

CLEANING AND DISINFECTING GUIDELINES

Boltaron® Thermoplastic Materials



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Disinfecting Recommendations by the Centers for Disease Control (CDC) for Hard Material Surfaces

The COVID-19 virus is a growing concern for everyone in the world. The CDC recommends that you clean non-porous (hard) surfaces such as Boltaron® materials, with disinfectant products with EPA-approved viral pathogens claims that are effective against the virus that causes COVID-19 (SARS-CoV-2). The CDC recommends the following disinfectants, which have been tested and are safe to use on Boltaron thermoplastics:

- 70% isopropyl alcohol
- Hydrogen peroxide (3%)
- Bleach dilution in water (1/3 cup bleach per 1 gallon of water)

Avoid Cleaners Containing Quaternary Ammonium Compounds

In some cases, the CDC recommends using disinfectants containing quaternary ammonium compounds (QAC) such as ammonia or 409, however these chemicals should typically NOT be used on Boltaron® materials as they can have an adverse effect on the appearance of fire-rated thermoplastics. Clorox Disinfecting Wipes and Lysol Dual Action Wipes contain QACs, but have been tested and are safe to use on Boltaron® materials.

Be Sure to Follow Instructions on the Label

The CDC states that the most important parameter for killing the COVID-19 is contact time or the amount of time the disinfectant has in contact with the surface of the material/virus. When using disinfectants you should always follow the label instructions for concentration, application method, contact time and personal protective equipment (PPE). Also, make sure that the disinfectant is not expired.

Always remember to remove all cleaner and disinfectant residue with a clean, damp cloth so that nothing on the surface of the material remains, which could cause discoloration of the sheet.

For more information, visit:

<https://www.cdc.gov/quarantine/air/managing-sick-travelers/ncov-airlines.html>

<https://www.cdc.gov/coronavirus/2019-ncov/prepare/prevention.html>

<https://www.consumerreports.org/cleaning/common-household-products-that-can-destroy-novel-coronavirus/>

Microbial Resistance to Chemical Disinfectants

The use of proper cleaning agents recommended by the CDC are critical in eliminating the spread of viruses via the surface of materials. The following chart from the CDC indicates effective disinfectant solutions for specific microbes. Testing is still being done regarding effectiveness on the COVID-19 virus.

Type Of Microbe	Examples	Alcohol	Bleach	Hydrogen Peroxide
Bacterial Spores	C diff, Anthrax Botulism		✓	✓
Mycobacteria	Leprosy, Tuberculosis		✓	✓
Hydrophilic Viruses	Norovirus, COVID 19	✓	✓	✓
Fungi	Pneumonia	✓	✓	✓
Vegetative Bacteria	Streptococcus, MRSA	✓	✓	✓
Lipophilic Viruses	Herpes, Simplex HIV	✓	✓	✓

* Source: <https://www.cdc.gov/infectioncontrol/guidelines/disinfection/disinfection-methods/chemical.html>
 Avoid using quaternary based disinfectants on Boltaron® materials. Clorox and Lysol Wipes are safe to use.

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Steps for Cleaning and Disinfecting Boltaron® Thermoplastic Materials

It is very important to note the difference between cleaning and disinfecting a surface.

Cleaning refers to the removal of germs, dirt, and impurities from surfaces. Cleaning does not kill germs, but by removing them, it lowers their numbers and the risk of spreading infection. *Disinfecting* refers to using chemicals to kill germs on surfaces. This process does not necessarily clean dirty surfaces or remove germs, but by killing germs on a surface after cleaning, it can further lower the risk of spreading infection.

SIMONA Boltaron relies on the CDC to provide the best guidelines for disinfecting hard surface materials and recommends that you clean the surface following regular protocols before the disinfecting process using the following steps.

Cleaning Stage	<p>Step 1: Wipe the surface with a dry cloth to remove all dirt or residue</p> <p>Step 2: Spray the surface with an approved cleaner*</p> <p>Step 3: Follow the cleaning manufacturer’s instructions for the length of time to leave the cleaning solution on the surface to be effective before removing it</p> <p>Step 4: Remove all of the cleaning solution residue from the surface completely using water and wipe dry with a clean cloth to prevent water spots</p>
Disinfecting Stage	<p>Step 5: Use a CDC recommended disinfectant** (70% isopropyl alcohol, 3% hydrogen peroxide or 1/3 bleach to 1 gallon of water) to disinfect the surface</p> <p>Step 6: Follow the cleaning manufacturer’s instructions for the length of time to leave the cleaning solution on the surface to be effective before removing it</p> <p>Step 7: Remove all of the cleaning solution residue from the surface completely using water and wipe dry with a clean cloth. Leaving residue on the surface could cause material discoloration</p>

* Complete list of SIMONA Boltaron tested cleaners available on page 5.. **CDC recommended disinfectants for killing COVID-19 are listed online at <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>. Avoid using quaternary based disinfectants.

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Boltaron® Antibacterial and Antifungal Properties

TESTING FOR RESISTANCE TO BACTERIAL AND FUNGAL DEVELOPMENT

Boltaron® thermoplastic sheet material does not support the growth of common bacteria and fungus under a variety of conditions. Refer to the results below for specific test results under ASTM G21 and G22 protocol. The tests conclude that Boltaron sheet materials perform well in preventing the growth of bacteria and fungus, even without the addition of an antimicrobial additive.

