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PROTECTING PEOPLE AND PRODUCT DURING A PANDEMIC:

A Study On Various Institutional Disinfectants

ABSTRACT

Given the recent onset of COVID 19, the sanitization of public spaces and high traffic areas is receiving center stage for commercial cleaning and infection reduction. The increasing use of disinfectants and cleaners on surfaces such as Create Surface Design wallcovering is increasing as new disinfecting protocols are evolving. To date, the impact of 13 disinfectants/cleaners have been trialed on the surface of Create wallcovering using a number of protocols (including a Gardner Abrasion tester). No trial samples showed damage; reflecting the durability and cleanability of the product.

BACKGROUND

COVID-19 has greatly affected the normal process of doing business with our customers. It has also had huge impact on how we manufacture the products we use on a daily basis, and their path to market. Since the first case of the virus was reported in China, on December 31, 2019, to March 7th 2020, with 100,000 cases confirmed worldwide, business has gone through irreversible changes. By mid-March, Coronavirus was characterized by the World Health Organization (WHO) as a pandemic ((World Health Organization, 2020).

Although recent numbers reflect progress (such as a decrease in the number of daily new cases in the US, UK and China) (Johns Hopkins Coronavirus Resource Center, 2020), we are still far from being back to 'business as usual'. What may have been a sole focus on sales increase and territory expansion in pre-Corona 19 days, has grown to include a growing concern for cleanliness and sanitization.

When compared to January of 2019, there has been a spike of over 800% for sales of "virus protection" products including masks, gloves and hand sanitizer (Wiener-Bronner, 2020). And with good reason. According to the CDC, Coronavirus can live on surfaces for up to several days (World Health Organization, 2020), which presents new considerations for cleaning and disinfecting protocol, and in particular surface related products.

According to the CDC, cleaning and disinfecting frequently touched surfaces can help prevent the spread of the virus. This includes doorknobs, tables, countertops, walls, etc. (Centers for Disease Control and Prevention, 2020). To effectively apply the "new normal" in cleaning protocol for Create wallcovering, begins with a distinction being made between cleaning and disinfecting. The two are not synonymous. Cleaning a surface simply removes germs from a surface, lowering their overall number. Disinfecting a

surface, conversely, kills the germs and viruses present. Both of these methods lower the number of germs and viruses on surfaces, thereby reducing the risk of spreading infection (Centers for Disease Control and Prevention, 2020). Both cleaning and disinfection are classified as sanitization practices.

Care must be given to the types of cleaners/disinfectants used around people and on the surface of Create wallcovering. In order to be sure that the products you're using are safe for you and your family, the EPA has a list of common EPA-registered household disinfectants here: <https://www.epa.gov/saferchoice/safer-ingredients>. You'll find that a number of them have the same active ingredient(s) as the cleaners that were tested in this study.

As the "new normal" evolves, hospitality & commercial spaces will open back up, and alongside this reopening, new requirements to ensure the health of those utilizing them. Keeping these spaces clean and safe given COVID 19 (and other potential novel viruses) will be a crucial part of life for the foreseeable future.

At this unprecedented time, Create Surface Design is committed to providing you with up-to-date information related to disinfectants/cleaners tested on our product utilizing various protocols. The following is a white paper that presents a study of disinfectants and cleaners that can be safely used on Create wallcovering. In addition to our reformulated vinyl substrate (Prop 65 compliant & certified for low VOC emissions), Create wallcovering offers additional protection from further interior environmental hazards with the addition of Ultra-Fresh™ - an antimicrobial component of Create's vinyl substrate.

