INTERNATIONAL STANDARD

IEC 62217

First edition
2005-10

Polymeric insulators for indoor and outdoor use with a nominal voltage >1 000 V – General definitions, test methods and acceptance criteria

Reference number
IEC 62217:2005(E)

Publication numbering

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE V

For price, see current catalogue

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

POLYMERIC INSULATORS FOR INDOOR AND OUTDOOR USE WITH A NOMINAL VOLTAGE >1 000 V – GENERAL DEFINITIONS, TEST METHODS AND ACCEPTANCE CRITERIA

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International Standard IEC 62217 has been prepared by IEC technical committee 36: Insulators.

The text of this standard is based on the following documents:

FDIS	Report on voting
36/244/FDIS	36/245/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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.