



Designation: E 1327 – 90 (Reapproved 1995)^{€1}

Standard Test Method for Evaluation of Health Care Personnel Handwash Formulations by Utilizing Fingernail Regions¹

This standard is issued under the fixed designation E 1327; 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 (€) indicates an editorial change since the last revision or reapproval.

€¹ NOTE—Section 13 was added editorially in March 1995.

1. Scope

1.1 This test method covers the determination of ability of antimicrobial handwashing agents to give reductions of transient microbial flora (bacterial flora) when used in a hand washing procedure.

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

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.* For more specific hazard statements, see Note 1.

2. Referenced Documents

2.1 ASTM Standards:

E 1054 Practices for Evaluating Inactivators of Antimicrobial Agents Used in Disinfectant, Sanitizer, Antiseptic, or Preserved Products²

3. Summary of Test Method

3.1 This test method, involving an improved method of recovering bacteria from hands, is used to study the effects of antimicrobial health care personnel handwash products. The group of volunteer panelists need not refrain from using topical antimicrobials (such as deodorant soaps) before participating in the study. All subjects wash their hands with a nonantimicrobial hand soap prior to testing to remove any residual hand lotions and to lower the numbers of resident skin flora. Activity of products is measured by comparing the numbers of marker bacteria recovered from artificially contaminated fingernail regions after use of the handwashing formulations to the numbers recovered from the artificially contaminated but unwashed fingernail regions. Broth cultures of *Serratia marcescens* (a red pigmented bacterial species) and *Escherichia coli* (which produces fluorescent colonies on a special agar medium) are used as test bacteria. A spore suspension of *Bacillus*

subtilis may be utilized to study (1) degree of physical removal by handwashing techniques, and (2) the recovery and precision aspects of the test method.

4. Significance and Use

4.1 The procedure should be used to test the degerming effectiveness of antimicrobial hand washing products used by health care personnel that are intended for frequent use, and that are intended to reduce the level of contamination acquired through contact with contaminated objects or people.

4.2 Performance of these procedures requires the knowledge of regulations pertaining to the protection of human subjects.³

5. Apparatus

5.1 *Colony Counter*—Any of several types may be used, for example, Quebec Colony Counter.

5.2 *Incubators*—One incubator capable of maintaining a temperature of $25 \pm 2^\circ\text{C}$ (this temperature required to ensure pigment production of *Serratia*); a second incubator capable of maintaining $37 \pm 2^\circ\text{C}$ is used for *E. coli* and *B. subtilis* incubation is acceptable.

5.3 *Water Bath*—Capable of maintaining temperature of $80 \pm 2^\circ\text{C}$ for heat shocking of *B. subtilis* spores is needed.

5.4 *Sterilizer*—Any suitable steam sterilizer capable of producing the conditions of sterilization is acceptable.

5.5 *Timer*—Any stop-watch that can be read in minutes and seconds is required.

5.6 *Handwashing Sink*—A sink of sufficient size to permit panelists to wash without touching hands to sink surface or other panelists is needed.

5.6.1 *Water Faucet(s)*, to be located above the sink at a height that permits the hands to be held higher than the elbow during the washing procedure.

5.6.2 *Tap Water Temperature Regulator and Temperature Monitor*, to monitor and regulate water temperature of $40 \pm 2^\circ\text{C}$.

5.7 *Quad Petri plates*, 100 by 15 mm, plastic, sterile, disposable.⁴

¹ This test method is under the jurisdiction of ASTM Committee E-35 on Pesticides and is the direct responsibility of Subcommittee E35.15 on Antimicrobial and Antiviral Agents.

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² *Annual Book of ASTM Standards*, Vol 11.05.

³ *Federal Register*, Vol 46, No. 17, Jan. 27, 1981.

⁴ Presterilized disposable quad plastic petri plates, the two sizes of glass petri plates and other equipment are available from most local laboratory supply houses.