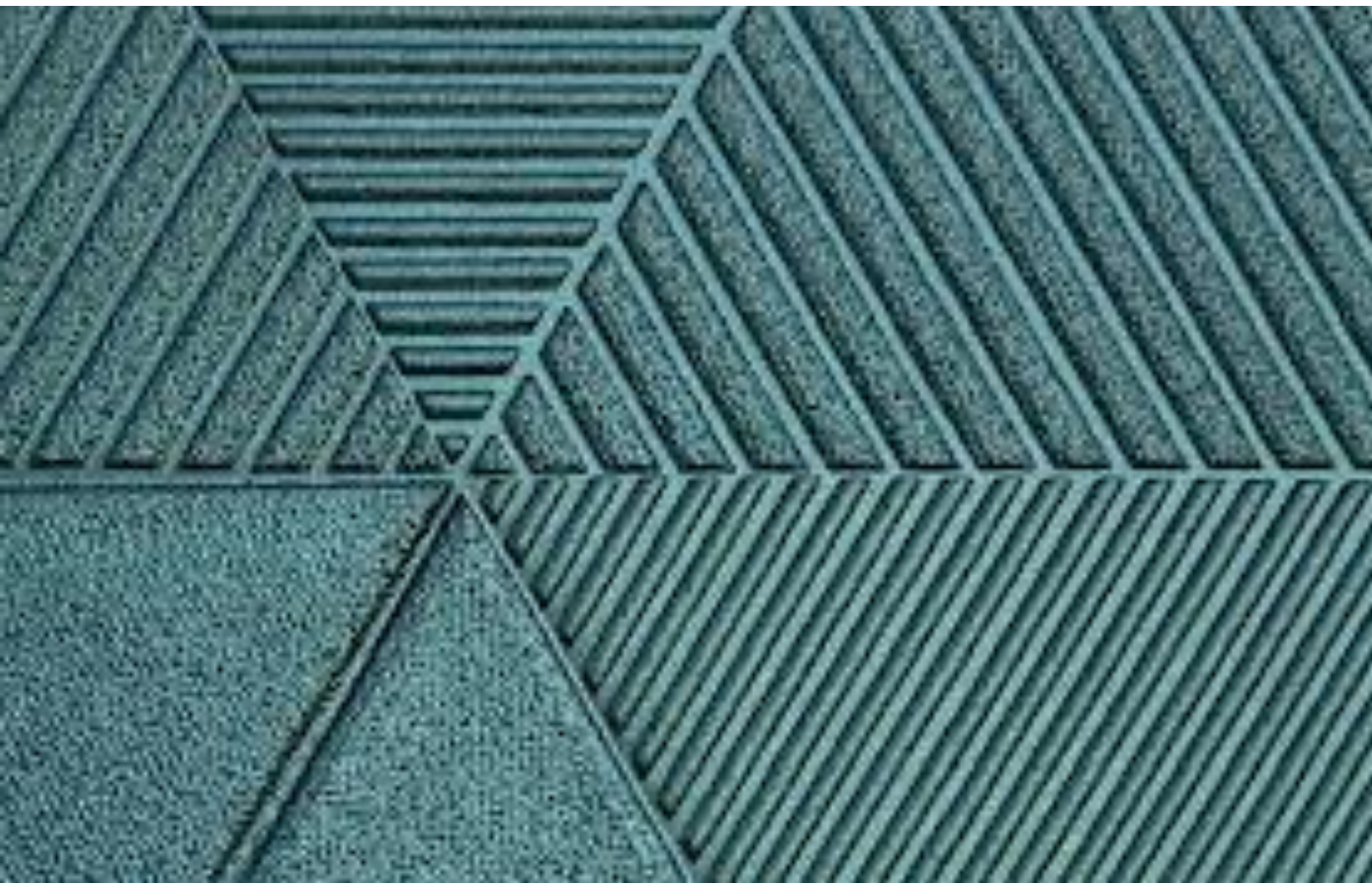
Create Surface Design's reformulated vinyl offers multiple advantages. Esteeming the values of authenticity and transparency, Create wallcovering aspires to be the socially responsible wallcovering choice. As such, Create wallcovering is NSF/ANSI 342 certified, having been evaluated for sustainability across its entire life cycle. Furthermore, the EPA's chemicals of concern - with their potential negative effects on human health - have been eliminated. These include phthalates (endocrine disruptors), heavy metals such as Antimony, Arsenic and Barium (carcinogens), formaldehyde (carcinogen) and phenol (skin irritant). The elimination or substitution of these chemicals makes Create wallcovering inherently healthier for children, the immune vulnerable, as well as employees and the general public worldwide.

