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Protective clothing for protection against chemicals — Classification, labelling and performance requirements

Vêtements de protection contre les produits chimiques — Classification, étiquetage et exigences de performances

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 16602 was prepared by Technical Committee ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 13, *Protective clothing*.

Introduction

This International Standard addresses the range of general, industrial chemical protective clothing by designating specific design types and providing classification of clothing, material, and component performance. This International Standard is intended to provide comprehensive requirements for the performance classification and labelling of chemical protective clothing.

The selection of appropriate chemical protective clothing should be based on a risk assessment in which the user organization identifies the hazards, determines the potential for contact with individual workers, the consequences of exposure, and the type of practices or controls needed to eliminate or minimize exposure. When it is determined that chemical protective clothing is needed, the risk assessment should identify the type of chemical protective clothing needed in terms of its overall type and performance. This International Standard is intended to assist user organizations with these determinations.

Protective clothing for protection against chemicals — Classification, labelling and performance requirements

1 Scope

This International Standard establishes minimum performance classification and labelling requirements for protective clothing designed to provide protection against chemicals. Protective clothing items covered by this International Standard include, but may not be limited to, totally encapsulating suits, liquid-tight or spray-tight suits, coveralls, jackets, trousers, aprons, smocks, hoods, sleeves, and shoe and boot covers.

Chemical protective clothing for protection against airborne particles is addressed by ISO 13982-1, which is referenced in this International Standard. This International Standard does not address protection against solid chemicals in forms other than airborne solid particulates (e.g. it does not address the challenge of penetration of chemical dust and powders through materials and clothing by rubbing or flexing or by simple direct contact of dust or powders onto the clothing surface).

This International Standard does not address gloves, boots, eye/face protection devices and respiratory protective devices unless they are an integral part of the protective clothing. This International Standard does not address protection against biological or thermal (hot or cold) hazards, ionizing radiation, or radioactive contamination. This International Standard also does not address the specialized clothing used in hazardous chemical emergencies.

NOTE Chemical protective clothing used in hazardous chemical emergencies is addressed in other standards, such as EN 943-2, NFPA 1991 and NFPA 1992.

This International Standard is intended to provide chemical protective clothing manufacturers with minimum requirements for testing, classifying, and labelling chemical protective clothing. To assist the users of products covered under this International Standard, this document provides descriptions of referenced test methods, guidelines for conducting hazard and risk assessments and suggested performance levels for certain applications. It is not the intent of this International Standard to address all situations.

2 Normative references

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

ISO 3758, *Textiles — Care labelling code using symbols*

ISO 6529:2001, *Protective clothing — Protection against chemicals — Determination of resistance of protective clothing materials to permeation by liquids and gases*

ISO 6530, *Protective clothing — Protection against liquid chemicals — Test method for resistance of materials to penetration by liquids*

ISO 7854:1995, *Rubber- or plastics-coated fabrics — Determination of resistance to damage by flexing*

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

ISO/TR 11610, *Protective clothing — Vocabulary*

ISO 12947-2, *Textiles — Determination of the abrasion resistance of fabrics by the Martindale method — Part 2: Determination of specimen breakdown*

ISO 13688, *Protective clothing — General requirements*

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

ISO 13982-1, *Protective clothing for use against solid particulates — Part 1: Performance requirements for chemical protective clothing providing protection to the full body against airborne solid particulates (type 5 clothing)*

ISO 13982-2, *Protective clothing for use against solid particulates — Part 2: Test method of determination of inward leakage of aerosols of fine particles into suits*

ISO 13994:2005, *Clothing for protection against liquid chemicals — Determination of the resistance of protective clothing materials to penetration by liquids under pressure*

ISO 13996, *Protective clothing — Mechanical properties — Determination of resistance to puncture*

ISO 17491:2002, *Protective clothing — Protection against gaseous and liquid chemicals — Determination of resistance of protective clothing to penetration by liquids and gases*

EN 136:1998, *Respiratory protective devices — Full face masks — Requirements, testing, marking*

EN 13274-3:2001, *Respiratory protective devices — Methods of test — Determination of breathing resistance*

EN 13274-4:2001, *Respiratory protective devices — Methods of test — Part 4: Flame tests*

EN 14594:2005, *Respiratory protective devices — Continuous flow compressed air line breathing apparatus — Requirements, testing, marking*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/TR 11610 and the following apply.

3.1
assemblage
permanent fastening between two or more different garments, or between chemical protective clothing and accessories

EXAMPLE Permanent fastening may be obtained by sewing, welding, vulcanizing, gluing.

3.2
chemical protective suit
clothing worn to protect against chemicals that covers the whole, or greater part of the body

NOTE 1 A chemical protective suit can consist of garments combined together to provide protection to the body. A suit can also have various types of additional protection such as hood or helmet, boots and gloves joined with it.

NOTE 2 These garments are full-body protective clothing, i.e. covering trunk, arms and legs, such as one-piece coveralls or two-piece suits, with or without hood or visors, with or without foot protection.