

# Australian Standard 1337—1981

---

## EYE PROTECTORS FOR INDUSTRIAL APPLICATIONS

[Title allocated by Defence Cataloguing Authority:  
INDUSTRIAL EYE PROTECTORS ... NSC 4240]

---



**STANDARDS ASSOCIATION OF AUSTRALIA**  
*Incorporated by Royal Charter*

THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:

Australian Chamber of Commerce  
Australian Council of Trade Unions  
Australian Medical Association  
Australian Welding Institute  
Bureau of Steel Manufacturers  
Confederation of Australian Industry  
Department of Defence  
Department of Health  
Department of Industrial Relations, N.S.W.  
Department of Labour and Industry, Vic.  
Department of Labour and Industry, W.A.  
Department of Labour Relations, Qld  
Department of Science and Technology  
Electricity Supply Association of Australia  
Health Commission of New South Wales  
Metal Trades Industry Association of Australia  
National Safety Council of Australia  
Optical Distributors and Manufacturers Association of Australia  
Railways of Australia Committee  
Royal Australian Chemical Institute  
University of New South Wales  
Victorian College of Optometry, University of Melbourne

---

This standard, prepared by Committee SF/6, Eye Protection, was approved on behalf of the Council of the Standards Association of Australia on 29 May 1981, and was published on 21 September 1981.

---

To keep abreast of progress in industry, Australian standards are subject to continuous review and are kept up-to-date by the issue of amendments or new editions as necessary. It is important therefore that standards users ensure that their standards are up-to-date. Full details of all SAA publications will be found in the Annual List of Australian Standards; these details are supplemented by listings in the SAA monthly journal 'The Australian Standard'. Information on the Annual List and 'The Australian Standard' may be obtained from any sales office of the Association, where details are also available of the current status of individual standards. Suggestions for improvements to published standards, addressed to the head office of the Association, are welcomed.

---

*This standard was issued in draft form for public review as DR 79125.*

AUSTRALIAN STANDARD

# EYE PROTECTORS FOR INDUSTRIAL APPLICATIONS

AS 1337—1981

First published (AS B99) .....	1951
AS Z7 first issued .....	1956
Revised and B99 withdrawn .....	1967
Revised and issued as AS 1337 .....	1974
Second edition .....	1981

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA  
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.

ISBN 0 7262 2340 9

Amendment No 1  
April 1982

STANDARDS ASSOCIATION OF AUSTRALIA  
Incorporated by Royal Charter

AMENDMENT No 1  
to  
AS 1337—1981  
EYE PROTECTORS FOR INDUSTRIAL APPLICATIONS

*SUMMARY:* The following section of this standard is covered in this amendment: Appendix E.  
Published on 19 April 1982.

---

**Page 18. Appendix E.**

Paragraph E3(b)—*delete* existing wording and *substitute:*

- (b) *Oven.* A circulating air oven having a minimum volume of 0.06 m<sup>3</sup>, capable of maintaining a temperature of 60 ± 2° C.
- 

AMDT  
No 1  
APRIL  
1982

Currently in preview, click buy full version

## PREFACE

This edition of this standard was prepared by the Associations' Committee on Eye Protection at the request of the Safety Standards Board, to supersede the 1974 edition. It specifies requirements for eye protectors and their associated lenses, designed to protect the eyes against common industrial hazards.

This edition of the standard includes technical and editorial amendments identified as necessary during the application of the 1974 edition.

Requirements for optical qualities and mechanical strength are given and the standard includes appendices describing appropriate test methods.

To facilitate the supply and replacement of lenses for eye protectors bearing the AS Mark, the requirements for lenses suitable for marking are set out in a separate Section.

It should be recognized that complete protection for the eyes cannot be provided solely by the use of eye protectors. Relevant factors for a particular application should be considered in the choosing of the correct eyewear to provide the maximum possible protection. AS 1336\* should be consulted for the appropriate measures to be taken into account.

This standard does not apply to filters for protection against ultraviolet and infrared radiations. For details regarding such filters, reference should be made to AS 1338.

