



Standard Test Method for Resistance of Materials Used in Protective Clothing to Penetration by Synthetic Blood¹

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^{ε1} NOTE—Units information was editorially corrected in June 2014.

INTRODUCTION

Workers, primarily those in the health care profession, involved in treating and caring for individuals injured or sick, can be exposed to biological liquids capable of transmitting disease. These diseases, which may be caused by a variety of microorganisms, can pose significant risks to life and health. This is especially true of blood-borne, Hepatitis [Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV)] and Acquired Immune Deficiency Syndrome (AIDS) [Human Immunodeficiency Viruses (HIV)]. Since engineering controls can not eliminate all possible exposures, attention is placed on reducing the potential of direct skin contact through the use of protective clothing that resists penetration (29 CFR Part 1910.1030). This test method was developed to help assess the effectiveness of materials used in protective clothing for protecting the wearer against contact with body fluids that potentially contain blood-borne pathogens. Using synthetic blood, this test method is intended to identify protective clothing material candidates for further testing according to a more rigorous procedure involving a surrogate for blood-borne pathogens.

1. Scope

1.1 This test method is used to evaluate the resistance of materials used in protective clothing to penetration by synthetic blood under conditions of continuous liquid contact. Protective clothing *pass/fail* determinations are based on visual detection of synthetic blood penetration.

1.1.1 This test method is not always effective in testing protective clothing materials having thick, inner liners which readily absorb the synthetic blood.

1.2 This test method is a means for selecting protective clothing materials for subsequent testing with a more sophisticated barrier test as described in Test Method **F1671**.

1.3 This test method does not apply to all forms or conditions of blood-borne pathogen exposure. Users of the test method must review modes for work/clothing exposure and assess the appropriateness of this test method for their specific application.

1.4 This test method addresses only the performance of materials or certain material constructions (for example,

seams) used in protective clothing. This test method does not address the design, overall construction and components, or interfaces of garments, or other factors which may affect the overall protection offered by the protective clothing.

1.5 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

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 *ASTM Standards:*²

D1331 Test Methods for Surface and Interfacial Tension of Solutions of Paints, Solvents, Solutions of Surface-Active Agents, and Related Materials

¹ This test method is under the jurisdiction of ASTM Committee **F23** on Personal Protective Clothing and Equipment and is the direct responsibility of Subcommittee **F23.40** on Biological.

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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.