INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION

The Catalyst for Safety Worldwide

ANSI / ISEA 107-2020

American National Standard for High-Visibility Safety Apparel

ANSI/ISEA 107-2020

(REVISION OF ANSI/ISEA 107-2015)

American National Standard for High-Visibility Safety Apparel

Secretariat

International Safety Equipment Association

Approved September 8, 2020

American National Standards Institute, Inc.

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Foreword

(This Foreword is not part of American National Standard ANSI/ISEA 107-2020)

This 2020 version of ANSI/ISEA 107 represents the fifth edition of the voluntary industry consensus standard addressing high-visibility safety apparel used in occupational settings. Since its initial publication in 1999, the standard has been the authoritative document for the design, performance or materials for high visibility PPE in the United States, having been codified into U.S. Department of Transportation, Federal Highway Administration (FHWA) regulations and incorporated by reference into other relevant worker protection standards.

ANSI/ISEA 107-2020 retains the long-standing Type-Performance Class designation of garments, whereby the Type is based on the expected use setting and the Performance Class is identified based on the amount of visible materials and design attributes incorporated into the finished garment. The criteria for high-visibility accessories have been removed in favor of continuing to emphasize the configurations and design requirements that contribute to the Type-Performance Class designation. Wearers and users should be encouraged to utilize high-visibility accessories including gloves, hoods, and head coverings to enhance their visibility.

It has been recognized that there are many work applications where worker visibility is imperative and the working environment itself can cause the garment to become soiled easily. To accommodate these scenarios, the updated ANSI/ISEA 107 version includes specific criteria for a single-use disposable coverall. It should be noted that this coverall configuration complies with the requisite minimum material amounts and color requirements imposed on all compliant high-visibility safety apparel and that the associated material integrity requirements are only applicable to single-use disposable coveralls, for which unique marking is applied. Updates have also been made to the tests methods in an effort to align more closely with other material integrity tests and to recognize current versions used for evaluating the materials.

The 2020 edition of the standard is introducing the concept of measuring the overall nighttime luminance of a garment by including optional language that allows a manufacturer to test a garment according to ASTM E1501. The committee believes that this standardized method and the data it generates throughout the next revision cycle will allow wearers to more easily compare the nighttime performance of garments and manufacturers to improve the design and performance of HVSA.

This revision was prepared by members of the High Visibility Products Group of the International Safety Equipment Association (ISEA). The following companies were members of the group at the time of the approval of the standard:

Arcwear.com
Blauer Manufacturing
Bulwark FR
Carhartt
DuPont
ERB Industries
Ergodyne
Global Glove & Safety
Ironwear
M.L. Kishigo Manufacturing
Lakeland Industries
3M Company
Majestic Glove
MCR Safety
NASCO Industries
National Safety Apparel
OccuNomix International
ORAFOL Americas, Inc.
Pacific Safety Supply
Performance Textiles, Inc. (div. of Brand and Oppenheimer)
Protective Industrial Products
Pyramex Safety
Radians, Inc.
Safe Reflections
Surewerx
Tingley Rubber
Vartest Laboratories
VisionVest

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.

American Road and Transportation Builders Association
American Traffic Safety Services Association
Association of Hazards Materials Professionals
BSNF Railway
Ms. Holly Burgess, CSP
FCx Performance
Georgia Department of Transportation
Laborers' Health and Safety Fund of North America
Michigan Department of Transportation
North Carolina State University
Reflective Apparel Factory
Roza Sunnyside Valley Irrigation
State of Ohio Public Employment Risk Reduction Program
Texas Department of Transportation
Westex by Milliken

Suggestions for the improvement of this standard are welcome. Send suggestions to:

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American National Standard for High-Visibility Safety Apparel

1 Scope

This standard specifies performance requirements for high-visibility safety apparel. For the purpose of this standard, the term “high-visibility safety apparel (HVSA)” shall be used to mean apparel PPE intended to provide conspicuity to the user in hazardous situations under any light conditions by day and under illumination by vehicle headlights in the dark or other low light conditions.

Performance requirements are included for color, retroreflection, physical properties and minimum areas of background, retroreflective and combined-performance materials, as well as the recommended configuration of the materials. Test methods are provided in the standard to ensure that a minimum level of visibility is maintained when garments are subjected to ongoing care procedures. These specifications may prescribe a wide variety of occupational HVSA, but shall not be applied to firefighter turnout gear.

2 Purpose

Conspicuity is enhanced by high contrast between the garment and the ambient background against which it is seen. This standard provides performance requirements for conspicuous materials to be used in HVSA and specifies minimum amounts of background, retroreflective and combined-performance materials, colors and placement of materials for garments, and supplemental items used to enhance the visibility and safety of workers. Performance Class guidelines are identified with corresponding recommendations for selection based on worker risk hazards, such as complex backgrounds, vehicular traffic and speeds encountered.

3 Definitions

Accredited laboratory: A laboratory having a certificate of accreditation meeting the requirements ISO/IEC 17025:2017, *General requirements for the competence of testing and calibration laboratories* for the collection and analysis of data within the parameters of this standard.

Background material: Colored fluorescent material intended to be highly conspicuous in daytime and dawn/dusk conditions, but not intended to comply with the requirements of this standard for retroreflective material.

Band: A strip or stripe that contrasts with the adjacent material in color, texture, material or function**.**

Combined-performance material: Material that exhibits both background and retroreflective properties.

Conspicuity: The characteristics of an object influencing the probability that it will come to the attention of an observer, especially in a complex environment which has competing objects.

Declaration of conformity: A statement by the manufacturer or supplier, based on a decision following review, that fulfillment of the requirements specified in this standard has been demonstrated. (Appendix E3)

Flame resistance: The property of a material whereby flaming combustion is prevented, terminated or inhibited following application of a flaming or non-flaming source of ignition with or without subsequent removal of the ignition source.

Fluorescent material: Material that instantaneously emits optical radiation within the visible range at wavelengths longer than absorbed and for which emission ceases upon removal of the source of irradiation. These materials enhance daytime visibility, especially during dawn and dusk.

High-visibility safety apparel (HVSA): Personal protective safety clothing intended to