantly different meanings. Mixing up these terms can result in poor cleaning practices and the potential spread of illness. Having a better understanding of these terms can determine if you are using chemicals in the proper way and preventing pathogens from spreading on your surfaces.

Cleaning: Removing dirt and debris from a surface. The process involves warm, soapy water to physically remove these impurities. Cleaning needs to be done before sanitizing or disinfecting.

Sanitizing: Reduces bacteria on the surface to a safe level. Sanitizing is typically recommended for food contact surfaces as the chemicals are in concentrations that are considered safe.

Disinfecting: Kills almost all of the pathogens. Disinfectants have Environmental Protection Agency (EPA) claims against both bacteria and viruses.

Locating the EPA Number and Reading the Label

It is important to read the label of the chemical agent you are using to find out if it is safe to use on food contact surfaces. For example, chlorine disinfecting wipes are not meant to be used on food contact surfaces and the label clearly states this. The label also advises rinsing with *potable* (drinkable) water if these are used on a food contact surface.



Many different types of chemical agents can be used for sanitizing and disinfecting. The EPA requires all chemicals to have a number that identifies information such as product information and the company that produced it. The EPA will define the safety and use for these chemicals (for example, the pathogens the chemical will kill) and will tell how to use the product. All chemical cleaning products are provided an EPA number, but this may not be helpful unless you know how to find out the product details. To find detailed product information, an easy-to-navigate website to use is SmartLabel.org. For specific product information, go to <http://SmartLabel.org/products>. This site provides useful information such as the safety, usage, and ingredients. You can also download a Safety Data Sheet.

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Options for Safe Sanitizing of a Food Contact Surface

Purchase a Sanitizing Product

- Some wipes may act as a chemical contaminant on food surfaces because they were originally designed to clean bathrooms, not to wipe hands or clean counters (Lysol or Clorox brand regular disinfecting wipes are too concentrated of a solution for food contact surfaces).
- Read the label to be sure it is appropriate for use on food contact surfaces.
- There are many options, but look to see if they are food safe. The following examples of products are acceptable for food contact surfaces:
 - Purell Multi-Surface Disinfectant
 - Food contact multi-surface wipes (available from a restaurant supply store)

(This information is for educational purposes only. Reference to commercial products or trade names does not imply endorsement by MSU Extension or bias against those not mentioned.)

Make a Sanitizing Solution

- Chlorine (in chlorine bleach solutions) is commonly used. Other agents, such as ammonia-based chemicals, are not as available as chlorine bleach, so guidance is provided here for chlorine bleach solutions. *Sodium hypochlorite* is the active ingredient in chlorine.
 - Use chlorine bleach that has 8.25% sodium hypochlorite, commonly labeled as “disinfecting bleach.” The percentage for disinfecting bleach should be clearly stated on the label. Be cautious. It is easy to grab bleach that is at a much lower concentration or not intended for sanitizing. You might find bleach that clearly states on the label that its purpose is for deodorizing or whitening laundry, not for cleaning or sanitizing. (See Table 1.)
 - Do not use scented, concentrated, or gel bleach solutions.

- The ideal concentration for a bleach sanitizer for food contact surfaces is 50–100 ppm (parts per million). To know you have met this concentration, use chlorine test strips to test your mixed solution. Do not use pool test strips.
- Too concentrated of a solution can be harmful, but too little can be ineffective.
- Never mix chemicals. Combining certain chemicals (such as chlorine and ammonia, for example) can result in serious injury or death.
- See Table 1 for guidelines to prepare your own sanitizing solution. Note, there may be some sodium hypochlorite strengths that are not listed in Table 1. In this case, use the online Chlorine Dilution Calculator to find the correct recipe: <http://www.foodsafe.ca/dilution-calculator.html>. Table 2 provides recipes for disinfecting, which is a stronger solution and may require a clean water rinse if using on a food contact surface.

Table 1. Sanitizing Solutions

For use on eating utensils, food contact surfaces, mixed-use tables (such as a kitchen table also used for activities), highchair trays, crib frames, changing table pads, toys, pacifiers, floors, sleep mats, and other surfaces.

