

Developing Antiviral Surface Coatings to Combat COVID-19

AdaptiveSurface
TECHNOLOGIES

About Adaptive Surface Technologies, Inc.

Adaptive Surface Technologies (AST) is a Cambridge, MA-based industrial technology company that produces materials and coatings that repel fluids, contaminants, and biological fouling. Our products can be used for a wide range of consumer, industrial, marine, and medical applications.

Our existing product lines include:



SLIPS® Foul Protect™ and SeaClear™

for Marine Applications



SLIPS® Repel™

for Industrial Applications



SLIPS® Zero™

for Food Packaging

COVID-19 and the Problem with Existing Coatings

Studies have shown that SARS-CoV-2 (COVID-19) can remain stable on plastic and stainless steel surfaces for 48-72 hours¹ and contact with a disinfectant solution needs to be 30 seconds to 10 minutes to be effective.²

Efficiency of common disinfectant methods are short lived due to evaporation, and they may only destroy the virus at the point of contact, at the time of application.

This creates a problem for a high traffic surfaces such as handrails or door handles – they can still carry and transmit the virus to humans even in between regular cleanings.

¹ <https://www.medrxiv.org/content/10.1101/2020.03.09.20033217v1.full.pdf>

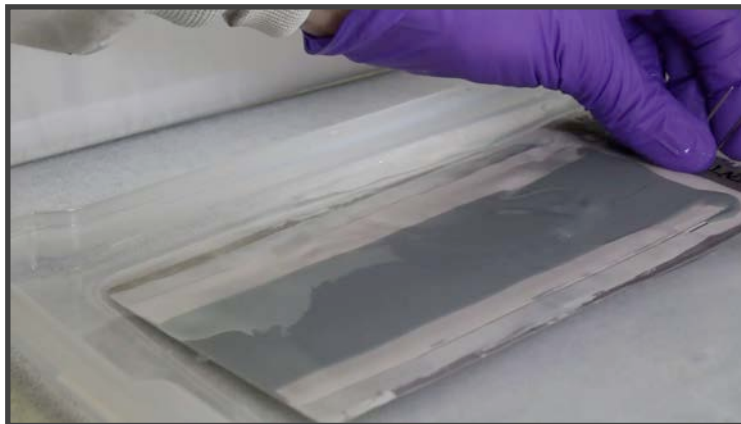
² <https://cen.acs.org/biological-chemistry/infectious-disease/How-we-know-disinfectants-should-kill-the-COVID-19-coronavirus/98/web/2020/03>

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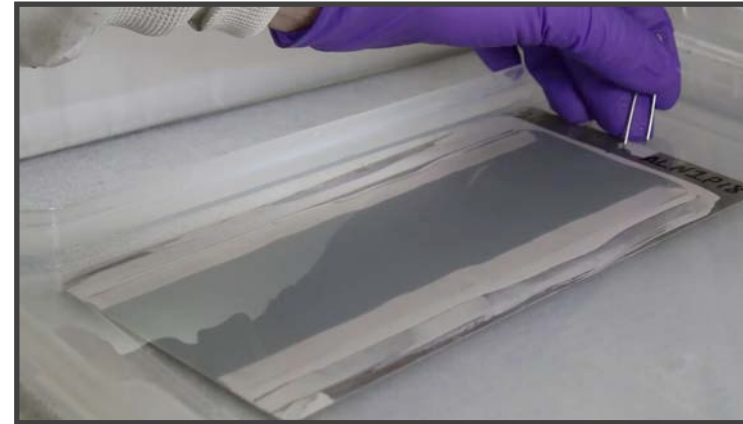
From our expertise in marine biofilm repellency, we understand that viral mitigation is complex and requires a biocidal approach to ensure efficacy. Based on the foundational technology of SLIPS® Foul Protect™, we believe we can create an improved antiviral surface that interacts with existing commercial disinfectant solutions to improve biocidal activity and disinfecting efficiency – keeping the disinfectant on the surface longer and effectively reducing the survival of SARS-CoV-2 on commonly touched surfaces.

AST's novel chemistry creates a “hydration layer”, allowing surfaces to remain wetted by disinfectants longer:

