AS 3957—1991
NZS 5852—1991

Australian Standard®
New Zealand Standard

Light-transmitting screens and curtains for welding operations

This Standard was prepared under a joint arrangement by Standards Australia and the Standards Association of New Zealand. It was approved for publication on behalf of the Council of Standards Australia on 9 May 1991 and on behalf of the Standards Council of New Zealand on 28 May 1991. It was published on 12 July 1991.

The following organizations are represented on the Committees responsible for this Standard:

Standards Australia Committee SF/6, Eye Protection
Australian and New Zealand Society of Occupational Medicine
Australian Chamber of Commerce
Australian Medical Association
Australian Optometrical Association
Australian Welding Institute
Bureau of Steel Manufacturers of Australia
Confederation of Australian Industry
Department of Defence
Department of Industrial Affairs, Qld
Department of Industrial Relations and Employment, N.S.W.
Department of Labour, Vic.
Department of Occupational Health, Safety and Welfare, W.A.
Electricity Supply Association of Australia
National Safety Council of Australia
Optical Distributors and Manufacturers Association of Australia
Queensland University of Technology
Railways of Australia Committee
Royal Australian Chemical Institute
Safety Institute of Australia
University of Melbourne
University of New South Wales

Standards Association of New Zealand Board 50/-, Mechanical and General
Accident Compensation Corporation
Chemical Industry Council (N.Z.)
Consumers Institute
Department of Labour
Department of Scientific Industrial Research Physics and Engineering Laboratory
Institution of Professional Engineering New Zealand
Ministry of Commerce
Ministry of Transport
National Council of Women
New Zealand Manufacturers Federation

Representatives of the following interests also participated in the preparation of this Australian/New Zealand Standard:
New Zealand Institute of Welding

Review of Standards. To keep abreast of progress in industry, Joint Australian/New Zealand Standards are subject to periodic 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 they are in possession of the latest edition, and any amendments thereto.

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Suggestions for improvements to Joint Standards, addressed to the head office of either Standards Australia or Standards New Zealand, are welcomed. Notification of any inaccuracy or ambiguity found in a Joint Australian/New Zealand Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

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PREFACE

The Standard was prepared by the Standards Australia Committee on Eye Protection at the request of the Safety Standards Board. The Standard is issued as a joint Standard under the terms of the Memorandum of Understanding between Standards Australia and the Standards Association of New Zealand with the objective of reducing technical barriers to trade between the two nations.

Although welding screens receive some attention in AS 1336, *Recommended practices for eye protection in the industrial environment*, it was felt that a Standard dealing specifically with safety requirements for screens or curtains was necessary for areas where hazardous intense light transmission from welding operations occurs.

The following documents were referred to during the preparation of this Standard:

AS
2193 *Methods for calibration and grading of force-measuring systems of testing machines*

2745 *Electrical welding safety*

BS
4727 *Glossary of electrotechnical, power telecommunications electronics, lighting and colour terms*
4727.4 Part 4: *Group 01:1971: Radiation and photometry*

DIN
32504 *Translucent screens at welders working positions*
32504.1 Part 1: *Arc welding processes safety requirements, testing and marking*

53438 *Response to ignition by a small flame*
53438.2 Part 2: *Edge ignition*

During the production of this Standard, the provisions of the proposed Standard for transparent welding curtains and screens set out in ISO/TC 44 N738 were considered by the committee. This proposed ISO Standard will be considered further during subsequent revisions of the Australian/New Zealand Standard.

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STANDARDS AUSTRALIA

Australian Standard

Light-transmitting screens and curtains for welding operations

1 SCOPE This Standard sets out the safety and physical requirements for light-transmitting screens and curtains intended to provide protection against hazardous radiations generated during welding processes while simultaneously affording visual contact with the working position.

This Standard applies to all welding screens and curtains whether portable or permanently installed.

This Standard does not apply to screens used for protection against laser radiation.

NOTE: This Standard does not apply to protective materials for direct viewing of the welding processes, which are dealt with in AS 1336, AS 1337, and AS 1338, or to eye protection against laser radiation.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS
1336 Recommended practices for eye protection in the industrial environment

1337 Eye protectors for industrial applications

1338 Filters for eye protectors

1441 Methods of test for coated fabrics
1441.13 Part 13: Method for determination of flammability

2324 PVC film and sheeting

CIE
Publication 20—Recommendations for the integrated irradiance and the spectral distribution of simulated solar radiation for testing purposes

3 DEFINITIONS For the purpose of this Standard, the definitions below apply.

3.1 Luminance factor—ratio of the luminance of an object to the luminance of a perfect diffuse reflector under identical testing conditions.

3.2 Luminance transmittance—ratio of the luminance of a source of light when viewed through a curtain or screen to the luminance of that source when viewed directly.

NOTE: Luminance transmittance is usually specified with respect to a standard illuminant.

3.3 Radiance reduction factor—ratio of the radiance of source of light when viewed through a curtain or screen to the radiance of that source when viewed directly.

3.4 Spectral transmittance—ratio of the transmitted radiant flux to the incident radiant flux for a given wavelength of monochromatic radiation.

3.5 Ultraviolet radiation—electromagnetic radiation for which the wavelengths of the monochromatic components are shorter than those for visible radiation and longer than about 1 nm.

3.6 Welding—fusion process in which heat for welding is obtained from an electric arc or gas flame.

3.7 Welding curtain—a flexible curtain which provides protection against hazardous radiations generated during welding processes.

3.8 Welding screen—a fixed or mobile screen which provides protection against hazardous radiations generated during welding processes.

4 CLASSIFICATION Welding screens and curtains shall be classified in accordance with Table 2 depending on their luminance transmittance (see Clause 7.2.2).

5 MATERIALS Materials for welding screens and curtains, whether flexible or rigid, should be free from surface defects, colourfast, oil and grease resistant and suitable for both indoor and outdoor applications.

Materials for flexible screens and curtains shall be of a suitable transparent polymer, such as plasticized polyvinyl chloride (PVC) sheeting or equivalent, either unsupported or reinforced with a suitable open construction scrim or woven fibre reinforcement. In terms of plasticizer content and weatherability, such materials shall be equivalent to PVC sheeting of type Medium W as defined in AS 2324.

Materials for rigid screens shall be of a suitable transparent rigid polymer, such as polycarbonate or equivalent.