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Textiles — Industrial washing and finishing procedures for testing of workwear

Textiles — Méthodes de blanchissage et de finition industriels pour les essais des vêtements de travail

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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).

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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 voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 2, *Cleansing, finishing and water resistance tests*.

This second edition cancels and replaces the first edition (ISO 15797:2002), which has been technically revised. It also incorporates the Technical Corrigendum ISO 15797:2002/Cor. 1:2004.

The main changes compared to the previous edition are as follows:

— in the Scope, the restriction of workwear to cotton, polyester and their blends has been removed, thereby including other fibres, and the accommodation of some PPE garments for which the referenced processes are appropriate has been added;

— 6.5 has been added to give examples of antichlor chemicals;

— in 9.2, in light of experience, changes have been made to Drying procedure B tunnel and cabinet finishing;

— throughout Tables 1 to 4, the headings Cotton and Polyester/cotton have been replaced by Full load and Reduced load, respectively, to facilitate the change in the Scope;

— Annex A has been revised to include alternative temperature measuring systems.

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Introduction

This document enables manufacturers of textiles to test their fabrics and garments for resistance to exacting washing and drying processes used in industrial laundries for care and maintenance purposes.

It is not practical to carry out rigorous testing in an industrial laundry environment and this document, using intermediate stage equipment, allows testing to be done in a more exacting laboratory setting under standardized conditions.

This document is a test method and is not intended as instructions or recommendations on how to wash and dry in an industrial laundry. Nor does it provide specifications on equipment to be used by industrial launderers.

A laundering cycle consists of a washing and a drying/finishing procedure.

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Textiles — Industrial washing and finishing procedures for testing of workwear

1 Scope

This document specifies test procedures and equipment which can be used in the evaluation of workwear (including, where appropriate, for some PPE garments) intended to be industrially laundered. They serve as a basis for testing relevant properties such as dimensional stability, colour characteristics, creasing, seam puckering, pilling and visual aspects in general.

This document does not provide instructions and specifications for the procedures and equipment to be used by industrial launderers.

As it is often not practical to reproduce industrial laundry processes (washing and drying/finishing) in a laboratory setting, this document provides an approach using defined intermediate scale equipment and exacting test procedures which can be used for the evaluation of workwear intended to be laundered industrially.

As this document reflects a simulation of real-life industrial laundry conditions, in some cases, testing of the workwear in the actual industrial laundering equipment and processes intended to be used is advisable when finally determining product and process compatibility.

It is not necessary to test using all eight washing procedures nor both drying procedures. A selection is made of the washing and drying procedure(s) that are best suited to the characteristics of the fabric or fabric composition and the intended use.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 139, *Textiles — Standard atmospheres for conditioning and testing*

ISO 3071, *Textiles — Determination of pH of aqueous extract*

ISO 3759, *Textiles — Preparation, marking and measuring of fabric specimens and garments in tests for determination of dimensional change*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp/

3.1
cage
rotating container within which the load is held during the laundering process

Note 1 to entry: The cage is generally fabricated from perforated stainless steel.

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3.2
dead volume
volume of water left in the *drum* (3.4), such that the water surface lies at a tangent with the inside of the *cage* (3.1) in the stationary position

3.3
domestic laundering
washing/finishing of textiles according to size and volume needed by a single household

Note 1 to entry: The usual size of the *cage* (3.1) for domestic laundering is approximately 60 l.

3.4
drum
non-rotating container within which the *cage* (3.1) rotates

3.5
load ratio
ratio of the dry load to the net *cage* (3.1) volume

Note 1 to entry: The load ratio is expressed in kilogrammes per litre.

Note 2 to entry: Net cage volume is given by net volume of lifters, back wall and door.

3.6
g-factor
factor defined by the formula

$$0{,}56\times\left(\frac{n}{1\,000}\right)^{2}\times d$$

where

n is the number of revolutions per minute (r/min);

d is the cage diameter in millimetres

3.7
industrial laundering
professional laundering of *workwear* (3.9) in greater quantities than *domestic laundering* (3.3)

3.8
liquor ratio
ratio of the dry load to the total amount of water

Note 1 to entry: The liquor ratio is expressed in kilogrammes per litre.

3.9
workwear
garment specifically designed to be worn in the workplace

Note 1 to entry: Its attributes are determined by the reason for its use, the activity in the workplace and the requirement to restore it for reuse.

4 Principle

The specimen (or relevant number of specimens) is washed in a washer/extractor and dried/finished according to one of the specified procedures. If multiple laundering cycles are required, each wash process shall be followed by drying/finishing.

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