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Considerations for Using a Sanitizer at Home

Proper cleaning and sanitizing of food contact surfaces is critical to preventing foodborne illnesses, premature food spoilage and cross-contamination.

After a food contact surface has been cleaned to remove all physical material, applying a sanitizer can reduce microorganisms to a safe level. Sanitizers can also be instrumental in preventing the buildup of biofilms, or bacterial buildup on a surface. However, if used improperly, sanitizers can present a chemical food safety risk. When purchasing commercial sanitizers, the many options can seem overwhelming. This article provides guidelines for selecting a sanitizer to be used on food contact surfaces.

Cleaning Versus Sanitizing

"Cleaning" and "sanitizing" are commonly used interchangeably or in tandem. But they aren't the same and should be treated independently. Cleaning refers to the removal of visible

contaminants – soil, for example – from a surface with water, soap and scrubbing. Sanitizing is the process of reducing the number of microorganisms on a surface, often with the use of a sanitizer chemical (CDC, 2022). The surface should always be thoroughly cleaned and rinsed before a sanitizer is applied to a food contact surface. This prevents organic matter from depleting the sanitizer's disinfecting power.

Selecting a Sanitizer

When selecting a sanitizer for use on food contact surfaces, ask:

- Is the sanitizer approved for use by the Environmental Protection Agency (EPA)?
- What sanitizer concentration and contact time is required for proper use?
- Is the sanitizer labeled for the intended use? (For example, sanitizing food contact surfaces.)

- Does the sanitizer kill specific microorganisms you are targeting? (For example, *Listeria monocytogenes*, spoilage microorganisms or SARS-CoV-2.)
- Does the sanitizer require the use of personal protective equipment (PPE), such as gloves or safety goggles?

The answers to those questions should always be on the sanitizer label. The label, if not on the sanitizer container, should be on the supplier's website.

Regulation of Products

Sanitizers are considered a pesticide by regulatory agencies, such as the EPA and Office of Indiana State Chemist, and are regulated as such. By definition, a pesticide is any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest, including microorganisms. The term is often misunderstood to refer to insecticides, but it also refers to herbicides, fungicides and various other substances used to control pests.

When evaluating a sanitizer product, the EPA will review toxicity data and test results to show how well the product kills bacteria. The EPA also considers human safety and environmental risks (EPA, 2023). EPA-approved sanitizers will have an EPA registration number on the label (Figure 1), signifying that the agency believes the product should perform as stated on the label and not pose unreasonable hazards to your health **if** used according to the label instructions.

The EPA registration number should be the first thing you look for when selecting a sanitizer. If a product does **not** have an EPA number, that is a red flag. You may contact the manufacturer to determine if the product does have an EPA number, and you may request it. EPA numbers and information about products can be found on the Pesticide Product Label System (PPLS) website: <https://iaspub.epa.gov/apex/pesticides/f?p=PPLS:1>.



Figure 1. Example of a sanitizer label with the EPA registration number highlighted.



Figure 2. Examples of logos that do **not** replace an EPA registration number.

If a product does not have an EPA registration number, that product should not be used. Logos such as “USDA Certified Biobased Product” and “FDA GRAS Approved” (Figure 2) are not a substitute for an EPA number.

Once a product is registered with the EPA it must also be registered in the state that it is to be used. The registration must be renewed each year. In Indiana, pesticides must be registered with the Office of Indiana State Chemist, who is responsible for the administration and enforcement of Indiana pesticide laws (I.C. 15-16-4 and I.C. 15-16-5) (OISC, 2021). Product registration data is maintained on the National Pesticide Information Retrieval System (NPIRS): <http://npirspublic.ceris.purdue.edu/npirs.html>.

Sanitizer Product Labels

When using a sanitizer, the label is the law. Before beginning use, review the label for information that is critical to product effectiveness, and more importantly, your personal safety. The label should provide the following information:

- Concentration for use and how to dilute it
- Contact time
- What types of organisms the product can kill
- Approved uses of the sanitizer (for example, sanitizing food contact surfaces)

