Designation: E2471 – 05 (Reapproved 2011)$^{\varepsilon 1}$

Standard Test Method for Using Seeded-Agar for the Screening Assessment of Antimicrobial Activity In Carpets[1]

This standard is issued under the fixed designation E2471; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

ε^1 NOTE—Editorial changes were made throughout in April 2011.

INTRODUCTION

Today's modern commercial carpets (especially modular carpet tile) often incorporate antimicrobial agents either in or on the face fibers or incorporated into the primary backing (attachment point of carpet fiber to the backing structure). The American Association of Textile Chemists and Colorists (AATCC) Method 174 permits both qualitative and quantitative antibacterial assessment and antifungal assessment (qualitative only) of antimicrobial treatments in or on carpet. However, the method is not suited for rapid screening of antimicrobials low in water solubility or that have slow diffusion rates when incorporated into the carpet's primary backing layer. The test method described here provides a rapid screen of antimicrobial activity in or on carpets and allows for the simultaneous assessment of multiple components of the carpet (not just the fibers).

1. Scope

1.1 This test method is designed to evaluate (qualitatively) the presence of antimicrobial activity in or on carpets. Use this test method to qualitatively evaluate both antibacterial and antifungal activity.

1.2 Use half strength (nutrient and agar) tryptic soy agar as the inoculum vehicle for bacteria and half strength potato dextrose agar as the inoculum vehicle for mold conidia. Use of half strength agars may reduce undue neutralization of an antimicrobial due to excessive organic load.

1.3 This test method simultaneously evaluates (both visual and stereo-microscopic) antimicrobial activity both at the fiber layer and at the primary backing layer of carpet.

1.4 Use this test method to assess the durability of the antimicrobial treatments on new carpets, and on those repeatedly shampooed or exposed to in-use conditions.

1.5 Knowledge of microbiological techniques is required for the practice of this test method.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *American Association of Textile Chemists and Colorists (AATCC) Standard:*

Method 174-2007, Antimicrobial Activity Assessment of Carpets[2]

3. Terminology

3.1 *Definitions:*

3.1.1 *face fiber, n*—the wear layer of the carpet; can be composed of nylon, polypropylene, wool, or other natural or synthetic polymers. Typically, face fiber is tufted into a woven or non-woven scrim and then coated with latex to bond the face fiber securely to the backing; this latex coated scrim forms the primary backing.

3.1.2 *inoculum vehicle, n*—carrier solution used to transport bacterial cells or mold conidia to the test substrate.

3.1.3 *primary backing, n*—the uppermost layer of carpet backing where carpet fiber bundles are physically attached at the base to the backing structure. This layer is typically constructed of synthetic latex (ethylene vinyl acetate, styrene butadiene, or a thermo-polymer; that is, ethylene vinyl acetate hot-melt adhesive).

[1] This test method is under the jurisdiction of ASTM Committee E35 on Pesticides, Antimicrobials, and Alternative Control Methods and is the direct responsibility of Subcommittee E35.15 on Antimicrobial Agents.

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[2] Available from American Association of Textile Chemists and Colorists (AATCC), P.O. Box 12215, Research Triangle Park, NC 27709, http://www.aatcc.org.