AS 3609—1989

Australian Standard®

Insulators—Porcelain stay type—Voltages greater than 1000 V a.c.

[Title allocated by Defence Cataloguing Authority: INSULATOR, STAY (Porcelain, Voltages greater than 1000 V a.c. NSC 5970]

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The following interests are represented on Committee EL/10:

Australian Electrical and Electronic Manufacturers' Association

Australian Porcelain Insulators and Technical Ceramic Manufacturers' Association

Confederation of Australian Industry

Electrical and Radio Federation of Victoria

Electricity Supply Association of Australia

Railways of Australia Committee

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PREFACE

This Standard was prepared by the Standards Australia Committee on Overhead Lines to supersede AS 1137.4–1981, *Insulators*, Part 4: *Porcelain stay insulators*.

It applies to porcelain stay insulators, used in conjunction with stay wires and it deals with general requirements, characteristics and methods of test.

This Standard differs from AS 1137.4–1981, in the following ways:

(a) Although there is no IEC Standard for porcelain stay insulators, the layout has been arranged to align with IEC–based Standards. The Standard remains technically the same as AS 1137.4–1981, except that it applies to insulators rated above 1000 V only.

(b) A 10–year validity period for mechanical type test certificates has been specified.

(c) The maximum allowable areas of single and total glaze defects has been specified.

Other Standards in this series are as listed below.

AS 1137 *Insulators*

Part 1: *Porcelain and glass insulators for overhead power lines (for voltages greater than 1000 V a.c.)*

Part 2: *Porcelain and glass pin and shackle insulators for overhead power lines (for voltages not exceeding 1000 V a.c.)*

Part 3: *Porcelain and glass indoor and outdoor stations post insulators (for voltages greater than 1000 V a.c.)*

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Insulators — Porcelain stay type — Voltages greater than 1000 V a.c.

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This Standard specifies requirements for porcelain stay insulators as defined in Clause 1.3.1 and which are incorporated with the stay wires used for poles supporting overhead lines.

NOTE: Appendix B lists information that should be specified by the purchaser of the insulators.

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

AS
1222 Steel conductors and stays for overhead power transmission purposes

1222.1 Part 1: Galvanized (SC/GZ)

1931 High voltage testing techniques

1931.1 Part 1: General definitions, test requirements, test procedures and measuring devices

1.3 DEFINITIONS. For the purpose of this Standard the definitions below apply.

1.3.1 Stay insulator — insulator consisting of one part, with two transverse holes for the insertion of stay wires and hereafter referred to as 'insulator'.

1.3.2 Power-frequency wet flashover voltage — arithmetic mean value of the measured voltages which cause flashover of the insulator under the conditions prescribed in Clause 2.2.

1.3.3 Flashover — disruptive discharge external to the insulator, connecting those parts which normally have the operating voltage between them.

NOTE: In this Standard the term 'flashover' includes flashover across the insulator surface as well as disruptive discharge by sparkover through air adjacent to the insulator.

1.3.4 Mechanical failing load — maximum mechanical load at which failure occurs in an insulator when tested under the prescribed conditions.

1.3.5 Lot — group of insulators offered for acceptance from the same manufacturer, of the same design, and manufactured under similar conditions of production.

1.4 CLASSIFICATION OF TESTS. Test shall be classified as follows:

(a) *Type tests.* Type tests are intended to verify the main characteristics of an insulator which depend mainly on its design. They are carried out once for a new design or manufacturing process of insulator and then subsequently repeated only when the design or manufacturing process is changed; when the change affects only certain characteristics, only the test(s) relevant to these characteristics need to be repeated. Type tests are usually carried out on a small number of insulators.

Valid type test certificates are those issued by a independent testing organization, confirming that these tests have been satisfactorily performed. The tests serving for the establishment of type test certificates may be carried out in a laboratory other than that of the issuing organization if a qualified witness of the latter is present.

For mechanical tests, the certificate shall be valid for 10 years from the date of issue. There is no time limit for the validity of certificates for electrical type tests.

Within the above limits, the type test certificates remain valid while there is no significant disparity between the results of the type tests and subsequent corresponding sample tests.

Type tests shall be carried out only on insulators from a lot which has complied with the requirements of the relevant routine tests.

(b) *Sample tests.* Sample tests are carried out to verify the characteristics of an insulator which can vary within the manufacturing process and the quality of the component materials of the insulator. Sample tests are used as acceptance tests on a sample of insulators taken at random from a lot which has met the requirements of the relevant routine tests.

(c) *Routine tests.* Routine tests are intended to eliminate defective units and are carried out during the manufacturing process. Routine tests are carried out on every insulator.

1.5 MARKING. Each insulator shall be legibly and indelibly marked with the name or trade mark of the manufacturer and the year of manufacture.

Markings shall be printed and shall be applied before glazing.

NOTE: Manufacturers making a statement of compliance with this Australian Standard on a product, or on packaging or promotional material related to that product, are advised to ensure that such compliance is capable of being verified.

Independent certification is available from Standards Australia under the StandardsMark Product Certification Scheme. The StandardsMark, shown below, is a (registered) certification trade mark owned by Standards Australia and granted under licence to manufacturers whose products comply with the requirements of suitable Australian Standards and who operate sound quality assurance programs to ensure consistent product quality.

Further information on product certification and the suitability of this Standard for certification is available from Standards Australia's Quality Assurance Services, 1 The Crescent, Homebush, NSW 2140.