

Australian/New Zealand Standard™

Ophthalmic optics—Uncut finished spectacle lenses

Part 5: Minimum requirements for spectacle lens surfaces claimed to be abrasion-resistant



AS/NZS ISO 8980.5:2011

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee MS-024, Spectacles. It was approved on behalf of the Council of Standards Australia on 26 October 2010 and on behalf of the Council of Standards New Zealand on 12 November 2010.

This Standard was published on 7 April 2011.

The following are represented on Committee MS-024:

Australian Dispensing Opticians Association
New Zealand Association of Optometrists
Optical Distributors and Manufacturers Association of Australia
Queensland University of Technology
The University of Melbourne
The University of New South Wales
University of Auckland

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This Standard was issued in draft form for comment as DR AS/NZS ISO 8980.5.

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First published as AS/NZS ISO 8980.5:2011.

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Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, Private Bag 2439, Wellington 6140

ISBN 978 0 7337 9813 9

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee MS-024, Spectacles. This Standard replaces relevant text in AS 2228.1—1992, which is intended to be withdrawn by February 2012.

The objective of this Standard is to specify the requirement and test method for spectacle lens surfaces that are claimed to provide a basic level of abrasion resistance.

This Standard is identical with, and has been reproduced from ISO 8980-5:2005, *Ophthalmic optics—Uncut finished spectacle lenses—Part 5: Minimum requirements for spectacle lens surfaces claimed to be abrasion-resistant*.

As this Standard is reproduced from an International Standard, the following applies:

- (a) Its number appears on the cover and title page while the international standard number appears only on the cover.
- (b) In the source text ‘this part of ISO 8980’ should read ‘this part of AS/NZS ISO 8980’.
- (c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

<i>Reference to International Standard</i>		<i>Australian/New Zealand Standard</i>
ISO		AS/NZS ISO
13666	Ophthalmic optics—Spectacle lenses—Vocabulary	13666 Ophthalmic optics—Spectacle lenses—Vocabulary
8980	Ophthalmic optics—Uncut finished spectacle lenses	8980 Ophthalmic optics—Uncut finished spectacle lenses
8980-4	Part 4: Specifications and test methods for anti-reflective coatings	8980.4 Part 4: Specifications and test methods for anti-reflective coatings

Only international references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the annex to which they apply. A ‘normative’ annex is an integral part of a Standard, whereas an ‘informative’ annex is only for information and guidance.

AUSTRALIAN/NEW ZEALAND STANDARD

Ophthalmic optics — Uncut finished spectacle lenses —**Part 5:****Minimum requirements for spectacle lens surfaces claimed to be abrasion-resistant****1 Scope**

This part of ISO 8980 specifies the requirement and test method for spectacle lens surfaces that are claimed to provide a basic level of abrasion resistance including those with coatings.

A lens claimed to be abrasion-resistant shall meet the requirements on both front and back surfaces.

Lens powers and surface form is restricted for testing, however test results are applicable to claims for lenses and lens surfaces with identical properties other than the lens power or surface radius.

This part of ISO 8980 does not attempt to define the properties of lens surfaces with abrasion resistance better than the following defined criteria.

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 48, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

ISO 13666, *Ophthalmic optics — Spectacle lenses — Vocabulary*

ISO 8980-4, *Ophthalmic optics — Uncut finished spectacle lenses — Part 4: Specifications and test methods for anti-reflective coatings*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13666 and in ISO 8980-4 and the following apply.

3.1**abrasion resistance**

property of a spectacle lens surface to resist damage during normal use such as scratches caused by cleaning or wear

4 Requirement

Under the conditions described in the test method given in Clause 5, the surface tested shall be free of visible abrasion.

When used as a type test, 10 consecutively tested surfaces shall be free of visible abrasion.

5 Test method

5.1 Materials and equipment

5.1.1 Abrasion tool

The abrasion tool¹⁾ allows the controlled positioning and movement of an eraser covered with cheesecloth against the test surface. The abrasion tool is calibrated to apply a force of (5 ± 1) N. (A model of an abrasion tool is shown in Annex A.)

5.1.2 Eraser

The eraser¹⁾ (see Annex A) shall be a uniform mixture of rubber and abrasive, formed by an extrusion process. It shall be composed of no less than 15 % by mass of pumice. All abrasive shall be fine-ground, such that 100 % will pass through a sieve with opening 45 μ m. The formulation shall not contain any ingredient that might leave a residue on the surface under test that would lubricate subsequent strokes during the test procedure. The finished eraser shall have an international rubber hardness degree (IRHD) in accordance with ISO 48 of 75 ± 5 on both ends. The diameter of the eraser shall be from 6,5 mm to 7 mm with a usable flat surface of no less than 5,5 mm. It shall be of sufficient length so as to be held securely in the abrasion tester with no more than 3 mm exposed. The eraser shall be free from any excessive holes, cracks, splits, or foreign particles, which might adversely affect its use. In order to maintain specified hardness, the eraser shall periodically be checked and replaced as required.

5.1.3 Cotton cheesecloth

The cheesecloth¹⁾ (see Annex A) shall be unbleached, the warp shall have 41 yarns to 47 yarns per 25 mm, and the weft shall have 33 yarns to 39 yarns per 25 mm. The total number of yarns in a 25 mm by 25 mm square shall be 76 to 84.

5.1.4 Lens and surface form

The lenses to be tested shall have an optical power between $-3,00$ D and $+3,00$ D.

The tested surface shall have a numerical radius of curvature no less than 75 mm.

1) Abrasion tool, cheesecloth and eraser manufactured to the requirements in 5.1 may be available from:

Summers Optical	phone (215) 646 1477
321 Morris Road	fax (215) 646 8931
P.O. Box 162	e-mail sgkcck@aol.com
Fort Washington, PA 19034	http://www.emsdiasum.com
USA	

This information is given for the convenience of users of this part of ISO 8980 and does not constitute an endorsement by ISO of this supplier.