

Ask the EXPERT



Close up of commercial wallcovering after it was sprayed with common disinfectant.

Have Commercial Wallcoverings 'Hit a Wall' in Today's Performance Standards?

New criteria for coatings and lacquers emerge during the pandemic



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Ryan Scott has eight years of expertise in the research and development of coating formulations for a variety of industries including: aerospace, industrial fabrics and textiles, marine and building products. Ryan's intense drive for learning has solved challenging customer projects through unique, first-to-market chemistry. Most notable accomplishments were his one- and two-part water-based formulations for flexible vinyl and leather under the VYNGUARD® Performance Coatings brand of APV Engineered Coatings. Ryan is an active member of the AATCC, Cleveland Coating Society, and American Coatings Association. He is passionate about "Believe in Ohio," a STEM and Entrepreneurship program for high school students, where he volunteers. Ryan attended the University of Akron, earning degrees in Chemistry and Business Management.

Protection for vinyl and textiles used in commercial wallcovering applications is a hot topic. Industries such as hospitality, education, and healthcare demand that coatings and finishes for wallcoverings used in harsh environments:

1. Perform safely and effectively, with long-term anti-microbial properties
2. Provide superior resistance to stains and abrasions
3. Comply with Prop 65
4. Maintain aesthetics
5. Resist degradation from frequently applied, high-concentration disinfectants

Most of these coating demands are not new. However, more emphasis is now placed on resistance against disinfecting and cleaning, a requirement that has been exacerbated by the pandemic.

Formulating coatings that provide resistance against common disinfectants such as quaternary ammonium salts (QAS), isopropyl alcohol, ethyl alcohol, peroxide, and chlorine (bleach), in higher than effective concentrations per the CDC, can be challenging. These disinfectants are effective by absorbing into the cell walls of bacteria, damaging the membrane, and killing the bacteria. However, depending on coating chemistry, these biocides can degrade the coating film on the vinyl surface, weakening its performance and eliminating its purpose.

Why test higher concentrations of biocides than recommended by the CDC?

All manufacturers of type I, II and III commercial vinyl wallcoverings provide post-installation cleaning instructions, guidelines for stain removal, and/or disinfecting processes. The CDC also has published guidelines for disinfection, including one specifically for healthcare facilities. The Guideline for Disinfection and Sterilization in Healthcare Facilities (2008) references how surfaces should be cleaned per manufacturer instructions using an EPA-registered disinfectant.

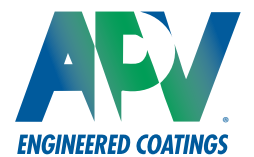


Daily disinfecting of wallcovering in high traffic area in an office building.

The Guideline assumes that the disinfectant product labels and the coated wallcovering are aligned in terms of frequency and duration of exposure. However, since the pandemic, businesses are increasing the frequency of their disinfectant use and using a variety of biocide concentrations. As a result, coatings chemists must learn the effect of higher concentrations of these chemicals on the coated surface at a more frequent and longer duration.

Is it possible to have it all in a lacquer or finish?

Yes, although success depends on new attention to the coatings development process. This includes incorporating novel raw materials, extensive internal testing procedures, and 3rd party validation testing on the treated article. The W-101 Quality Standard for Coated Fabric Wallcovering calls out a variety of ASTM, EN, and NFPA standards, most critically the ASTM F 793 Standard Classification of Wallcovering by Durability Characteristics and ASTM D-1308 Standard Method for Test for Effect of Household Chemicals on Clear and Pigmented Organic Finishes. It is up to the coating formulator to increase the threshold of these tests and raise the bar on performance.



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