The material and optical requirements described in this standard maintain uniformity where appropriate with—

- AS 1067 Sunglass Lenses\*
- AS 1609 Eye Protectors for Motor Cyclists and Racing Car Drivers
- AS 2228 Spectacle Lenses

During the development of this edition of the standard, cognizance was taken of the work undertaken by the International Organization for Standardization through its Committee ISO/TC 94/SC 6—Personal Eye Protectors. Acknowledgement is made of the assistance received therefrom.

This standard requires reference to the following standards:

- AS 1067 Sunglass Lenses\*
- AS 1152 Test Sieves
- AS 1180 Methods of Test for Hose Made from Elastomeric Materials  
1180.9A—Hardness of Vulcanized Rubbers of Standard Hardness (5 to 85 IRHD)
- AS 1199 Sampling Procedures and Tables for Inspection by Attributes
- AS 1336 Code of Practice for Industrial Eye Protection\*
- AS 1338 Filters for Eye Protectors
- AS 1399 Guide to AS 1199, Sampling Procedures and Tables for Inspection by Attributes
- AS 1680 Code of Practice for Interior Lighting and the Visual Environment
- BS 2467 Gas Washing Bottles
- BS 4777 Glossary of Electrotechnical, Power, Telecommunication, Electronics, Lighting and Colour Terms  
Part 4: Group 01: 1971 Radiation and Photometry

\*In course of revision.

©Copyright — STANDARDS ASSOCIATION OF AUSTRALIA 1981

Users of standards are reminded that copyright subsists in all SAA publications. No part of this publication may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing of the Standards Association of Australia.

## CONTENTS

	<i>Page</i>
<b>SECTION 1. SCOPE, APPLICATION AND DEFINITIONS</b>	
1.1 Scope....	4
1.2 Application .....	4
1.3 Definitions....	4
<b>SECTION 2. REQUIREMENTS FOR LENSES</b>	
2.1 Scope of Section....	5
2.2 General Requirements for Lenses .....	5
2.3 Material Requirements .....	5
2.4 Optical Requirements .....	5
2.5 Mechanical Strength .....	7
2.6 Medium Velocity Impact Strength .....	7
2.7 High Velocity Impact Strength .....	7
2.8 Flame Propagation .....	7
2.9 Special Requirements....	7
2.10 Testing .....	7
2.11 Marking of Lenses .....	7
<b>SECTION 3. REQUIREMENTS FOR ASSEMBLED EYE PROTECTORS</b>	
3.1 Scope of Section .....	9
3.2 General Requirements .....	9
3.3 Special Performance Requirements .....	9
3.4 Testing .....	10
3.5 Marking of Assembled Eye Protectors .....	11
<b>SECTION 4. ADDITIONAL REQUIREMENTS FOR ASSEMBLED EYE PROTECTORS FOR WELDING AND ALLIED OPERATIONS</b>	
4.1 Scope of Section....	12
4.2 Design and Construction .....	12
4.3 Design and Construction of Helmets and Handshields .....	12
4.4 Physical Requirements .....	13
4.5 Testing .....	13
4.6 Marking of Assembled Eye Protectors .....	13
<b>APPENDICES</b>	
A Method for the Determination of Mechanical Strength .....	14
B Method for the Determination of Medium Velocity Impact Strength .....	15
C Method for the Determination of High Velocity Impact Strength .....	16
D Method for the Determination of Flame Propagation .....	17
E Method for the Determination of Thermal Stability at Elevated Temperature .....	18
F Method for the Determination of Resistance to Corrosion .....	19
G Method for the Determination of Splashproofness .....	20
H Method for the Determination of Dustproofness .....	21
J Method for the Determination of Gasproofness .....	23
K Method for the Determination of Non-adherence of Molten Metal .....	24
L Method for the Determination of Resistance to Hot Solids .....	26

## STANDARDS ASSOCIATION OF AUSTRALIA

**Australian Standard**  
for  
**EYE PROTECTORS FOR INDUSTRIAL APPLICATIONS**

## SECTION 1. SCOPE, APPLICATION AND DEFINITIONS

**1.1 SCOPE.** This standard specifies requirements for eye protectors and associated lenses designed to provide protection for the eyes of persons in industrial undertakings against hazards such as flying particles and fragments, dusts, splashing materials and molten metals, harmful gases and vapours and aerosols. The standard does not apply to filter lenses for protection against harmful radiations, such lenses being covered in AS 1338.

