



**Disinfection Efficacy Report
October 4, 2018**

Study Title:

Efficacy of the Clorox Commercial Solutions® Clorox® Total 360® Disinfectant Cleaner₄ when sprayed through the Clorox® Total 360® system

Study Summary:

All microorganisms tested with the Clorox Commercial Solutions® Clorox® Total 360® Disinfectant Cleaner₄ when sprayed through the Clorox® Total 360® system demonstrated levels of inactivation required by the EPA, confirming product claims against bacteria and viruses, including the following:

Bacteria

Pseudomonas aeruginosa - 2 min

Salmonella enterica - 2 min

Staphylococcus aureus - 2 min

Methicillin-resistant *Staphylococcus aureus* - 2 min

Vancomycin-resistant *Enterococcus faecium* - 2 min

Multi-drug resistant *Acinetobacter baumannii* - 2 min

Extended Spectrum Beta-Lactamase *Escherichia coli* - 2 min

Klebsiella pneumoniae New Delhi Metallo-Beta Lactamase - 2 min

Viruses

Human Immunodeficiency Virus Type-1 - 30 sec

Avian Influenza Virus - 30 sec

Human rotavirus - 1 min

Hepatitis B Virus - 1 min

Hepatitis C Virus - 1 min

Duck Hepatitis B Virus - 1 min

Bovine Viral Diarrhea Virus - 1 min

Norovirus - 2 min

Canine Parvovirus - 2 min

Rhinovirus Type 14 - 2 min

Rhinovirus Type 39 - 2 min

Poliovirus Type 1 - 5 min

Overview:

The Clorox Commercial Solutions® Clorox® Total 360® Disinfectant Cleaner₄ is designed to be used as a ready-to-use spray cleaner, deodorizer, and disinfectant to be applied on hard, non-porous surfaces and soft surfaces. Instructions are provided in the master label for general disinfection and cleaning, for sanitization of non-food contact surfaces, for sanitization of soft surfaces, and for control of mold and mildew. Recommended use sites include restrooms and showers, office and education equipment (e.g., desks and keyboards), gym equipment, kitchen surfaces, childcare surfaces (e.g., changing tables and cribs), and health care surfaces (e.g., ambulances, EMS and fire facilities, acute care surfaces, and operating rooms). Under the test conditions outlined below, Clorox Commercial Solutions® Clorox® Total 360® Disinfectant Cleaner₄ when sprayed through the Clorox® Total 360® electrostatic sprayer demonstrated efficacy against both bacteria and viruses.

Test Method:

Bacteria Test Method (Disinfectant):

This product has been tested for efficacy as a disinfectant using the AOAC (Association of Official Analytical Chemists) Efficacy Test standard method (AOAC Official Method 961.02, Germicidal Spray Products as Disinfectants, in Official Methods of Analysis of the AOAC, 2009 Edition). All testing was performed under Good Laboratory Practices (GLP) in compliance with the requirements of the Code of Federal Regulations (CFR) 40 part 160, with the testing setup modified to incorporate the Clorox® Total 360® electrostatic sprayer.

Viruses Test Method (Disinfectant):

This product has been tested for efficacy as a disinfectant against viruses using ASTM method E1053, Standard Test Method to Assess Virucidal Activity of Chemicals Intended for Disinfection of Inanimate, Nonporous Environmental Surfaces. All testing was performed under Good Laboratory Practices (GLP) in compliance with the requirements of the Code of Federal Regulations (CFR) 40 part 160, with the testing setup modified to incorporate the Clorox® Total 360® electrostatic sprayer.

Results:

Efficacy testing of the Clorox Commercial Solutions® Clorox® Total 360® Disinfectant Cleaner₄ when sprayed through the Clorox® Total 360® System demonstrated effectiveness against bacteria such as *Staphylococcus aureus* (ATCC 6538) and *Pseudomonas aeruginosa* (ATCC 15442), killing all of the test microorganisms on all 10 out of 10 carriers, and against hard to kill viruses such as Poliovirus [Type 1] [Chat strain, ATCC VR-1562], Human Immunodeficiency Virus type 1 [Strain HTLV-IIIB] and Feline calicivirus (Surrogate for Norovirus and Norwalk) [ATCC VR-782] [Strain F-9], demonstrating complete inactivation of each virus.