

Green Chemistry

Green Chemistry Challenge: 2023 Designing Greener Chemicals Award

The Clorox Company



Other Resources

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- [Learn more about Clorox's EcoClean™.](#) [↗](#)

Clorox EcoClean™ Disinfecting Cleaner

The Clorox Company is being recognized for designing Clorox EcoClean™ Disinfecting Cleaner, a Design for the Environment-certified disinfecting cleaner that can be used without personal protective equipment, will not bleach surfaces, is formulated without alcohol, and can be used safely on most surfaces. The product is a lactic acid-based, ready-to-use disinfectant cleaner that disinfects 99.999% of illness-causing germs in two minutes or less when used as directed.

Summary of Technology:

The EPA Design for the Environment (DfE) certification for EPA-registered disinfectants was designed to help consumers identify effective, eco-conscious products. Clorox EcoClean™ Disinfecting Cleaner is a more sustainable disinfectant to help keep facilities clean and healthy without sacrificing efficacy. The active ingredient in Clorox EcoClean™ Disinfecting Cleaner is lactic acid, an organic acid that is ten times more acidic than acetic acid. As a disinfectant active ingredient, lactic acid works similarly to other organic acids, which denature proteins to kill viruses or lower the pH and disrupt metabolism inside bacterial cells. In addition, the benefits of lactic acid-based disinfectants include excellent material compatibility and alignment with EPA Safer Choice standards for ingredients in products that may be used without personal protective equipment.

The patented formula overcomes the previously limited efficacy of lactic acid as a disinfectant, where it was often able to target only enveloped viruses and some bacteria. It uses a minimal amount of lactic acid in combination with non-ethoxylated anionic surfactants, n-acylated amino acid surfactants, and a small percentage of carboxylic acid to achieve excellent cleaning capability and anti-microbial efficacy, even against harder-to-kill viruses like Norovirus and Coxsackievirus. It is this combination of ingredients that provides this efficacy for an organic-acid based formula. Compared to other DfE-certified disinfectants using lactic acid as an active ingredient, the patented formula uses between 5× and 18× less active ingredient.

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