
**Textiles — Industrial laundering
procedures for textile rental and industrial
laundering**

*Textiles — Méthodes de blanchissage industriel appliquées au linge de
location et au blanchissage industriel*

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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 main task of technical committees is to prepare International Standards, but in exceptional circumstances a technical committee may propose the publication of a Technical Report of one of the following types:

- type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;
- type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;
- type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard (“state of the art”, for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until data they provide are considered to be no longer valid or useful.

ISO/TR 14510, which is a Technical Report of type 2, was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 2, *Cleansing, finishing and water resistance tests*.

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This document is being issued in the Technical Report (type 2) series of publications (according to subclause G.3.2.2 of part 1 of the ISO/IEC Directives, 1995) as a “prospective standard for provisional application” in the field of textile cleansing because there is an urgent need for guidance on how standards in this field should be used to meet an identified need.

This document is not to be regarded as an “International Standard”. It is proposed for provisional application so that information and experience of its use in practice may be gathered. Comments on the content of this document should be sent to the ISO Central Secretariat.

A review of this Technical Report (type 2) will be carried out not later than three years after its publication with the options of: extension for another three years; conversion into an International Standard; or withdrawal.

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Introduction

Whilst International Standards, e.g. ISO 6330, have been developed for domestic washing and drying procedures, no comparable International Standard exists for industrial laundering, which typically uses laundering machinery of a large capacity than that specified in ISO 6330. Such a standard is required for evaluating the performance of protective clothing, e.g. high visibility clothing, and barrier garments (healthcare textiles) and for predicting the launderability of contract workwear particularly with regard to dimensional stability and colour fastness.

A working group, ISO/TC 38/SC2/WG9, was established to develop a draft standard. The primary objective was to establish whether a range of machines representative of the types used in industry could be used for testing or whether limitations on makes and models was necessary. It was decided that a compromise was needed between testing in full size laundry machines and testing in a controlled test house environment. As a result an interlaboratory trial was carried out to compare the relative performance of a number of different (15 to 25) kg washer extractors. To facilitate the trial, which necessarily had to be conducted by correspondence, other simplifications were needed. For example, it was decided to restrict processing to model wash procedures for cotton and polyester cotton. Since dimensional stability was the main property to be measured, it was agreed to use the IEC reference detergent, whilst appreciating that a fully built industrial reference product would ultimately be needed. In this trial the dimensional change of three fabrics when washed for 1, 5 and 10 cycles, using agreed processes for 100 % cotton, or polyester : cotton (60 : 40) blend and reverse blend were evaluated.

Results were received from seven laboratories and were subjected to a full analysis for which the results will be published separately. The main conclusion was that even for a limited type of industrial washing machine (15 kg to 25 kg load washer extractors) there was quite a large variation in result even within fabrics which might be expected to perform well. This variation can be expected to increase within the population of industrial machines in use. Only the 100 % cotton fabric produced sufficient response (changes in dimensional stability) for practical purposes and demonstrated differences between the machines used in the trial. For up to five cycles the laboratories fell into three statistically significant groups(3, 3, 1) but thereafter the indications were that the results would diverge further with too much disagreement to form the basis of a test method.

Following a review of the conclusions, ISO/TC 38/SC2 decided to propose that the draft test method evaluated in the trial be published as a Technical Report (Type 2) so that it would be available as a starting point for future work. In the meantime the secretariat of ISO/TC 38/SC2 would welcome suggestions for continuing this work.

Textiles — Industrial laundering procedures for textile rental and industrial laundering

1 Scope

This Technical Report describes industrial laundering procedures applicable to textile rental and industrial laundering.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Technical Report. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Technical Report are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

[ISO/TR 14510:1997](#)

ISO 3759:1994, *Textiles — Preparation, marking and measuring of fabric specimens and garments in tests for determination of dimensional change*.

ISO 5077:1984, *Textiles — Determination of dimensional change in washing and drying*.

ISO 6330:—¹⁾, *Textiles — Domestic washing and drying procedures for textile testing*.

3 Principle

Test pieces are subjected to a number of washing cycles and the dimensional changes of these pieces determined at specified intervals.

4 Equipment and reagent

4.1 Washer-extractor, with horizontal rotating drum, reverse action, spin and a capacity between 15 kg and 25 kg.

4.2 Washing product, available reference detergents : AATCC, IEC or ECE without perborate and without optical brightening agent (see ISO 6330).

1) To be published. (Revision of ISO 6330:1984)

5 Wash process

5.1 Measurements

Use ISO 3759 and ISO 5077.

5.2 Temperatures

100 % cellulosic fabrics tested at 90 °C; blended fabrics tested at 85 °C.

5.3 Cycles

1 to 10 cycles with measurements at 0, 1, 5 and 10 cycles.

5.4 Load

Five fabric samples (0,5 m²) in each load and rest made up with fabric of same fibre type and approximate weight as that being tested.

5.5 Wash procedures

See table 1.

5.6 Drying procedure

Flat drying under ambient conditions. This process will take overnight, therefore dry only prior to measurement at 1, 5 and 10 cycles.

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6 Determination of dimensional change

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Determine the dimensional change using the procedures in ISO 3759 and ISO 5077.

7 Test report

The test report shall include the following information

- a) a reference to this Technical Report, i.e. ISO/TR 14510:1997;
- b) details of the samples tested;
- c) the type of detergent used;
- d) details of the washer extractor used.

Table 1 — Wash procedures

	100% Cellulosic fabrics	Blended fabrics
Load	Nominal machine load	70 % of nominal machine load
Main wash		
Fill	Cold or warm	Cold or warm
Dip	Low	Low
Detergent	7,5 g/kg of dry load	7,5 g/kg of dry load
Temperature	Raise to 90 °C with mixing	Raise to 85 °C with mixing
Time	Run for 10 min after temperature achieved	Run for 10 min after temperature achieved
Cooldown	None	Add cold water for approximately 4 min to reduce temperature to around 55 °C Hold for 2 min
Drain	1 min	1 min
Spin	Yes: 1 min	No
Rinses		
Fill	Cold or warm water	Cold or warm water
Dip	High	high
Time	5 min from reading dip	5 min from reading dip 1 min
Drain	1 min	1 min
Two rinses with a 1 min spin in between		
Extraction	8 min	2 min

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