ASTM G21- RESISTANCE TO FUNGUS GROWTH

ASTM G21 is designed for the qualitative determination of mildew (fungus) resistance of synthetic polymeric materials. The method is conducted over a 28 day period by a third party lab, during which Boltaron sheet was placed in petri dishes on nutrient salts agar (in triplicate) and inoculated with the test fungi.

ORGANISM	TEST USED BY INOCULUM
Aspergillus Brasiliensis	ATCC 9642
Chaetomium Globosum	ATCC 6205
Penicillium Funiculosum	ATCC 11797
Trichoderma Virens	ATCC 9645
Aureobasidium Pullulans	ATCC 15233

CONCLUSION

The Boltaron sheet samples did not show any signs of fungus growth after four weeks.

ASTM G22- RESISTANCE TO BACTERIAL GROWTH

ASTM G22 is a qualitative test method designed to assess the ability of plastics to resist bacterial attack. The method is conducted over a 21 day period during which Boltaron sheet was placed on inoculated agar, incubated, and then compared to a positive and negative control.

The test microorganism used was Pseudomonas Aeruginosa. This is the most common disease-causing species, according to the Center for Disease Control and Prevention (CDC).

In this study, Tryptic Soy Agar was used as a positive control. This medium has no antimicrobial efficacy, and is known to support the growth of the test microorganism. The positive control confirmed the test microorganism was viable and pure. The negative control in this study used nutrient salt agar, which does not support bacterial growth. The negative control confirmed that it did not support the growth of the test microorganism. See below for results.

SAMPLE	INCUBATION (TIME AND GROWTH SCORE AT DAY 21)
Boltaron Sheet (Sample 1)	No Growth
Boltaron Sheet (Sample 2)	No Growth
Negative Control	No Growth
Positive Control	Growth

CONCLUSION

The Boltaron sheet samples did not show any signs of bacterial growth after three weeks.



Antibacterial and Antifungal Properties

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Tested Cleaning Products

Boltaron® high performance materials are engineered to maintain their quality appearance for a long lifetime of use. Whether used for airplane seat parts, which need to withstand passenger abuse and rigorous daily cleaning practices, or for other applications in the medical, equipment manufacturing or architectural fields with similar cleanliness requirements, SIMONA Boltaron is committed to providing materials that stay looking great and last as long as you need them.

Clean with Confidence

SIMONA Boltaron has manufactured its industry leading thermoplastic materials for more than 25 years, continuously testing new cleaning products to verify their safe impact on material color and performance properties. The following broad range of cleaners have no adverse effects on Boltaron® thermoplastics.

Cleaning Product List

Celeste Biozyme EX3 Hard Surface Cleaner and Odor Counteractant LS-7200 series	Celeste Interior Cleaner Complete SP-NG85000 High Performance Multi-Surface Cleaner*
Celeste Sani-cide EX3	Callington Aero Glass Cleaner (Aircraft Glass Cleaner)
Celeste Sani-com 3205 Pre-moistened Multi-purpose Cleaning Towel	Windex Multi-surface Disinfectant Cleaner Citrus Fresh Scent
Lysol Dual Action Wipes Citrus Scent	3% Hydrogen Peroxide
Clorox Disinfecting Wipes (Crisp Lemon)	70% Alcohol
Real Clean AeroCide Aircraft Interior Disinfectant	Bleach Diluted (one-third cup per 1 gallon of water)
Zip-Chem Calla 7127	

**Do not use on Boltaron® 9916 translucent material as crazing can occur*

Cleaners to Avoid

Cleaning products containing quaternary ammonium salts could have adverse effects on the appearance of fire-rated thermoplastic materials. Our extensive research and testing revealed that the discoloration can occur to a unique combination of improper cleaning practices and extremely high temperatures. When a cleaner containing quaternary ammonium salts was applied incorrectly (i.e., not wiped or rinsed from the material's surface) and the improperly cleaned part was exposed to high temperatures for many hours, discoloration on the surface of the material occurred. **Following proper cleaning procedures and/or using non-QAS cleaners prevents this.**

SIMONA Boltaron does NOT recommend the use of Callington CH2200 (High Performance Cleaner + Deodoriser), Real Clean Post Flight Detailer (wash & wax spray), Celeste Microgreen Elite Adhesive and Gum Remover LS-4500/611, Lysol Clean & Fresh Multi-Surface Cleaner, Sparkling Lemon & Sunflower Essence Scent, Dawn Professional Liquid Concentrate Manual Pot and Pan Detergent, 409 Multi-Surface Cleaner, Uline Disinfecting Wipes, Diversey Virex Tb, Zip-Chem Calla 1452 or most quaternary ammonium or ammoniated compounds.

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If you have a question about how to clean Boltaron® materials or about using a specific cleaning product, please call +1 800 342 7444, email info@boltaron.com, visit www.boltaron.com/care-and-maintenance, or contact your local SIMONA Boltaron sales manager:

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