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Covid—19 and the Effects on Flooring and Furnishings

NOW WHAT DO WE DO?

I'm talking about now what do we do after the effects of the corona virus. I'm no medical expert and this is not a medical article, but it is one on how flooring and interior spaces may be affected.

We have had several requests from carpet manufacturers and clients, who have had requests from their customers, about the effects of disinfectants used to kill the Corona virus on soft and hard furnishings. The lab we work with has also had "tons" of calls on this subject. These treatments are not new, nor is the chemistry, but it will be used in greater quantities and in greater frequency. With the increased use and frequency, some furnishings being exposed to these products will undoubtedly be affected.

Since the chemistry being used to disinfect is many and varied, (see the list on the CDC website included), the chemicals can have an effect on both hard and soft surfaces. You should know how the chemicals, and frequency of their application, can affect the spaces they're being used in. One thing is for certain, whether the space is corporate offices, health care facilities, public spaces or hospitality and any other commercial space, the services of a professional to do this work must be employed. In house staff or building maintenance can take care of the simpler things such as wiping down doorknobs, faucet handles or surfaces that are touched by occupants regularly and repeatedly, but they shouldn't be performing the overall disinfecting that treats the entire space – that should be left to the professionals.

The products used by professionals should be hospital grade disinfectants listed on the EPA "N" list, that meet the CDC/EPA efficacy requirement against COVID-19, that is, they kill 99.999% of bacteria and viruses on contact and are safe in all environments and on all surfaces. An EPA product can be applied to the carpet as well, as long as it has been tested to prove no effects such as loss of color, change of color and degradation of the material. I want to repeat and emphasize that these materials should only be applied by experienced applicators that can document experience and success in the application of these types of materials.

What the CDC says:

"(COVID-19). Based on what is currently known about the virus and about similar coronaviruses that cause SARS and MERS, spread from person-to-person happens most frequently among close contacts (within about 6 feet). This type of transmission occurs via respiratory droplets, but disease transmission

occurs via respiratory droplets, but disease transmission via infectious aerosols is currently uncertain. Transmission of SARS-CoV-2 to persons from surfaces contaminated with the virus has not been documented. Transmission of coronavirus in general occurs much more commonly through respiratory droplets than through fomites. Current evidence suggests that SARS-CoV-2 may remain viable for hours to days on surfaces made from a variety of materials. Cleaning of visibly dirty surfaces followed by disinfection is a best practice measure for prevention of COVID-19 and other viral respiratory illnesses in community settings." CDC website information: https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/cleaning-disinfection.html

The latest from the CDC, as of May 20, 2020, the CDC now says the corona virus does not spread easily via surfaces.

You should know that when it comes to Covid 19 and disinfectants, all companies producing and applying any disinfectants are only allowed to claim that these products disinfect on non-porous surfaces. The EPA will not allow claims that a product can disinfect a porous substrate (such as carpet or textile furnishing) because there is the risk that not all areas were covered with the product when it is applied. There can be a statement that the disinfectant product can be used on porous surfaces to "clean" them, but it may not make the statement that it will disinfect them. Does this mean that you should be concerned about carpet? Certainly not. The information below from the CDC website (previously furnished) is for soft surfaces. This would be for carpet, and the method would essentially be a normal cleaning. In this case that would be hot water extraction. Detergent and water will "kill" the virus and the cleaning agent in hot water extraction should be effective. However, there is currently only one EPA registered and CRI listed carpet cleaning agent that kills bacteria and would be effective on virus. This product has been tested by the lab and is available, however, a good detergent will do the job.

Soft (Porous) Surfaces – also from the CDC website

"For soft (porous) surfaces such as carpeted floor, rugs, and drapes, remove visible contamination if present and clean with appropriate cleaners indicated for use on these surfaces. After cleaning: If the items can be laundered, launder items in accordance with the manufacturer's instructions using the warmest appropriate water setting for the items and then dry items completely. Otherwise, use products that are EPA-approved for use against the virus that causes COVID-19 external icon and that are suitable for porous surfaces."

THE COMMERCIAL FLOORING REPORT
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What you should be concerned about is the integrity of the furnishing in the space. In hotel rooms, for example, there is flooring, both soft and hard, bedding, draperies, and hard furniture as well as upholstered furniture. High end hotel properties most often have woven Axminster carpets that are an 80/20 Wool/Nylon blend. Following is information from WoolSafe on what should be used to clean wool or wool blend carpet. I'll elaborate on the chemicals and their effects on carpet and furnishings as we go along.

