AS/NZS 4502.1:2006
ISO 6942:2002
Reconfirmed 2016

Australian/New Zealand Standard™

Methods for evaluating clothing for protection against heat and fire

Part 1: Evaluation of thermal behaviour of materials and material assemblies when exposed to a source of radiant heat

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee SF-004, Occupational Protective Clothing. It was approved on behalf of the Council of Standards Australia on 19 September 2006 and on behalf of the Council of Standards New Zealand on 13 October 2007.
This Standard was published on 25 October 2006.

The following are represented on Committee SF-004:

Apparel & Textile Federation of NZ
Association of Accredited Certification Bodies
Australasian Fire Authorities Council
Australian Business Limited
Australian Chamber of Commerce and Industry
Australian Industry Group
AWTA Textile Testing
Certification Interest (Australia)
Council of Textile and Fashion Industries of Australia
Department of Consumer & Employment Protection, WorkSafe Division (WA)
Department of Defence (Australia)
Textile Clothing & Footwear Union of Australia
The Australasian Assembly of Volunteer Fire Brigades Associations
United Firefighters Union of Australia
University of Otago, New Zealand
University of Western Sydney

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Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 06434.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

RECONFIRMATION

OF

AS/NZS 4502.1:2006

Methods for evaluating clothing for protection against heat and fire

Part 1: Evaluation of thermal behaviour of materials and material assemblies when exposed to a source of radiant heat

RECONFIRMATION NOTICE

Technical Committee SF-004 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 31 May 2016.

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The following are represented on Technical Committee SF-004:

Australasian Fire and Emergency Service Authorities Council
Australian Chamber of Commerce and Industry
Australian Industry Group
AWTA Textile Testing
Certification Interests (Australia)
Communications, Electrical and Plumbing Union - Electrical Division
Council of Textile and Fashion Industries of Australia
Department of Defence (Australian Government)
Energy Networks Association
New Zealand Road Safety Manufacturers Association
NSW Rural Fire Service Association
Safety Institute of Australia
Testing Interests (Australia)
Textile Clothing & Footwear Union of Australia
University of Otago New Zealand
University of Western Sydney

NOTES

Australian/New Zealand Standard™

Methods for evaluating clothing for protection against heat and fire

Part 1: Evaluation of thermal behaviour of materials and material assemblies when exposed to a source of radiant heat

Originated as AS/NZS 4502.1:1997.
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee SF-004, Occupational Protective Clothing to supersede AS/NZS 4502.1:1997, *Methods for evaluating clothing for protection against heat and fire—Evaluation of thermal behaviour of materials and material assemblies when exposed to a source of radiant heat.* This Standard is identical with, and has been reproduced from ISO 6942:2002, *Protective clothing —Protection against heat and fire—Method of test: Evaluation of materials and material assemblies when exposed to a source of radiant heat*.

The objective of this revision is to adopt the current edition of ISO 6942.

As this Standard is reproduced from an ISO and EN Standard, the following applies:

(a) Its number appears on the cover and title page while the ISO Standard number appears only on the cover.

(b) In the source text, 'this European Standard' should read 'this Australian/New Zealand Standard'.

(c) A full point substitutes for a comma when referring to a decimal marker.

For Australian readers, references to international Standards should be replaced by Australian Standard, as follows:

Reference to International Standard or other publication		*Australian Standard*	
ISO		AS	
139	Textiles—Standard atmospheres for conditioning and testing	2001	Methods of test for textiles
		2001.1	Part 1: Conditioning procedures

Any international Standards not listed have not been adopted as Australian or Australian/New Zealand Standards.

In the course of considering adoption of this Standard, Committee SF-004 agreed that the reader's attention should be drawn to the following point:

Caution is urged as the differences between levels of performance is dependent on the precision of the measurements and may not accurately reflect conditions of end use.

The terms 'informative' has been used in this Standard to define the application of the annex to which it applies. An 'informative' annex is only for information and guidance.

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INTRODUCTION

Protective clothing against radiant heat is worn at different occasions and accordingly the radiation intensity (characterised by the heat flux density) acting on the clothing material extends over a wide range. This European Standard describes two test methods which can be applied to all sorts of materials, but, according to the intended use of the material, the heat flux density has to be chosen properly and the results have to be interpreted correctly,

Industrial workers or fire fighters may be exposed to a relatively low radiation intensity over a long period of time. On the other hand, industrial workers or fire fighters may be exposed to medium radiation intensities for relatively short periods of time or to high radiation intensities for very short periods of time. In the latter case, the clothing material may be changed or even destroyed.

The materials for the protective clothing should be tested at medium and high heat flux densities. The reaction on method A and the times t_{12} and t_{24} and transmission factor measured with method B characterise the material. Information of the precision of method B see annex A.

AUSTRALIAN/NEW ZEALAND STANDARD

Methods for evaluating clothing for protection against heat and fire
Part 1:
Evaluation of thermal behaviour of materials and material assemblies when exposed to a source of radiant heat

1 Scope

This European Standard specifies two complementary methods (method A and method B) for determining the behaviour of materials for heat protective clothing subjected to heat radiation.

These tests are carried out on representative single or multi-layer textiles or other materials intended for clothing for protection against heat. They are also applicable to assemblies, which correspond to the overall build up of a heat protective clothing assembly with or without underclothing,

Method A serves for visual assessment of any changes in the material after the action of heat radiation. With method B the protective effect of the materials is determined. The materials may be tested either by both methods or only by one of them.

The tests according to these two methods serve to classify materials; however, to be able to make a statement or prediction as to the suitability of a material for protective clothing additional criteria must be taken into account.

Since the tests are carried out at room temperature the results do not necessarily correspond to the behaviour of the materials at higher ambient temperatures and therefore are only to a limited extent suitable for predicting the performance of the protective clothing made from the materials under test.

2 Normative reference

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at appropriate places in the text and the publications are listed below. In the case of dated references, subsequent amendments to, or revisions of, any of these publications, apply to this European Standard only when incorporated into it by amendment or revision. In the case of undated references the latest edition of the publications referred to applies (including amendments).

EN 20139
Textiles - standard atmospheres for conditioning and testing (ISO 139:1973)

IEC 60584-1
Thermocouples. Part 1: Reference table