



Designation: E723 – 13

# Standard Practice for Evaluation of Antimicrobials as Preservatives for Aqueous- Based Products Used in the Paper Industry (Bacterial Spoilage)<sup>1</sup>

This standard is issued under the fixed designation E723; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This laboratory practice is used to determine the efficacy of an antimicrobial for preventing bacterial spoilage of in-process aqueous-based products used in the paper industry. For information on fungal spoilage, see Test Method E875. This practice should be performed by persons who have had basic microbiological training.

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

1.3 *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. (See 40 CFR Part 160.)*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

D1193 Specification for Reagent Water

E640 Test Method for Preservatives in Water-Containing Cosmetics

E875 Test Method for Efficacy of Fungal Control Agents as Preservatives for Aqueous-Based Products Used in the Paper Industry

E1054 Test Methods for Evaluation of Inactivators of Antimicrobial Agents

E1326 Guide for Evaluating Nonconventional Microbiological Tests Used for Enumerating Bacteria

E1839 Test Method for Efficacy of Slimicides for the Paper Industry—Bacterial and Fungal Slime

E2756 Terminology Relating to Antimicrobial and Antiviral Agents

2.2 *Other Standards:*

40 CFR Part 160 Good Laboratory Practice Standards<sup>3</sup>

## 3. Terminology

3.1 For definitions of terms related to this practice, see Terminology E2756.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *antimicrobial, n*—chemical or physical agent that kills or inactivates microorganisms or suppresses their growth or reproduction.

3.2.2 *bactericide, n*—a physical or chemical agent that kills bacteria, but not necessarily bacterial spores.

3.2.3 *bicide, n*—a physical or chemical agent that kills organisms.

3.2.4 *microbicide, n*—a physical or chemical agent that kills microorganisms.

3.2.5 *preservatives, n*—chemical agent(s) added to a product to reduce or prevent microbial growth.

## 4. Summary of Practice

4.1 Aqueous material to be preserved is inoculated with appropriate bacterial inoculums followed by addition of a bactericide that will reduce populations of bacteria and prevent the growth of survivors for a specified period of time. Bacterial numbers in the sample are determined at various time periods and compared to a control without any bactericide. The proper level of antimicrobial is one that reduces and keeps the organisms to an acceptable level in the test material.

## 5. Significance and Use

5.1 This practice should be used to determine if an antimicrobial preserves pigment suspensions, dye solutions, pulp slurries, starch solutions, polymers, sizing agents, latex

<sup>1</sup> This practice 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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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.