

FOCUS on Surface Disinfection

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SURFACE DISINFECTION FOR THE REAL WORLD

The upholstery materials preferred for CDC-designated non-critical furniture applications in healthcare settings share certain characteristics. In addition to meeting physical and performance standards, being available in a broad palette of colors and offering a soft feel for comfort, materials must meet a very high bar when it comes to their ability to withstand disinfection and environmental cleaning protocols in acute, ambulatory and long-term healthcare facilities. As a result of the COVID-19 pandemic, these same characteristics have even broader applicability as cleaning and disinfection of seating surfaces in interior public spaces of all kinds takes on increased urgency.

Proper environmental cleaning and disinfecting will remove more than 99.9% of pathogens present on surfaces, minimizing the potential transfer of microorganisms from one person or object to another. The elimination of surface soil and bacteria on non-critical furniture is fundamental in controlling healthcare-associated infections (HAIs). In fact, thorough cleaning must occur before disinfection can even begin. For this reason, a properly constructed vinyl coated fabric – a material that will resist absorption of pathogens due to its impervious, water-resistant surfaces – is the ideal choice for public seating applications in healthcare and beyond.

THE ROLE OF HEALTHCARE-GRADE VINYL UPHOLSTERY

Healthcare-grade vinyls will resist absorption of pathogens for several reasons. Chief among them is that vinyl upholstery is:

- Nonporous, providing a fluid barrier to the furniture's inner cushion
- Resistant to disinfectants and cleaning agents intended to fight bacteria and disease-causing microbes
- Wear resistant
- Minimally textured, if at all, promoting ease of cleaning and disinfection
- Stain resistant and highly cleanable without aggressive scrubbing.

Together, these attributes can simplify cleaning methods for hospital environmental service departments.

CLEANING PRODUCTS AND COATED FABRICS

The U.S. Centers for Disease Control and Prevention (CDC) establishes evidence-based guidelines¹ for the cleaning, disinfection and sterilization of the healthcare environment. Each type of product has a different but important role to play in cleaning hospital surfaces. Because maximum effectiveness from disinfection and sterilization results from first cleaning, these guidelines review and define the differences in these cleaning methods and advise that healthcare workers adhere to the recommendations in these guidelines and to instructions on product labels.

As determined by the Spaulding Classification System, applications deemed non-critical can be disinfected using “low-level” cleaning protocols, according to the CDC. The U.S. Environmental Protection Agency (EPA) registers the hospital-grade germicides it has determined, through testing, to be effective on each type of surface.² However, it should be noted that most disinfectants used on coated fabrics have disclaimers that they are for use on hard surfaces only.



Vinyl coated fabric manufacturers publish their own separate Instructions for Use that outline proper care and cleaning to avoid degradation to the fabric and retain its durability and stain resistant qualities. Practically speaking, however, these recommended safeguards have their limitations. In the real world, cleaning crews may not perform the steps as written and the use of undiluted or insufficiently diluted concentrates can cause accelerated degradation of coated fabrics. Currently there is no standard test for coated fabric exposure to UVC radiation and methods to test resistance to this, plus Peroxide mists and other newly introduced methods, are still being evaluated.

To avoid premature product failure, it is important to determine the degree to which a fabric selection will resist damage from a broad spectrum of the typical EPA-registered disinfectants. Cleaning and disinfecting chemicals and compounds can affect all coated fabrics to varying degrees, depending on the chemical resistance properties of those materials. Even hospital-grade vinyl, if damaged by aggressive cleaning, can open up potential harbor points for microbial growth.

SETTING THE STANDARD FOR HEALTHCARE APPLICATIONS

To assist with this challenge, CFFA developed minimum performance standards for vinyl-coated upholstery fabrics for indoor furniture used in healthcare settings. These standards outline the properties which collectively make up a durable fabric and that should be referenced in selecting the construction of coated material most suited for a specific end use. Providing a guide to specifiers, "Recommended Minimum Performance Standards for Vinyl-Coated and Other Chemical Coated Upholstery Fabrics – Healthcare"³ shows how these properties are measured using CFFA Standard Test Methods, the minimum values of which all must be attained for a given construction to conform to the healthcare standard.

For example, to align upholstery manufacturers' surface cleaning guidance with real world environmental cleaning practices, CFFA developed a standard test method for assessing the effect on a coated material of common disinfectants. CFFA 100,⁴ "Accelerated Exposure to Disinfectants," can be added to individual product specifications to determine this chemical resistance. CFFA's test method outlines a methodology for evaluating the ability of vinyl coated fabric samples to withstand accelerated exposure to a variety of disinfectants typically used in healthcare settings. Once the specimens are cleaned and visually examined for fading or discoloration (0.5 Delta E is an acceptable color deviation) or change in gloss, the final step is flexing the fabric by hand to check for cracks, peeling or increase in hardness.

Another Standard Test Method, CFFA 142,⁵ "Stain Resistance in Healthcare Environments," was developed to assess the effect of common stains on a coated material found in healthcare environments. This test method outlines methodology for evaluating the ability of vinyl coated fabric samples to withstand surface resistance to transferable stains, including body fluids. Here, coated fabric samples are exposed to a number of stains commonly found in hospitals, then cleaned according to several progressively stronger protocols to determine their capabilities in stain removal.

THE VINYL ADVANTAGE

Healthcare-grade vinyl coated fabrics are an ideal choice due to their durability and resistance to stains, moisture and bodily fluids. In addition, their relatively smooth surfaces can be cleaned and disinfected more rapidly, an important metric for Environmental Services departments. All of this, combined with the ability of coated fabrics to withstand most disinfection protocols, has made them an increasingly common choice for seating in all public spaces.



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¹ Centers for Disease Control and Prevention, Guideline for Disinfection and Sterilization in Healthcare Facilities www.cdc.gov/infectioncontrol/guidelines/disinfection/index.html

² U.S. Environmental Protection Agency, Selected EPA-Registered Disinfectants www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants

³ Chemical Fabrics and Film Association, CFFA Publications / Standards, Recommended Minimum Performance Standards for Vinyl-Coated and Other Chemical Coated Upholstery Fabrics – Healthcare www.cffaperformanceproducts.org/cffa-pages/publications.asp

⁴ Ibid., Standard Test Methods for Chemical Coated Fabrics and Film, CFFA 100 www.cffaperformanceproducts.org/cffa-pages/publications.asp

⁵ Ibid., Standard Test Methods for Chemical Coated Fabrics and Film, CFFA 142 www.cffaperformanceproducts.org/cffa-pages/publications.asp

