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Antimicrobial Carpet Treatments

Technical Bulletin

Antimicrobial additives are used in a number of products available to the consumer. Some manufacturers promote the incorporation of these products into their carpets as preservatives, while other manufacturers do not. The intent of this paper is to discuss some of the regulatory requirements applicable to the use of these treatments, types of treatments that are used, pertinent test methods, and the role of proper maintenance in controlling bio-contaminants in indoor environments.

All antimicrobial treatments are regulated by the United States Environmental Protection Agency. For EPA registration, these antimicrobial preservatives must undergo extensive toxicological assessments. The EPA Treated Articles Exemption (EPA PR Notice 2000-1) states that articles treated with an EPA-registered product may make claims only related to protection of the treated article against bacterial- or mold-related odors and staining. No implicit human health claims may be made unless the finished treated article (itself) is EPA registered. This EPA regulatory clarification is key in curbing over-zealous marketing claims regarding the intended function of the antimicrobial treatment. Currently, there are no carpets registered as finished treated articles, therefore no healthcare claims can be made or implied for carpets with these treatments.

Two types of antimicrobial treatments exist for carpets and coatings. The first type is used in the manufacturing process to prevent bacterial spoilage of latex compounds. . These preservatives are essential processing aids in the carpet industry and in a multitude of other industries employing water-based chemistries. Many of these preservatives are water-soluble and have little to no inhibitory effect after the carpet manufacturing process. The presence of these preservatives does not allow antimicrobial claims to be made on the final product.

The other type of treatment is an antimicrobial additive incorporated into a topical treatment on the carpet fibers or into the backing structure of the carpet during manufacture. The intended purpose of these treatments is to provide protection, primarily against mold, when the soiled carpet is exposed to high humidity conditions. Typical antimicrobials for carpets include phosphated amines, common metals (zinc, silver, copper), or phenol-based compounds. The American Association of Textile Colorists and Chemists (AATCC) and American Society for Testing and Materials (ASTM) are two well-known organizations that publish standard methods for measuring the reduction of microbial growth on carpet.

Regardless of how well the antimicrobial treatments perform, they are not substitutes for proper care, cleaning and maintenance of the carpet. It is important to recognize that growth of fungi and other microorganisms cannot occur on carpet or any other surface without a nutrient source and water. Synthetic carpets in themselves do not provide a nutrient source for microorganisms, and significant amounts of soil, in addition to a

critical supply of moisture, are necessary for fungal growth. Regarding this issue, the Centers for Disease Control published the following guidelines concerning carpets in institutional settings in their 2003 Guideline for Environmental Infection Control:

> "*Over the last few years, some carpet manufacturers have treated their products with fungicidal and/or bactericidal chemicals. Although these chemicals may help to reduce the overall numbers of bacteria or fungi present in carpet, their use does not preclude the routine care and maintenance of the carpeting*. "

In conclusion, the CRI neither encourages nor discourages the use of antimicrobial treatments in finished carpets. Each carpet manufacturer is most knowledgeable about its own carpet, and CRI recommends that consumers consider the many factors pertaining to the use of antimicrobial treatments in carpets, and follow the individual manufacturer's recommendations about the use of these treatments. Whether or not a manufacturer chooses to incorporate one of these treatments, antimicrobial additives should never be positioned as a substitute for proper moisture control and maintenance.

References:

US EPA "Pesticides: Topical and Chemical Fact Sheets, Consumer Products Treated with Pesticides" http://www.epa.gov/pesticides/factsheets/treatart.htm#enforcement

AATCC Test Method 174-1998 Antimicrobial Activity Assessment of Carpets, http://www.aatcc.org/Technical/Test_Methods/scopes/tm174.cfm

ASTM E2471-05 Standard Test Method for Using Seeded-Agar for Screening Assessment of Antimicrobial Activity in Carpets, http://www.astm.org

Guidelines for Environmental Infection Control in Health-Care Facilities, 2003, Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC). U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (CDC), Part I. Background Information: Environmental Infection Control in Health-Care Facilities, Carpeting and Cloth Furnishings pdf file pp: 92-93. http://www.cdc.gov/ncidod/dhqp/gl_environinfection.html