INTERNATIONAL STANDARD

ISO 14116

Second edition
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Protective clothing — Protection against flame — Limited flame spread materials, material assemblies and clothing

Vêtements de protection — Protection contre les flammes — Matériaux, assemblages de matériaux et vêtements à propagation de flamme limitée

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 94, *Personal safety - Protective clothing and equipment*, Subcommittee SC 13, and by Technical Committee CEN/TC 162, *Protective clothing including hand and arm protection and lifejackets* in collaboration.

This second edition cancels and replaces the first edition (ISO 14116:2008), which has been technically revised to include the following changes:

— include test procedures for burst strength testing of woven materials;

— include new definition for determination of hole formation;

— modify clause in design requirements regarding garment overlaps;

— modify clause on sampling requirements;

— modify pre-treatment clause to include requirements for single use garments;

— modify clause for ageing due to washing (maximum number of cleaning procedures as indicated by the manufacturer);

— include new requirement for measuring property value for rating and classification;

— modify test procedure for the flame testing of labels, badges, and retro-reflective materials;

— include requirement and procedure for testing of hardware;

— include requirement and test procedure for burst strength testing of knitted materials;

— include requirement and test procedure for tensile strength testing of non-woven materials;

— include requirement and test procedure for tear strength testing of non-woven materials;

— modify requirement for tear strength of woven and non-woven materials;

— modify flame spread definition;

— modify requirement for flaming debris;

— modify afterflame requirement for flame spread of Index 3 materials;

— modify afterglow requirement for flame spread of Index 1, Index 2, and Index 3 materials.;

— include statement for flame spread testing in regard to interlining materials for Index 2 and Index 3 materials;

— include normative Annex for uncertainty of measurement;

— include normative Annex for measuring property value for rating and classification.

Introduction

The purpose of this International Standard is to provide minimum performance requirements for clothing in order to reduce the possibility of the clothing and/or its materials burning when in occasional and brief contact with small flames and thereby, itself constituting a hazard.

For complete protection against exposure to flame, it will be necessary to protect the head, face, hands, and/or feet with suitable PPE and, in some cases, appropriate respiratory protection might also be considered necessary.

Attention is drawn to ISO/TR 2801:2007,[5] which sets out guidelines for selection, use, care, and maintenance of protective clothing against flame.

Nothing in this International Standard is intended to restrict any jurisdiction, purchaser, or manufacturer from exceeding these minimum requirements.

Protective clothing — Protection against flame — Limited flame spread materials, material assemblies and clothing

1 Scope

This International Standard specifies the performance requirements for the limited flame spread properties of all materials, all material assemblies, and protective clothing in order to reduce the possibility of the clothing burning when in occasional and brief contact with small flames and thereby constituting a hazard. Additional requirements for clothing are also specified, including design requirements, mechanical requirements, marking, and information supplied by the manufacturer.

When protection against heat hazards is necessary, in addition to protection against flame, this International Standard is not appropriate. International Standards such as ISO 11612 are to be used instead.

A classification system is given for materials, material assemblies, and garments which are tested according to ISO 15025, Procedure A.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 13934-1, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method*

ISO 13935-2, *Textiles — Seam tensile properties of fabrics and made-up textile articles — Part 2: Determination of maximum force to seam rupture using the grab method*

ISO 13937-2, *Textiles — Tear properties of fabrics — Part 2: Determination of tear force of trouser-shaped test specimens (Single tear method)*

ISO 13938-1, *Textiles — Bursting properties of fabrics — Part 1: Hydraulic method for determination of bursting strength and bursting distension*

ISO 13938-2, *Textiles — Bursting properties of fabrics — Part 2: Pneumatic method for determination of bursting strength and bursting distension*

ISO 15025, *Protective clothing — Protection against heat and flame — Method of test for limited flame spread*

ISO 13688, *Protective clothing — General requirements*

ISO 9073-4, *Textiles — Test methods for nonwovens — Part 4: Determination of tear resistance*

ISO 5077, *Textiles — Determination of dimensional change in washing and drying*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.