Water	Bleach Strength* 2.75%	Bleach Strength* 5.25-6.25%	Bleach Strength* 8.25%
1 gallon	1 tablespoon	2 teaspoons	1 teaspoon
1 quart	1 teaspoon	½ teaspoon	¼ teaspoon

*Use only plain, unscented bleach that lists the percent (%) sodium hypochlorite strength on the manufacturer’s label. Read the label on the bleach bottle to determine the bleach strength. For example, “Sodium Hypochlorite....6.25% or 8.25%.”

(Table 1 adapted from *Disinfecting and Sanitizing With Bleach: Guidelines for Mixing Bleach Solutions for Child Care and Similar Environments* by the Washington State Department of Health, 2015, p. 1)

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Table 2. Disinfecting Solutions

For use on handwashing sinks, bathrooms (including toilet bowls, toilet seats, training rings, soap dispensers, potty chairs), door and cabinet handles, diaper change tables, and other surfaces.

Water	Bleach Strength* 2.75%	Bleach Strength* 5.25-6.25%	Bleach Strength* 8.25%
1 gallon	1/3 cup, plus 1 tablespoon	3 tablespoons	2 tablespoons
1 quart	1½ tablespoons	2¼ teaspoons	1½ teaspoons

Disinfecting chemicals are often the same as what you would use to sanitize, but in a more concentrated solution. The contact time for chlorine varies and can be anywhere between 5 to 10 minutes, and it may be different if you are using a solution that is pre-mixed. Always read the label for instructions specific to the chemical you are using, including chlorine bleach.

(Table 2 adapted from *Disinfecting and Sanitizing With Bleach: Guidelines for Mixing Bleach Solutions for Child Care and Similar Environments* by the Washington State Department of Health, 2015, p. 1)

Preparation Tips

Always prepare the solution in a well-ventilated area using appropriate water source, eye protection, and gloves.

- Daily, prepare a fresh bleach solution. Since children’s lungs are still developing, keep chemicals away from them.
- Use *cool* water. Always add bleach to water (do not add water to bleach).

- Always label bottles of bleach solution clearly with the name of solution, ratio, and date mixed (for example, “Bleach sanitizer, 1 tablespoon/gallon, 5-18-20”).

Steps to Clean and Sanitize

1. Clean off visible debris from the surface by washing with soap and water
2. Rinse with clean water to remove detergent (detergents can reduce the effectiveness of chlorine) and air dry or dry with paper towel.
3. Apply the sanitizing solution to the entire area to be disinfected or sanitized.
4. Leave on for the recommended contact time. (Look on the container of the cleaning solution for the recommended time.)
5. Wipe with a clean disposable cloth.
6. Some products require a clean water rinse on food contact surfaces if using a concentrated disinfecting solution. Read instructions carefully.
7. Air dry.

Use test strips to assure a proper concentration. Be sure to get the test strips specific to the chemical agent you are using (for example, use chlorine test strips for testing a chlorine solution).

(“Preparation Tips” and “Steps to Clean and Sanitize” were adapted from *Disinfecting and Sanitizing With Bleach: Guidelines for Mixing Bleach Solutions for Child Care and Similar Environments* by the Washington State Department of Health, 2015, p. 1)

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References

Washington State Department of Health. (2015, January). *Disinfecting and sanitizing with bleach: Guidelines for mixing bleach solutions for child care and similar environments* (DOH 90-216). <https://www.doh.wa.gov/Portals/1/Documents/8340/970-216-Disinfect-en-L.pdf>

Resources

British Columbia Foodsafe, *Chlorine Dilution Calculator*: <http://www.foodsafe.ca/dilution-calculator.html>

Centers for Disease Control and Prevention, *How to Clean and Disinfect Schools to Help Slow the Spread of Flu*: <https://www.cdc.gov/flu/school/cleaning.htm>

Consumer Brands Association and Food & Consumer Products of Canada, *SmartLabel*: <http://smartlabel.org/>

Oklahoma State University, *Guidelines for the Use of Chlorine Bleach as a Sanitizer in Food Processing Operations*: <https://ucfoodsafety.ucdavis.edu/sites/g/files/dgvnsk7366/files/inline-files/26437.pdf>

Partnership for Food Safety Education. *Cleaning, Disinfecting and Sanitizing* (scroll down): <https://www.fightbac.org/?s=disinfectants+and+sanitizers&id=12049>

Find out more about Michigan Food Safety at www.msue.msu.edu/safefood.

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