*Click image to
launch video link*



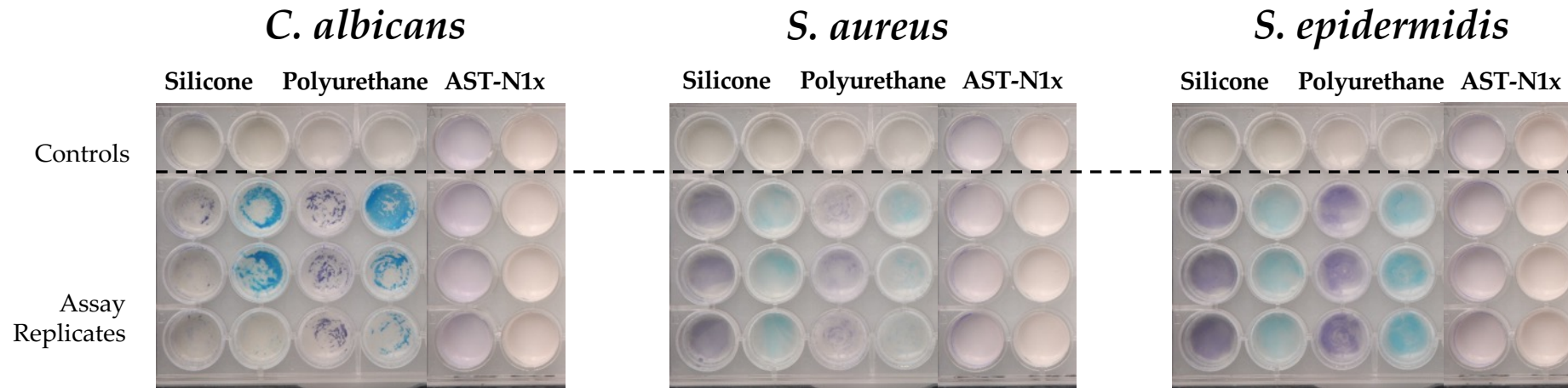
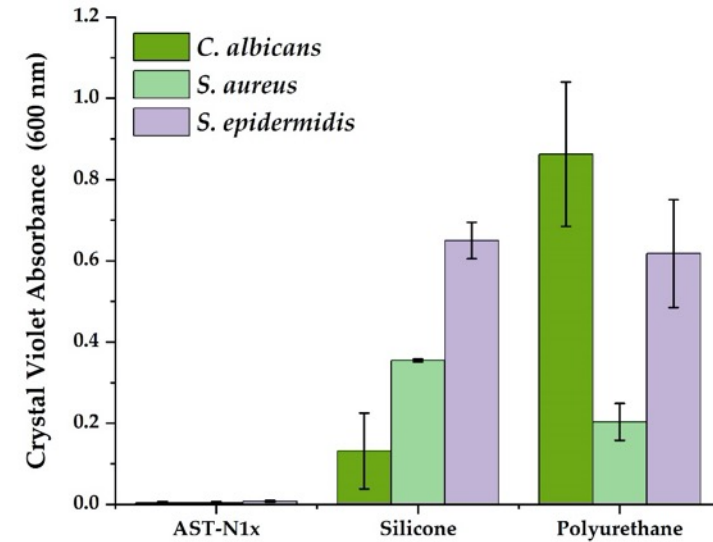
No Hydration Layer



With Hydration Layer

Based on Proven Technology

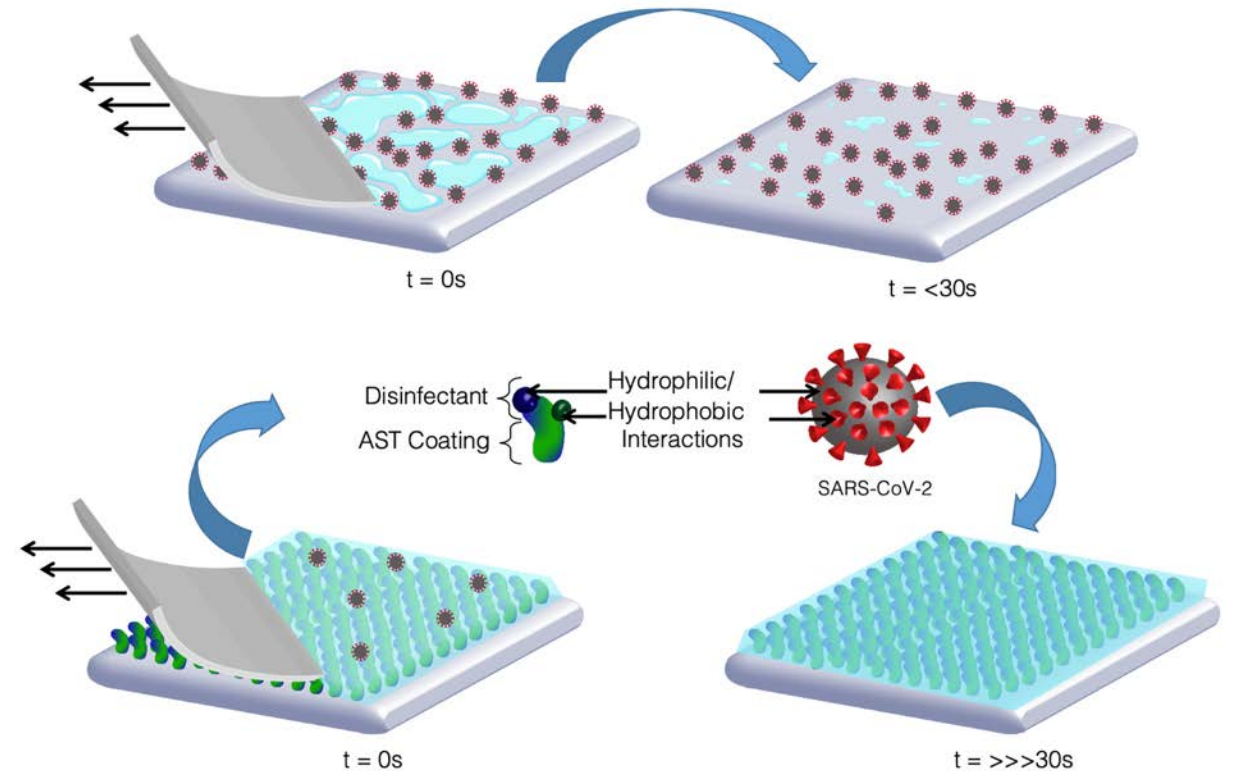
AST's surface technology has already demonstrated an ability to repel bacterial fouling, even without the use of active biocidal agents. Our approach in creating SLIPS® Foul Protect™ was to deter marine biological fouling from attaching to the surface, but this same strategy also reduces the incidence of bacterial biofilms in non-submerged applications.



Our Approach

To create an improved antiviral surface, we will use surface chemistries that loosely bind to existing antiviral disinfectant solutions. By engineering the surface in this way, we can absorb some of the biocidal actives and extend the duration of contact between the virus on the surface and actives within the solution.

Recent studies have indicated that SARS-CoV-2 may stay on surfaces for up to three days (or longer), and disinfectant contact may need to continue for several minutes to be effective. It is important for disinfectants to have long enough contact with this virus to effectively decontaminate the surface, much longer than the average wipe.





AdaptiveSurface

T E C H N O L O G I E S

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