



Designation: E1428 – 15

Standard Test Method for Evaluating the Performance of Antimicrobials in or on Polymeric Solids Against Staining by *Streptomyces species* (A Pink Stain Organism)¹

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INTRODUCTION

When certain bacteria and mold species grow on the surface of flexible or “plasticized” polymers, metabolites such as pigments in the case of certain bacteria and melanin (dark stains from fungal growth) cause undesirable stains on the polymer surface. These stains may persist even after the surface growth is removed. This test method is used for determining the performance of antimicrobial agents used in or on synthetic polymeric solids against pink-staining by the actinomycete, *Streptomyces species*. This organism has been chosen as an indicator organism, although other organisms have been known to cause undesirable staining in polymeric solids.

1. Scope

1.1 This test method is intended to assess susceptibility of vinyl and other solid polymer products as well as products that may directly contact vinyl to pink-staining by the actinomycete bacteria *Streptomyces species*.

1.2 This test method is not suitable for evaluating dark-pigmented test samples.

1.3 A knowledge of microbiological techniques is recommended for these procedures.

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.5 *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 *ASTM Standards:*²

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

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[D3273 Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber](#)

[D3274 Test Method for Evaluating Degree of Surface Disfigurement of Paint Films by Fungal or Algal Growth, or Soil and Dirt Accumulation](#)

[E2756 Terminology Relating to Antimicrobial and Antiviral Agents](#)

3. Terminology

3.1 For definitions of terms used in this standard refer to Terminology [E2756](#).

3.2 Definitions:

3.2.1 *microbially induced staining*—undesirable pigmentation or disfiguration of an object due to surface colonization by certain microorganisms.

3.2.1.1 *Discussion*—Both bacteria and fungi produce metabolic pigments that can result in surface stains on susceptible objects.

3.2.2 *Pink stain organism, n*—refers to a staining phenomena caused by a metabolic pigment produced by actinomycete bacteria specifically, *Streptomyces species* ATCC 25607 (deposited as *Streptoverticillium reticulum*).³

³ The sole source of supply of ISP Medium 2 (Yeast Malt Extract Agar), Catalog No. 2770-010 known to the committee at this time is BD, 1 Becton Drive Franklin Lakes, NJ 07417 or www.bd.com. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,¹ which you may attend.