WoolSafe Product Acceptability:

"The WoolSafe test methods and performance requirements are designed to ensure that the product performs the function for which it is sold and does not have a deleterious effect on wool carpets or rugs. The WoolSafe performance criteria for products suitable for use on wool and wool rich floor coverings and furnishing fabrics are based on accumulated performance data of floor coverings and maintenance products, and on internationally used standards and protocols. Oxidizing and reducing agents, optical brighteners, and buffering agents, must not have an effect on color fastness, must not have detrimental effects on wool, must not leave a residue that can build up or be soil attractive." (The would be true of all carpets for that matter).

Many of the disinfectants contain oxidizers. Oxidizers can destroy color in soft flooring materials, decompose wool and embrittle synthetic fibers. Peroxide or Chlorine based agents can affect textile colors. They can also have an effect on the Polyurethane wear coatings on vinyl tile and planks. These reactions may take time. In spaces that are repeatedly treated the effects would be compounded. If sunlight floods a space, such as in an office building or through the windows of a hotel room, the UV light can accelerate the effects of oxidizing agents. If the furnishings in a hotel room are washed repeatedly the washing can speed the deterioration of the fabric.

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Inventory Offer

Disinfectants that are Chlorinated products could turn into hydrochloric acid which can discolor and even destroy nylon and wool. It can also affect and degrade cotton sheeting and other wool products. The hydrochloric acid can also affect coatings on wood and other fixtures.

In an office environment the effects would be the same depending on what the fabric is on the furnishings. Synthetics will be affected at a slower rate than organics –

wool and cotton. In any location the colorfastness and integrity of the fiber can be affected. Under current conditions, the expected extremely high frequency of the applications – daily in some cases - is going to build up some serious residues which may not only affect the carpet but other textile materials and hard surfaces. Hotels have been particularly concerned as they may be prone to treat the rooms after each guest stay. Not only will the repeated use of disinfectants compromise the furnishings, but because the application is with foggers spraying a light mist, it's not going to dry for an extended period of time. Another concern would be for the dampness of the applications and the effect that will have on all furnishings and equipment. The surface must remain wet for a period of time. How long that is and what effect will it have on the surfaces it contacts, is the question. The fogging goes everywhere – it is however a cause and effect. In the process of being diligent about safety and health, the repeated applications of the disinfectants may also tighten up the replacement cycles due to effects on furnishings. The residue buildup of repeated applications should also be a concern as people err on the "overkill" side. And are there harmful effects of the chemicals themselves? On top of that everything gets wet, doesn't dry and odor can develop as well as microbial growth. Another consideration is sunlight. Sunlight streaming in through windows onto surfaces that have been treated repeatedly with any disinfectant that contains an oxidizer can accelerate color change or loss. Sunlight entering a space can be a catalyst to make the effects appear faster. Unfortunately, this puts the hotel property, or other space, between a rock or and a hard place.

There has been talk about the use of ozone generators. Ozone is a disinfectant and powerful oxidizer that can kill microorganisms. Since it is a gas it will go everywhere in a space. Research we've done indicates exposure times in the space of 10 to 30 minutes is effective, depending on the size of the space. Ozone is a much stronger oxidizer than other common disinfectants such as chlorine and hypochlorite and it dissipates quickly. With uncontrolled exposure, it may have an adverse effect on human health and its use for air disinfection is generally not recommended if people are around. However, it could be used in an empty space, and it dissipates rather quickly after being used and the space is opened up. This may be an efficient method for hotel rooms. Ozone can have an adverse on health by affecting the respiratory system so the space must be purged – air out completely – before being occupied. On the downside, ozone is also a very strong oxidizing agent – it can degrade and fade color from materials. Ozone use will progressively damage rubber, plastic, fabrics, paint, and metals.

UV light has been mentioned being used against the virus. The artificially applied UVc wavelength is the only one that is highly effective, compared to UVa and UVb wavelengths, which are the commonly available types. UV is only effective where it shines. It does not permeate the space and won't reach everywhere so it is not always an adequate means to disinfect. UV light, at the level of intensity necessary to act as a disinfectant, may cause physical and chemical changes. It can fade color and affect many natural fibers and synthetic polymers including some rubbers, neoprene and polyvinyl chloride (PVC) if exposed for extended periods of time or repeatedly. This means any synthetic flooring and furnishings can be damaged by UV light that has sufficient intensity to disinfect a surface – exposure time is critical.