**1.2 APPLICATION.** Lenses for eye protectors shall comply with the requirements of Section 2.

Eye protectors shall comply with the requirements of Section 3 or Section 4, as appropriate.

NOTE: Where eye protection is incorporated in protective equipment, such as a hood or respirator, the portion affording eye protection should comply with relevant requirements of this standard.

**1.3 DEFINITIONS.** For the purpose of this standard, the following definitions apply:

**1.3.1 Eye protector**—a device which includes a lens or lenses worn in front of the eyes and intended to provide protection for the eyes.

**1.3.2 Goggle designation**—goggles are designated by the following types:

**1.3.2.1 Goggles**—an eye protector fitting the contour of the face and held in position by an adjustable headband.

**1.3.2.2 Eyecup goggles**—an eye protector consisting of two lenses mounted in cups supported by a flexible nose bridge and headband.

**1.3.2.3 Wide-vision goggles**—an eye protector in which the lens or lenses extend over the full width of the face, affording a large field of vision.

**1.3.2.4 Coverall goggles**—an eye protector designed to fit closely over vision-correcting spectacles.

**1.3.3 Safety clip-ons**—a pair of protective lenses designed to clip-on over the front of non-safety spectacles.

**1.3.4 Welding helmet**—a rigid eye protector which is worn by the operator to shield the eyes, face, forehead and front of the neck.

**1.3.5 Welding handshield**—a rigid eye protector which is held in the hand to shield the eyes, face, forehead and front of the neck.

**1.3.6 Faceshield**—a device which includes a transparent visor, supported in front of the face to shield the eyes, face, forehead and front of the neck.

**1.3.7 Eyeshield**—a transparent visor supported in front of the face to shield the eyes.

**1.3.8 Hood**—a device which covers the head and neck and which includes eye protection.

**1.3.9 Safety spectacles**—an eye protector with protective lenses mounted in spectacle-type frames, or integrally moulded into the frame with or without side shields, and held in position by the side arms.

**1.3.10 Wire-mesh screen**—a device which consists of woven metal gauze supported in front of the face and incorporates a transparent lens in front of the eyes.

**1.3.11 Lens**—

(a) *Unfitted lens*—an optical component in its finished state intended for fitting in an eye protector.

(b) *Fitted lens*—the optical component of an eye protector and fitted in the eye protector.

**1.3.12 Filter**—an optical material used to absorb and/or reflect harmful radiation emitted during welding and other industrial operations. It may be of plastics, solid glass, laminated construction or other suitable material.

**1.3.13 Double glazed lenses**—lenses consisting of two or more components separated by an air gap and with the normal line of sight passing through all the components.

**1.3.14 Cover lens**—a transparent cover used to protect the filter(s) against abrasion and weld spatter. It may be of plastics or any other suitable material.

**1.3.15 Luminous transmittance**—the ratio of the luminous flux transmitted by the filter to the incident luminous flux.

**1.3.16 Refractive power**—the property of a lens to diverge or converge rays of light expressed as the reciprocal of the focal length in metres.

NOTES:

- The unit of measurement for refractive power is reciprocal metre ( $m^{-1}$ ).
- The former unit of measurement, i.e. dioptre, is extant in ophthalmology and optometry.
- The power of a divergent lens is given a negative sign.

**1.3.17 Prismatic power**—the property of a lens to displace the image of an object expressed as 100 times the ratio of the apparent displacement of the object to the distance of the object from the lens.

NOTES:

- Prismatic power is a dimensionless quantity.
- The former unit of measurement of prismatic power, i.e. prism dioptre, is numerically equal and is extant in ophthalmology and optometry.