



Standard Guide for Evaluating Chemical Protective Clothing¹

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INTRODUCTION

ASTM Committee F23 was established in 1976 for the purpose of producing standards for use in the evaluation of protective clothing. A significant number of these standards have applied to protection against chemicals. Chemical protective clothing ranges from aprons and gloves to totally encapsulating ensembles. Chemical protective clothing is widely used throughout in several different applications including the general industry, the chemical process industry, oil refining, agriculture, hazardous materials remediation, and emergency response.

The effective development and selection of chemical protective clothing requires information on several aspects of the clothing, including chemical resistance, physical integrity, comfort, and fit. Some of these characteristics can be evaluated using swatches of the materials from which the clothing is fabricated. Other characteristics require testing of the finished items of clothing. Committee F23 has developed test methods for both types of evaluations.

The successful use of Committee F23's standards requires an awareness and understanding of each standard as well as the interrelationship of the standards.

The successful application of chemical protective clothing requires the careful matching of the proper level of protection and performance characteristics of clothing with the potential hazard and the functional requirements of the tasks to be performed while wearing the clothing.

1. Scope

1.1 This guide is intended to aid in the application of standards for the development, specification, and selection of chemical protective clothing with the ultimate goal of maintaining the safety and health of workers who come into contact with hazardous chemicals.

1.2 This guide provides a short description of each referenced standard and then makes specific recommendations for the use of these standards. The referenced standards are organized under the following headings: Material Chemical Resistance, Material Physical Properties, Seam and Closure Performance, and Overall Clothing Performance.

1.3 No protocol can ensure the selection of protective clothing that guarantees worker protection. The purpose of testing is to generate data and information that will allow the selection of the most appropriate clothing. Ultimately, clothing selection is based on technical evaluation of available information and professional assessment of risk.

1.4 The values stated in SI units or in other units shall be regarded separately as standard. The values stated in each system must be used independently of the other, without combining values in any way.

1.5 *This standard does not purport to address 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

- D747 Test Method for Apparent Bending Modulus of Plastics by Means of a Cantilever Beam
- D751 Test Methods for Coated Fabrics
- D1630 Test Method for Rubber Property—Abrasion Resistance (Footwear Abrader)
- D2582 Test Method for Puncture-Propagation Tear Resistance of Plastic Film and Thin Sheet

¹ This guide is under the jurisdiction of ASTM Committee F23 on Personal Protective Clothing and Equipment and is the direct responsibility of Subcommittee F23.30 on Chemicals.

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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.