AS 62217—2007
IEC 62217, Ed.1.0 (2005)

AS 62217—2007

Australian Standard®

# Polymeric insulators for indoor and outdoor use with a nominal voltage > 1000 V—General definitions, test methods and acceptance criteria

This Australian Standard® was prepared by Committee EL-010, Overhead Lines. It was approved on behalf of the Council of Standards Australia on 1 June 2007.
This Standard was published on 12 July 2007.

---

The following are represented on Committee EL-010:

- Australasian Railway Association
- Australian Chamber of Commerce and Industry
- Australian Electrical and Electronic Manufacturers Association
- Energy Networks Association

---

This Standard was issued in draft form for comment as DR 07010.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through public comment period.

---

## Keeping Standards up-to-date

Australian Standards® are living documents that reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued.

Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting **www.standards.org.au**

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at **mail@standards.org.au**, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

---

Australian Standard®

# Polymeric insulators for indoor and outdoor use with a nominal voltage > 1000 V—General definitions, test methods and acceptance criteria

First published as AS 62217—2007.



Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 8277 9

# PREFACE

This Standard was prepared by the Standards Australia Committee EL-010, Overhead Lines.

The objective of this Standard is to specify common requirements for polymeric insulators for use on overhead power lines.

This Standard is identical with, and has been reproduced from IEC 62217, Ed.1.0 (2005), *Polymeric insulators for indoor and outdoor use with a nominal voltage > 1000 V—General definitions, test methods and acceptance criteria*.

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

(a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

(b) In the source text 'IEC 62217' should read 'AS 62217'.

(c) A full point should be substituted for a comma when referring to a decimal marker.

The terms 'normative' and 'informative' are used 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.

# CONTENTS

# INTRODUCTION

Polymeric insulators consist either of one insulating material (resin insulators) or two or several insulating materials (composite insulators). The insulating materials are generally cross-linked organic materials synthesized from carbon or silicon chemistry and form the insulating body. Insulating materials can be composed from organic materials containing various inorganic and organic ingredients, such as fillers and extenders. End fittings are often used at the ends of the insulating body to transmit mechanical loads. Despite these common features, the materials used and the construction details employed by different manufacturers may be widely different.

Some tests have been grouped together as "design tests", to be performed only once for insulators of the same design. The design tests are intended to eliminate insulator designs, materials or manufacturing technologies which are not suitable for high-voltage applications. The influence of time on the electrical properties of the complete polymeric insulator and its components (core material, housing, interfaces, etc.) has been considered in specifying the design tests in order to ensure a satisfactory life-time under normal operating and environmental conditions.

Pollution tests, according to IEC 60507 or IEC 61245, are not included in this International Standard, their applicability to composite insulators not having been proven. The results of such pollution tests performed on insulators made of polymeric materials do not correlate with experience obtained from service. Specific pollution tests for polymeric insulators are still under consideration.

The tracking and erosion tests given in this standard are considered as screening tests intended to reject materials or designs which are inadequate. These tests are not intended to predict long-term performance for insulator designs under cumulative service stresses. For more information, see Annex C.

Composite insulators are used in both a.c. and d.c. applications. In spite of this fact a specific tracking and erosion test procedure for d.c. applications as a design test has not yet been defined and accepted. The 1 000 h a.c. tracking and erosion test described in this standard is used to establish a minimum requirement for the tracking resistance of the housing material.

IEC Guide 111 has been followed during preparation of this standard wherever possible.

STANDARDS AUSTRALIA

# Australian Standard

# Polymeric insulators for indoor and outdoor use with a nominal voltage > 1000 V—General definitions, test methods and acceptance criteria

Any table, figure or text of the international standard that is struck through is not part of this standard. Any Australian/New Zealand table, figure or text that is added is part of this standard and is identified by shading.

## 1 Scope and object

This International Standard is applicable to polymeric insulators whose insulating body consists of one or various organic materials. Polymeric insulators covered by this standard include both solid core and hollow insulators. They are intended for use on overhead lines and in indoor and outdoor equipment with a rated voltage greater than 1 000 V.

The object of this standard is

– to define the common terms used for polymeric insulators,

– to prescribe common test methods for design tests on polymeric insulators,

– to prescribe acceptance or failure criteria, if applicable,

– to give recommendations for polymeric insulator test standards or product standards, complemented by specific requirements as needed.

These tests, criteria and recommendations are intended to ensure a satisfactory life-time under normal operating and environmental conditions (see Clause 5).

## 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.

References to international standards that are struck through in this clause are replaced by references to Australian or Australian/New Zealand Standards that are listed immediately thereafter and identified by shading. Any Australian or Australian/New Zealand Standard that is identical to the International Standard it replaces is identified as such.

~~IEC 60060-1, *High-voltage test techniques – Part 1: General definitions and test requirements*~~

AS 1931.1, *High-voltage test techniques—General definitions and test requirements*

~~IEC 60068-2-11, *Basic environmental testing procedures – Part 2: Tests, Test KA: Salt mist*~~

AS 60068.2.11, *Environmental testing—Tests—Test Ka: Salt mist*

IEC 60507, *Artificial pollution tests on high-voltage insulators to be used on a.c. systems*