Australian Standard®

Insulating gloves for electrical purposes

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Australian Electrical and Electronic Manufacturers Association
Consumer Electronics Suppliers Association, Australia
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL/4 on Electrical Accessories to supersede AS 2225— 1978.

Under the terms of the Active Cooperation Agreement, this Standard is the result of a consensus among Australian and New Zealand representatives on the Joint Committee to produce this document as an Australian Standard, and the publishing of a Joint Standard will be considered during the next revision. The Committee agreed that alignment of AS 2225 with IEC 903, *Specifications for gloves and mitts of insulating material for live working*, would not be undertaken at this time. Although such alignment is a desirable long-term aim, the major reason for this revision is to allow the use of thinner and other than rubber materials, particularly for 650 V gloves.

The objective of this Standard is to provide for 650 V gloves to be more comfortable to wear and have more 'feel' whilst still affording adequate protection against electric shock. The four classes of gloves, viz., 650 V, 1000 V, 3300 V and 4000 V have been maintained; one minor variation being to derate the 1100 V to 1000 V, in line with the philosophy of BS 697:1986, *Specification for rubber gloves for electrical purposes*.

During the preparation of this Standard, in addition to BS 697 and IEC 903, reference was given to ASTM D 120-87, *Specification for rubber insulating gloves*.

This Standard is similar to BS 697 but differs (particularly) in the following:

(a) No minimum thickness is specified for 650 V gloves; adequacy is determined by tests.

(b) Specification of a 5 kV withstand test, followed by a 2.5 kV leakage current test with a 4 mA leakage allowable (for all glove lengths), for 650 V gloves. This follows a 16 h conditioning in water to determine the resistance to moisture absorption.

(c) The test criteria remains the same as in AS 2225—1978, *Rubber gloves for electrical purposes*, for 1000 V, 3300 V and 4000 V gloves.

It should be noted that the action of Item (b) means a reduced voltage (half of that specified in AS 2225 for the leakage current test), with the allowable leakage current (specified in AS 2225 of 4 mA) being retained. This 'reduced' testing voltage was established after extensive tests and field trials of suitable (to the user) gloves based on the test parameters specified herein.

New tests, such as abrasion resistance, flex cracking, resistance to puncture, and tensile strength of seams, replace the mechanical tests specified in AS 2225. However, specified minimum thicknesses for 1000 V, 3300 V, and 4000 V gloves have been retained. Also, it is now mandatory for instructions for storage and cleaning to be provided with each pair of gloves.

Special attention is drawn to Appendix C which provides revised recommendations for storage and cleaning of gloves after purchase.

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

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STANDARDS AUSTRALIA

Australian Standard

Insulating gloves for electrical purposes

1 SCOPE This Standard sets out the requirements for three types of insulating gloves (as classified in Clause 4) used for electrical purposes where the working potentials do not exceed 650 V, 1000 V, 3300 V, or 4000 V (whether a.c. r.m.s., or d.c.), between any two conductors or between any conductor and earth.

NOTE: For the purposes of this Standard, the term 'glove(s)' applies to insulating gloves used for electrical purposes.

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

AS
2103 Dial gauges and dial test indicators (metric series)

2161 Industrial safety gloves and mittens (excluding electrical and medical gloves)

2886 Voltage measurement—Sphere-gap method (one sphere earthed)

BS
903 Methods of testing vulcanized rubber
Part A2—Determination of tensile stress-strain properties

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

3.1 Composite—a generic term for a combination of insulating material and other material(s), e.g dipped, coated, sprayed, impregnated, layered or mixed.

3.2 Insulated—separated from other conducting surfaces by a dielectric substance (including air space) offering a high resistance to the passage of current.

3.3 Other than rubber—a generic term for a homogeneous insulating material of a form other than rubber as described in Clause 3.4.

3.4 Rubber—a generic term for a homogeneous material that includes elastomers and elastomeric compounds, regardless of origin.

3.5 Working voltage—the maximum use voltage, whether a.c., r.m.s. or d.c.

3.6 Routine test—a test to which each glove is subjected after manufacture.

3.7 Type test—a test performed on one or more gloves to show that the design meets the specification.

4 CLASSIFICATION Gloves are classified by the following types:

(a) Rubber.
(b) Other than rubber.
(c) Composite.

5 COMPOSITION Gloves shall be made from insulating materials which comply with this Standard. A glove may contain suitable insertions which will enhance the electrical, mechanical or comfort (i.e. sensitivity) properties.

6 CONSTRUCTION Gloves, on both the inner and outer surfaces, shall be free from harmful physical irregularities that can cause hazard or significant degradation in quality or life of the glove.