Create wallcovering has been third party tested to meet the standards of California's Prop 65 and the Collaborative for High Performance Schools (CHPS). SCS Indoor

Advantage Gold Certified, recognized by the EPA as a premier Indoor Air Quality certification with low VOC emissions, means Create wallcovering is safe for use in classrooms, medical buildings and with the immuno-compromised. It's reformulated substrate means no labeling for toxic chemicals or reproductive harm is necessary.

In conclusion, the addition of Aqua-Clear protective coating offers a barrier protecting the decorative layer from many cleaners and cleaner/disinfectants. As stated earlier in this document, the use of virucidal agents is critical to preserving human health in interior environments.

With the arrival of the Corona virus and the significant investment behind decorative interiors, Create Surface Design wanted to confirm the institutional disinfectants that could be used without damaging the surface of its wallcoverings. It is our belief that this white paper will prove informative and instructive in maintaining interior hygiene and minimizing the presence of dangerous bacteria and viruses.



TESTING PROTOCOL

Create wallcovering comes in multiple forms: with woven or non-woven backings, a mylar layer, or with deeply embossed texture. For each Create wallcovering construction, we are committed to quality remaining consistent and lasting throughout the lifetime of the wallcovering. The method used to test the impact of multiple disinfectants on these varieties was as follows:

- I. Spray wallcovering sample until wet and let stand for a minimum of 20 minutes or the time period specified by the manufacturer's instructions.
- II. Spray wallcovering again to soak and secure in Gardner Abrasion tester. Run 200 cycles with the Gardner sponge.
- III. Once 200 cycles have occurred, allow sample to dry and inspect for damage to the print layer .
- IV. Twenty repeated applications of disinfectants and disinfectant/cleaner within 24 hours
- V. Wet thoroughly and place watch-glass over the liquid (preventing evaporation) for 24 hours
- VI. Note any change



GARDNER ABRASION TESTER

The Gardner Abrasion Tester allows evaluation of products such as wallcoverings and interior paints for damage from multiple cycles of wash (sponge) and scrub (brush). In this case, a sponge was used to wash the wet surface of the samples to determine potential discoloration or degradation of the samples from exposure to institutional disinfectants and cleaners. The following disinfectants/cleaners, used within healthcare, retail and hospitality industries, were tested with the above protocol. The active ingredient of each are listed in parenthesis:

- Create Surface Design (Chlorine Bleach and Water, 50:50 ratio)
- Oxivir (Hydrogen Peroxide)
- Virex (Ammonium Chloride Compounds)
- Nemesis (Ammonium Chloride Compounds)
- Neutral Q (Ammonium Chloride Compounds)
- Rely (Ammonium Chloride Compounds)
- Micro Q (Ammonium Chloride Compounds)
- Purell Professional Surface (Ethyl Alcohol)
- Avistat D (Ammonium Chloride Compounds)
- Spritz (Ammonium Chloride Compounds)
- 409 Multi Surface Cleaner (Ammonium Chloride Compounds)
- Spray 9 (Ammonium Chloride Compounds)
- Lysol Multi-surface Cleaner (Ammonium Chloride Compounds)

RESULTS

For each disinfectant/cleaner listed above there was no visible change or damage to the wallcovering. Create wallcovering's Aqua-Clear top coat seals and protects the vinyl and inks from damage as long as the prescribed cleaning protocol is followed.

CONCLUSION

Create Surface Design, protected by Aqua-Clear protective coating showed no visible damage to the ink layer or substrate after multiple applications of the disinfectants and cleaners listed above. Create vinyl wallcoverings withstand regular maintenance and



cleaning, while providing a healthier interior finish that is low-emitting, long lasting, and aesthetically pleasing.

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