



ANSI/ISEA

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American National Standard for High-Visibility Safety Apparel and Headwear

ANSI/ISEA 107-2010
(REVISION OF ANSI/ISEA 107-2004)

**American National Standard for
High-Visibility Safety Apparel and Headwear**

Secretariat
International Safety Equipment Association

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American National Standards Institute, Inc.

**American
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Standard**

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Foreword

(This Foreword is not part of American National Standard ANSI/ISEA 107-2010)

The need to be seen is recognized as a critical issue for worker safety. Low visibility is a serious hazard for workers who must perform tasks near moving vehicles or equipment. Workers must be visible to vehicle operators in all lighting conditions and against complex environmental backgrounds. The sooner a vehicle operator sees a pedestrian worker, the longer the operator has to avoid an incident. High visibility personal protective equipment (PPE) dramatically enhances worker visibility.

ANSI/ISEA 107-2010 provides performance criteria for the materials to be used in high visibility PPE, specifies minimum areas and, where appropriate, recommends placement of the materials. Performance requirements focus on the color and brightness of garments and headwear relative to the work environment and the combined use of fluorescent and retroreflective materials to make a person conspicuous in all light conditions, day and night. The standard offers three Performance Classes for garments, based on worker hazards and tasks, complexity of the work environment or background and vehicular traffic and speed considerations.

ANSI/ISEA 107-2010 is latest revision of a voluntary industry consensus standard that was published in 1999 and revised in 2004. Before the first publication of this standard in 1999 there was no regulation or guideline for the design, performance or materials for high visibility PPE in the United States. Since 1999, the standard has been recognized by federal, state and local authorities as well as private industry. Since November 24, 2008, US Department of Transportation, Federal Highway Administration (FHWA) regulations have required workers on or near Federal-aid highways to wear ANSI/ISEA 107-2004 Class 2 or Class 3 garments, and the 2009 revision to the Manual on Uniform Traffic Control Devices (MUTCD) extends this provision to workers on all roadways in the United States.

This new edition of ANSI/ISEA 107 includes criteria for flame resistance (FR) as an optional feature of high-visibility PPE. High-visibility apparel marked as FR must be certified by the manufacturer as complying with one of the FR tests cited in the standard. New requirements have also been added for apparel that is marketed as water repellent, water resistant and waterproof. The revised standard also provides useful service life guidelines for high-visibility garments by incorporating those that have been established by FHWA.

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:

Avery Dennison
Blauer Manufacturing
ERB Industries
Ergodyne
Honeywell Safety Products
Iron Horse Safety Specialties
Kimberly-Clark Corporation
King Tech Industry
M.L. Kishigo Manufacturing
LaCrosse Footwear
Lakeland Industries
Logistical Services International
Lohmann & Rauscher
3M Company

MCR Safety
Mine Safety Appliances
NASCO Industries
OccuNomix International
OK-1 Manufacturing
Pacific Safety Supply
Reflexite North America
Safe Reflections
I. Spiewak & Sons
Spector Textile Products
Tingley Rubber
Transportation Safety Apparel
VizCon
White Knight Engineered Products
Williamson-Dickie Manufacturing

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	Power Consultants Inc.
Aramark Uniforms	Safety Equipment Institute
Atlas Industrial Contractors	State of Arizona Department of Transportation
Bruin Plastics Company	State of Ohio Public Employment Risk Reduction Program
Federal Highway Administration	State of Minnesota Department of Transportation
International Brotherhood of Electrical Workers	TAZ Vineyards
International Safety Equipment Association	U.S. Department of Labor - OSHA
Intertek	Underwriters Laboratories
National Electrical Contractors Association	Vartest Laboratories
National Institute for Occupational Safety and Health	VF Imagewear

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

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1. Scope

This standard specifies performance requirements for high visibility safety apparel and headwear PPE. For the purpose of this standard, the term "garment" shall be used to mean apparel and headwear PPE. These garments are 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.

Performance requirements are included for color, retroreflection, and minimum areas, as well as the recommended configuration of the materials. Performance requirements are also provided for the physical properties of background materials used in the construction of high-visibility safety apparel and headwear. Test methods are provided in the standard to help ensure that a minimum level of visibility is maintained when garments are subjected to ongoing care procedures.

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 of conspicuous materials to be used in high visibility items and specifies minimum amounts of retroreflective materials, colors and placement of materials for garments 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. Compliance

3.1 Background materials shall be certified to verify performance to the requirements as specified in Sections 7 and 9 of this standard. The form in Appendix D1 shall be used.

3.2 Combined-performance materials shall be certified to verify performance to the requirements as specified in Sections 7.1, 8 and 9 of this standard. The forms in Appendix D2 for Level 2 and D3 for Level 1 shall be used.

3.3 Retroreflective materials shall be certified to verify performance to the requirements as specified in Sections 8 and 9 of this standard. The forms in Appendix D4 for Level 2 and D5 for Level 1 shall be used.

3.4 Manufacturers of the finished garments shall verify that materials and supplies used to make high-visibility garments meet the requirements of this standard.

All certificates and test reports that verify the performance of materials used in manufacturing the finished garment shall be retained by the manufacturer and be made available to ensure that all garments labeled as meeting this standard have completed all of the testing and certification required by the standard.

Manufacturers of the finished garments shall certify or self-certify compliance that all garment design requirements are achieved to meet requirements of Section 6.1 in their entirety. The Apparel and Headwear Compliance Certificate in Appendix D6 shall be used. The compliance certificate shall be developed for all models produced by each company.

NOTE: Appendix D contains the certificates to be used for certification / self-certification of the high visibility garments, retroreflective, and background materials. All forms are available for download in Adobe Acrobat format on www.safetyequipment.org.