INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION

ANSI/ISEA 105-2011

American National Standard for Hand Protection Selection Criteria

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Revision of ANSI/ISEA 105-2005

American National Standard for Hand Protection Selection Criteria

Secretariat
International Safety Equipment Association

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American National Standards Institute, Inc.

American National Standard

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Foreword (This Foreword is not part of American National Standard ANSI/ISEA 105-2011)

The Occupational Safety and Health Administration (OSHA) mandates in its regulation 29 CFR 1910.138 that employers select and require employees to use appropriate hand protection where there is workplace exposure to hazards such as chemical burns or severe cuts and lacerations. OSHA also mandates that such selection be based on an evaluation of performance characteristics of hand protection relative to the tasks being performed.

The Hand Protection Group of ISEA, whose members include Ansell Protective Products, DSM Dyneema, DuPont Personal Protection, Ergodyne, HexArmor, Honeywell Safety Products, Kimberly-Clark Professional, Lakeland Industries, Magid Glove and Safety, MCR Safety, OccuNomix International, and OK-1 Manufacturing has updated this standard to assist employers and users in the appropriate selection of gloves for specific workplace exposures. This document provides or refers to appropriate test methods for specified criteria and provides pass/fail criteria to allow users to interpret test results and determine if certain hand protection products meet their needs.

Significant changes in this third edition of ANSI/ISEA 105 include the acceptance of varying methods to be used in evaluating performance characteristics for cut-resistant and abrasion resistant items. Classification for cut-resistance can be determined using one of two methods and is calculated using the ISEA standardized template. Details on the data collection procedures have been included in the appendix to assist in eliminating variability to the extent possible. ANSI/ISEA 105-2011 now includes separate testing methods for abrasion resistance classification to be use depending upon material type. Cited test methods have been updated to reflect the state of the art in materials performance and technology and to harmonize with other existing standards, where possible.

This standard was approved using consensus procedures prescribed by the American National 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.

Atlas Industrial Contractors
Capital Power Corporation
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Dartmouth University
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ENMR-Plateau
Honeywell International
International Personnel Protection, Inc.
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Pioneer Telephone Cooperative, Inc.
Protection Services, Inc.
Safety Equipment Institute
Underwriters Laboratories
U.S. Steel
Waste Equipment Technology Association
World Fibers, Inc.

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American National Standard for Hand Protection Selection Criteria

1. Scope

This standard addresses the classification and testing of hand protection for specific performance properties related to chemical and industrial applications. Hand protection includes gloves, mittens, partial gloves, or other items covering the hand or a portion of the hand that are intended to provide protection against or resistance to a specific hazard.

This standard provides performance ranges for many different properties based on standardized test methods. Descriptions of the test methods used in this standard are provided in Appendix C. Different levels of performance are specified for each property with zero (0) representing the minimal protection or none at all.

The standard does not address protection from electric shock, ionizing or non-ionizing radiation, every type of thermal exposure and harmful temperature extreme, and every type of exposure to chemicals, biological agents, or other hazardous substances. This standard does not address protection for welding, emergency response applications or fire fighter applications. Other factors to be considered when selecting hand protection are identified in Appendix D and Appendix E.

2. Purpose

The purpose of this standard is to provide manufacturers with a mechanism to classify their products for specified areas of glove performance. The information from this testing and classification can be used to help users to select appropriate hand protection.

DISCLAIMER: Manufacturers of hand protection items determine which tests apply to their products in order to represent a product's performance to individual test classifications of this standard.

Representations by manufacturers regarding a product's compliance with a particular test criterion do not mean, nor should it be implied, that the product meets any other test selection criteria unless specifically stated.

3. Definitions

These definitions provide the meanings of the terms in the context of this standard. Many of the terms have broader meanings in other technical and non-technical contexts.

3.1 Definitions of Glove Responses to Stress

resistance (to a stressor): A property of a glove that permits it to withstand change when stressed.

protection (from a stressor): A property that prevents or reduces deleterious effects on the wearer of a glove when stressed.

NOTE: The distinction between resistance and protection cannot always be clearly drawn. For example, if the stressor is a sharp edge, cut resistance is a property that reduces damage both to the glove and to the wearer.

3.2 Definitions Related to Chemical Effects

Chemical resistance and protection from chemicals are strongly interrelated. Of the three effects of chemicals defined below, one relates to the effects on the gloves and the other two represent routes by which chemicals can reach the wearer.

degradation: A deleterious change in one or more properties of a glove due to contact with a chemical. Rubber gloves may swell, soften and weaken; plastic gloves may shrink, stiffen, harden, and crack when flexed.

penetration: The flow of a chemical through a glove on a non-molecular level through porous materials, seams, and pinholes or other imperfections in the barrier film. The gaps in the barrier are visible, although a magnifying glass or microscope may be needed to see them. Pathways for penetration may occur as the result of degradation when a chemical or physical stressor comes in contact with the glove material.