Though the CDC says you can use bleach, 1/3rd cup to a gallon of water - don't. It will have a damaging effect on textile materials. This is particularly true with natural materials such as wool and cotton but is also applicable to synthetic materials.

Here are three of the most common chemicals used for disinfectants said to be effective in killing virus.

1. BLEACH – bleach is sodium hypochlorite. It will deteriorate cotton, linen, wool and other natural fibers. If bleach is sprayed on surfaces and allowed to sit without being wiped off, over time, colors will fade, and pinholes will appear in fabrics and yarns made with natural materials. Synthetic materials like nylon and polyester will, typically, just show some color fade and not much yarn/fiber deterioration. Solution dyed, synthetic yarns/fabrics will be impacted the least if sprayed with bleach.

2. PEROXIDES - Discoloration on natural fibers. Hydrogen Peroxide is used to bleach or scour cotton in the fabrics industry. It has a high bleaching effect without destroying the fabric quality (because it was rinsed off during scouring). If sprayed on bedding or draperies and allowed to remain, it will fade the color on those fabrics and, eventually, degrade the fiber. It has a similar effect on wool. If sprayed on wool

and allowed to remain, it can cause discoloration and fiber degradation.

Another possible effect is increased moisture on the wool flooring if the peroxide (H_2O_2) decomposes to oxygen and water. If the HVAC system does not remove this moisture, this could lead to other problems (mold, mildew). This could happen with any fiber type, natural or synthetic.

3. QUATERNARY AMMONIUM COMPOUNDS (QUATS) - are recognized as being effective against the Covid -19 virus. These positively charged (cationic) cleaners, if sprayed on resilient surfaces and not rinsed off, can affect topical finishes and cause yellowing, especially in high temperature environments. They also reduce lightfastness properties of some dyestuffs. Cationic materials damage the stain resist treatments on residential nylon carpets, and their use invalidates stain resistance warranties. Cationic materials are also known to attract soil particles and cationic detergents are not used in carpet cleaning agents.

If the quat also contains a surfactant (if it is used for cleaning) and is not rinsed from the floor, the surfactant will attract dirt from shoes and could be redeposited to other areas in the building.

If quats are sprayed on office chairs made from synthetic fibers, the cationic quats can "stick to" anionic fabrics (cotton pants, jeans or shirts for example) and eventually, yellow those fabrics. Opposites attract. Cotton is anionic (negatively charged) and the positively charged quats will be attracted to them.

This information is an overview of what can happen to flooring, fabrics and furnishing in any space using a variety of disinfectants and disinfecting methods.

So what's the answer?

The answer at this point is that there is no definitive answer as carpet varies from the type of nylon, wool, blends, dyes used, treatments applied and no one knows what effects disinfectants, depending on what kind they are, will have on them over time.

Of concern also should be the time these wet agents have to spend on the surface of carpet or furnishings and other sensitive equipment, like computer keyboards, and the effects this will have on them. Therefore, every fabric and chemical will have to be tested to determine the effects. These tests can be conducted by Professional Testing Laboratory here in Dalton, Georgia. The catch however is that the existing standard lab test for disinfectants' negative effects on flooring/fabric is a fairly short term test. These tests would have to be modified for extended periods of time and multiple applications to truly emulate real life conditions.

Small Exposure Chamber

I want to say thank you for the help I've received on this newsletter through the collaboration of some very knowledgeable associates in the flooring industry who are chemists, chemical engineers, former flooring manufacturing technical directors, and Professional Testing Lab who we work with daily.

LGM is here to help you in whatever way we can to answer your questions, define problems and determine resolutions.

Excess Inventory Offer

Most of you have flooring material sitting around that's taking up space and costing you money.

Dispose of your excess inventory - remnants, hospitality carpet, carpet tile and any hard surface flooring materials. Avoid paying insurance or taxes on flooring materials taking up rack space and convert it into cash.

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We have a contact in Calhoun, GA that will pay you for this material and arrange for shipping from your location. They'd need a complete inventory of what you have so they can make you an offer. This firm is well financed and established with a stellar reputation.

This is a great opportunity to get rid of merchandise taking up space and make some money in the process. Call or email Kolt or Cynthia with any questions so they can help you.

surplus@overstockfloorzusa.com

Kolt Privett - 770-530-4709

Cynthia Potts - 706-271-6767

Thanks,

Lew Migliore