INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION

ANSI / ISEA 103-2010

American National Standard for Classification and Performance Requirements for Chemical Protective Clothing

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Secretariat

International Safety Equipment Association

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American National Standard

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Foreword (This Foreword is not part of American National Standard ANSI/ISEA 103-2010)

The Occupational Safety and Health Administration (OSHA) revised its standard on personal protective equipment (29 CFR 1910.132) in 1994. Expanded and updated, the regulation now requires the employer to conduct documented hazard assessments within the workplace to identify the need for personal protective equipment (PPE). As part of this assessment process the employer must now document the selection of the PPE deemed "appropriate" for the recognized hazard. Although OSHA provides references to many applicable performance-based standards for certain types of PPE (e.g., eye and face protection), there is a void in its regulation with respect to the performance of chemical protective clothing used within general industry. While the National Fire Protection Association (NFPA) had previously addressed clothing worn for hazardous materials emergency response operations under its standards NFPA 1991, 1992, and 1994, no standard existed for the majority of chemical protective clothing worn by the US workforce.

To help bridge the gap in information and performance-based testing criteria, members of ISEA Protective Apparel Group developed this standard that presents a testing philosophy based on garment category and performance level. This approach was modeled after activities ongoing within the European (CEN) and International (ISO) standards communities, and represents one of the first attempts at harmonizing testing and labeling of chemical protective clothing worldwide. Garment categories (e.g., Category 1, gas-tight) are defined by matching expected chemical exposure scenario with various material swatch and finished garment item test requirements. This standard uses multiple performance levels (e.g., three levels of performance for permeation testing) for the majority of properties. The immediate benefit of this standard to the industry is that it provides the end-user with a tool that helps define "adequate protection" by matching their unique exposure scenario to a specific garment configuration (Category) and a minimum level of performance (Level).

The ANSI/ISEA 103 standard is applicable to the vast majority of chemical protective clothing used within industry including, but not limited to, the following applications: agricultural, chemical processing, hazardous materials remediation, pharmaceuticals operations, paint spraying, tank cleaning, laboratory operations, cleanroom operations, petrochemical operations, waste collection/recycling, general manufacturing, bulk chemical transfer/handling operations, general maintenance and clean-up operations.

Suggestions for the improvement of this standard are welcome. They should be sent to the ISEA, 1901 N. Moore Street, Suite 808, Arlington, VA 22209; e-mail standards@safetyequipment.org.

This standard was processed and approved using consensus procedures prescribed by the American National Standards Institute. The following organizations were contacted prior to the approval of this standard. Inclusion in this list does not necessarily imply that the organization concurred with the submittal of the proposed standard to ANSI.

Bayer Corporation
Chemical Manufacturers Association
The Chlorine Institute
The Dow Chemical Company
Halliburton Energy Services
HEPACO
International Association of Firefighters
International Association of Hazardous Materials Trainers
International Personnel Protection, Inc.
International Safety Equipment Association
Intertek
Kraft Foods, Inc.
Lakeland Industries, Inc.
Medline
Miami Township, Dept. of Fire and EMS
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PPG Industries
Precision Fabrics Group
Safety Equipment Institute
Shaw Environmental and Infrastructure
Synthetic Organic Chemical Manufacturers Association
Texas Engineering Extension Service
Texas Instruments
TIAX, LLC
University of Texas
Waste Equipment Technology Association

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American National Standard for Classification and Performance Requirements for Chemical Protective Clothing

1. Scope

1.1 This standard establishes minimum performance classification and labeling requirements for protective clothing designed to provide protection against chemical hazards. Protective clothing items covered by this standard include, but may not be limited to, totally encapsulating suits, splash suits, coveralls, jackets, pants, aprons, smocks, hoods, sleeves, and shoe and boot covers.

1.2 This standard does not address gloves, boots, and respiratory protective devices unless they are an integral part of the protective clothing. This standard does not address biological, radiological, or thermal (hot or cold) hazards. Furthermore, this standard does not address specialized clothing used during hazardous chemical emergencies.

2. Purpose

This standard is intended to provide chemical protective clothing manufacturers with minimum requirements for testing, categorizing, and labeling chemical protective clothing. To assist the users of products covered under this standard, this document provides descriptions of referenced test methods. It is not the intent of this standard to address all situations.

3. Definitions

assembly. A permanent fastening between two or more different garments, or between chemical protective clothing and accessories, obtained, for example, by sewing, welding, vulcanizing, or gluing.

breathing tube. A hose connected to a facepiece or hood through which air or oxygen enters at atmospheric pressure or at a pressure slightly above atmospheric pressure.

certification/certified. A system whereby a certification organization determines that a manufacturer has demonstrated the ability to produce a product that complies with the requirements of this standard, authorizes the manufacturer to use a label on listed products that comply with the requirements of this standard, and establishes a follow-up program conducted by the certification organization as a check on the methods the manufacturer uses to determine continued compliance of labeled and listed products with the requirements of this standard.

certification organization. An independent third party organization that determines product compliance with the requirements of this standard with a labeling/listing/follow-up program.

chemical protective clothing. The individual garment or combination of garments, worn to provide protection against exposure to or contact with chemicals.

chemical protective suit. Clothing worn to protect against chemicals that covers the whole, or greater part of the body. A chemical protective suit may be composed of garments combined together to provide protection to the body. A suit may also have various types of additional protection such as hood or helmet, boots and gloves joined with it.

closure. A device, (e.g., a zipper, "hook and loop" fastener), to close openings for donning or doffing the chemical protective clothing.

commercial packaging unit. A package (i.e., box, bag, wrapper, etc.) that directly contains one or more chemical protective clothing items and represents the smallest unit of sale by the chemical protective clothing manufacturer.

connection. An assembly or joint.

garment. An individual component (of chemical protective clothing), the wearing of which provides protection against contact with chemicals to the part of the body that it covers.

gas-tight chemical protective suit. A one-piece garment with hood, gloves and boots which, when worn with self-contained or air-line breathing apparatus provides the wearer with