



Standard Test Method for Efficacy of Fungal Control Agents as Preservatives for Aqueous-Based Products Used in the Paper Industry¹

This standard is issued under the fixed designation E 875; 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.

1. Scope

1.1 This laboratory test method is used to determine the efficacy of a fungal control agent to prevent spoilage of in-process aqueous-based products used in the paper industry.

1.2 For information on bacterial control agents, see Test Method E 723.

1.3 It is the responsibility of the investigator to determine whether good laboratory practices (GLP) are required and to follow them when appropriate (see 40 CFR, 160).

1.4 *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.*

1.5 A knowledge of microbiological techniques is required for these procedures.

2. Referenced Documents

2.1 ASTM Standards:

D 1193 Specification for Reagent Water²

E 599 Test Method for Efficacy of Slimicides for the Paper Industry—Fungal Slime³

E 600 Test Method for Efficacy of Slimicides for the Paper Industry—Bacterial Slime³

E 723 Test Method for Efficacy of Antimicrobials as Preservatives for Aqueous-Based Products Used in the Paper Industry (Bacterial Spoilage)⁴

2.2 Federal Standard:

40 CFR, Part 160, Good Laboratory Practice Standards⁵

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *fungal control agent, n*—an agent that either kills or prevents growth of fungi and either kills or prevents the germination of fungal spores. This term is applied to chemical

biocidal or biostatic agents.

3.1.2 *preservative, n*—chemical agent used to prevent microbial spoilage of products due to microbial growth.

4. Summary of Test Method

4.1 Aqueous material to be preserved is inoculated with an appropriate fungal inoculum followed by addition of a concentration of fungal control agent that will kill the fungi or prevent their growth for a desired period of time, or both. In addition, the agent will also prevent fungal spore germination. Fungal growth is determined by visible signs of deterioration in the test sample, and by obtaining fungal numbers and comparing them to a sample without any fungal control agent. The proper level of fungal control agent is one that prevents product deterioration and reduces and keeps the organisms to an acceptable level in the test material, as determined by the tester or user.

5. Significance and Use

5.1 This test method should be used to determine if a fungal control agent is effective to preserve pigment suspensions, dye solutions, pulp slurries, starch solutions, polymers, sizing agents, latex emulsions, and other specific aqueous-based materials used in the paper industry. Separate evaluations should be made on a representative type for each specific class of product to be preserved.

NOTE 1—Control of bacterial spoilage of similar products can be evaluated by Test Method E 723.

NOTE 2—Slimicides for control of fungal or bacterial slime can be evaluated by Test Methods E 599 and E 600.

6. Apparatus

6.1 *Two Balances*, One should be sensitive to 0.1 g at a load of 200 g with a platform to accommodate bottles being used in the test. The second balance (analytical) should be sensitive to 0.1 mg and used for weighing test chemicals.

6.2 *Clean Sample Containers*, (120 mL containers with screw- cap lids are ideal for test aliquots.) Other suitable containers include milk dilution bottle, 4 oz glass bottles, or sterile sampling bags.

6.3 *Flaming Equipment*—An alcohol lamp, bunsen burner, or electric device may be used to flame inoculating needles and other equipment.

6.4 *Incubators*—Incubators that control the temperature of

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

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² *Annual Book of ASTM Standards*, Vol 11.01

³ Discontinued 1997; Replaced by E 1839.

⁴ *Annual Book of ASTM Standards*, Vol 11.05.

⁵ Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.