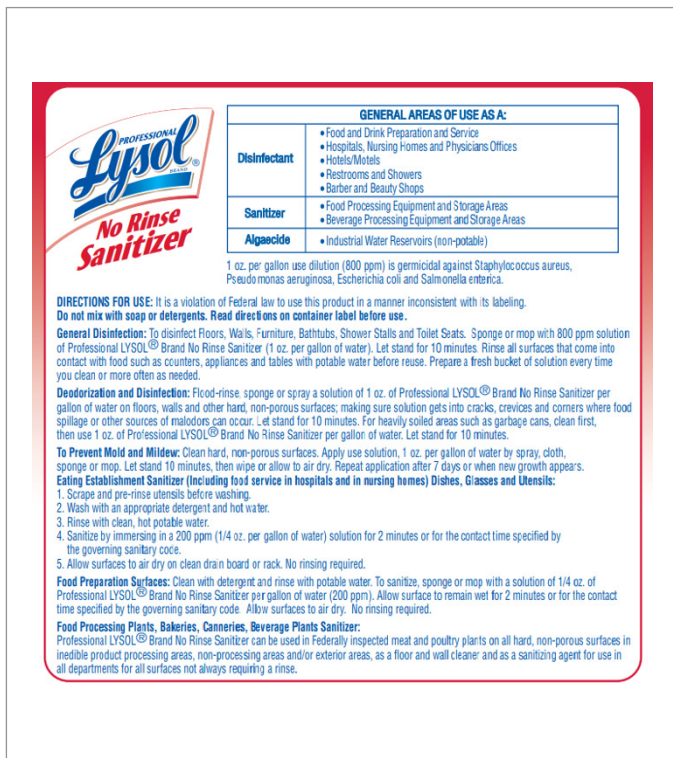


Figure 3. Lysol No-Rinse Sanitizer label – directions and usage.

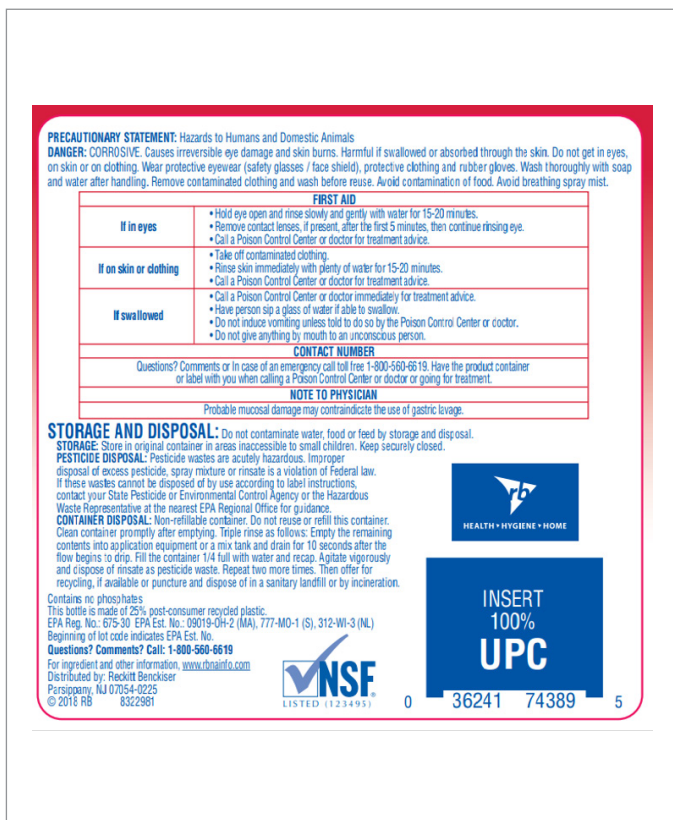


Figure 4. Lysol No-Rinse Sanitizer label – first aid, storage and disposal.

- If a final rinse of the surface with potable water is needed following contact with the sanitizer
- Disposal of product and containers
- First aid procedures

Deviation from the product label, including improper concentrations or contact time, could cause the sanitizer to not work as intended. This could also lead to excessive product buildup on a surface, potentially posing a chemical risk. If you follow the label precisely, you can be confident that the sanitizer adequately reduces the microbes on the surface. Figures 3 and 4 show examples of information that can be found on a sanitizer label.

Measuring Sanitizer Concentration

Sanitizer concentrations are crucial for ensuring that the sanitizer can accomplish the job it was meant to do. The best way to verify that you are using the sanitizer at the proper concentration is with a measurement. One of the quickest and most cost-effective methods of measuring concentration is by using sanitizer test strips (Figure 5). Test strips may be purchased from a chemical supplier or online sources. When purchasing sanitizer test strips, ensure that you are purchasing strips that are appropriate for your sanitizer type and targeted concentration.



Figure 5. Peracetic acid test strips.

Conclusion

Sanitizers can be an effective tool for reducing microbial food safety risks associated with food contact surfaces. However, this is not as simple as buying a sanitizer from a supermarket and dumping it haphazardly on a surface. Select sanitizer products carefully and **always** follow the product label. Users should ensure that the sanitizer has an EPA registration number and is labeled for the intended use. Following these guidelines promotes food safety and proper use of sanitizers.

Note: The products mentioned in this publication are for informative purposes only and do not represent any form of endorsement by the authors, the Department of Food Science or Purdue University.

References

U.S. Environmental Protection Agency (EPA). (2023). Retrieved from <https://www.epa.gov/pesticide-registration/about-pesticide-registration>. Accessed February 16, 2023.

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