

ANSI/ISEA

107-2015

American National Standard for High-Visibility Safety Apparel And Accessories

This is a preview. Click here to purchase the full publication.

**ANSI/ISEA 107-2015** (REVISION OF ANSI/ISEA 107-2010)

## American National Standard for High-Visibility Safety Apparel and Accessories

Secretariat

**International Safety Equipment Association** 

Approved February 1, 2016

**American National Standards Institute, Inc.** 

## American National Standard

An American National Standard implies a consensus of those substantially concerned with its scope and provisions. An American National Standard is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an American National Standard does not in any respect preclude anyone, whether they have approved the standard or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standard. American National Standards are subject to periodic review and users are cautioned to obtain the latest editions.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no persons shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken to reaffirm, revise, or withdraw this standard no later than five years from the date of publication. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

Published by

International Safety Equipment Association 1901 North Moore Street, Arlington, Virginia 22209 USA

Copyright 2015 by ISEA

All rights reserved.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without the prior written permission of the publisher.

Printed in the United States of America

## **Foreword**

(This Foreword is not part of American National Standard ANSI/ISEA 107-2015)

ANSI/ISEA 107-2015 is latest revision of a voluntary industry consensus standard that was first published in 1999 and revised in 2004 and 2010. Prior to its initial publication 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. Current US Department of Transportation, Federal Highway Administration (FHWA) regulations have required workers on or near Federal-aid highways to wear 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.

The need to be seen is recognized as a critical issue for worker safety. Low visibility is a serious hazard for all 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 safety apparel and accessories dramatically enhance worker visibility.

This new edition consolidates the requirements of ANSI/ISEA 107-2010 and ANSI/ISEA 207, *American National Standard for Public Safety Vests* in an effort to establish a single, comprehensive document that considers all occupational tasks. While the standard continues to present three performance classes of garments based on the amount of visible materials and design attributes incorporated into the final configuration, it also identifies garment types based on expected use settings and work activities being performed. These are designated as off-road (type O), roadway and temporary traffic control (type R), or public safety activities (type P).

Fit and comfort of high-visibility safety apparel play an important role in worker acceptance of wearing these items as part of their daily activity. While previous editions provided some freedom in design that resulted in smaller sized garments capable of meeting the standard's requirements, specifiers and users wearing garments classified as Performance Class 2 under the ANSI/ISEA 107-2010 standard edition had expressed concern regarding appropriately fitting compliant garments for smaller sized workers. Garments that are not properly sized to fit can expose workers to catch hazards or interfere with other protective gear, potentially compromising worker safety.

In response, the ANSI/ISEA 107-2015 standard edition now includes provisions for Type R Performance Class 2 and Performance Class 3 garments in the smallest size offered to utilize a reduced amount of background material to allow for sizing more appropriate for smaller workers. It is stressed that these reduced amounts are intended to address the smaller sized workers' needs specifically, that only the smallest size offered for any one garment be allowed to deviate from the stated minimum and that the resulting configuration using these amounts be consistent with the other sizes for that particular garment.

Additionally and in recognizing the growing use of high-visibility accessory items such as arm bands or headwear, the standard defines minimum material requirements for these accessories. New labeling requirements will identify the garment by performance class, type and by its flame resistance characteristics as defined in the standard. ANSI/ISEA 107-2015 also expands the examples of garment configurations to illustrate compliant and non-compliant designs.

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:

511 Tactical Series
Arcwear.com
Blauer Manufacturing
ERB Industries
Ergodyne
Honeywell Safety Products

MSA Safety
NASCO Industries
National Safety Apparel
OccuNomix International
ORAFOL Americas, Inc.
Pacific Safety Supply

Kimberly-Clark Corporation Performance Textiles, Inc. (div. of Brand and Oppenheimer)

M.L. Kishigo Manufacturing Protective Industrial Products

Lakeland Industries

3M Company

MCR Safety

Radians, Inc.

Safe Reflections

Tingley Rubber

Vartest Laboratories

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 Contractors Insurance Group

Atlas Industrial Contractors

Cintas Corporation City of Hillsboro

Colorado Department of Transportation

Daoming Optics and Chemical

Denton Companies E&B Pavings

**Emergency Responders Safety Institute** 

Fairfax County Government
Federal Aviation Administration
Federal Highway Administration
Fruitport Township Police Department
Glen Raven Technical Fabrics

Golder Associates, Inc.

Hensel Phelps

International Association of Chiefs of Police Laborers' Health and Safety Fund of North

America

Liberty Ambulance Services

Michigan Department of Transportation

Ms. Sharon Morales, CSP National Safety Apparel Oldcastle Materials Performance Textiles Power Consultants Inc. Reflective Apparel Factory

Rugged Safety

Safety Priority Consultants

SGS Consumer Testing Services

State of Ohio Public Employment Risk Reduction

Program Syracuse Utilities

U.S. Department of Labor – OSHA Zurich Services Corporation

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

International Safety Equipment Association 1901 N. Moore Street Arlington, VA 22209 USA isea@safetyequipment.org

## **Contents**

SECTION			AGE
1.	Scop	oe	1
2	Purpose		1
3.	Definitions		1
4.	Com	Compliance	
	4.1	Background Materials	2
	4.2	Combined-Performance and Retroreflective Materials	2
	4.3	Finished HVSA	2
	4.4	Declaration of Conformity	3
5.	Types and Classes		3
	5.1	HVSA Types	3
	5.2	Performance Classes	3
	5.3	Supplemental Class E	4
	5.4	Optional High-Visibility Accessories	4
6.	Design		4
	6.1	Ergonomics	4
	6.2	Apparel Configurations	4
	6.3	Construction Requirements	6
7.	Criteria for Optional Features and Testing		8
	7.1	Pockets	8
	7.2	Identification Panels, Lettering and Logos (Type R and P)	8
	7.3	Identification of Personnel (Type P)	8
	7.4	Flame Resistance	8
8.	Requirements for Background and Combined-Performance Retroreflective Materials		s 8
	8.1	Color	8
	8.2	Colorfastness of Background Material	9
	8.3	Dimensional Change of Background Material	10
	8.4	Mechanical Properties of Background Material	10
	8.5	Performance Under Wet Conditions	10
	8.6	Water Vapor Permeability for Background Materials Classified as Breathable	11
9.	Photometric and Physical Performance Requirements for Retroreflective and Combine		oined-
	Performance Materials		11
	9.1	Retroreflective Performance Requirements Prior to Test Exposure	11
	9.2	Retroreflective Performance Requirements after Test Exposure	11
10.	Test Methods		11
	10.1	Sampling and Conditioning	11