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TECHNICAL REPORT

colour inside

HV polymeric insulators for indoor and outdoor use tracking and erosion testing by wheel test and 5 000 h test

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HV POLYMERIC INSULATORS FOR INDOOR AND OUTDOOR USE TRACKING AND EROSION TESTING BY WHEEL TEST AND 5 000H TEST

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 62730 edition 1.1 contains the first edition (2012-03) [documents 36/305/DTR and 36/316A/RVC] and its amendment 1 (2024-06) [documents 36/596/DTR and 36/601/RVDTR].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

IEC 62730, which is a technical report, has been prepared by IEC technical committee 36: Insulators.

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

The committee has decided that the contents of this document and its amendment will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

IMPORTANT – The *'colour inside'* logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

IEC 62217 [1][1] included three different tracking and erosion tests. One, the 1 000 hour salt-fog test, was included in the main text as a default test and two others, the 5 000 hour test and the tracking wheel test, were given in annexes as alternative tests.

Following a decision by TC 36 it was decided that it was desirable to have a single standardised test in IEC 62217; hence a study of the usage and effectiveness of all three tests was undertaken by Working Group 12 of TC 36. The results of this study indicated that, while the 5 000h and the tracking wheel tests each had their advantages, only the 1 000 hour salt fog test was adapted to all insulator types and was more economical to perform.

It was decided by TC 36 to adopt the 1 000 hour salt-fog test as the only standardised test. It was also decided to draft this Technical Report to reproduce the 5 000 hour and the tracking wheel test procedures in order to keep the information on the test methods and parameters available for those wishing to use those tests for research or other purposes.

The tracking and erosion tests given in this technical report 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.

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.

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

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1 Numbers in square brackets refer to the Bibliography.

HV POLYMERIC INSULATORS FOR INDOOR AND OUTDOOR USE TRACKING AND EROSION TESTING BY WHEEL TEST AND 5 000H TEST

1 Scope and object

This technical report is applicable to polymeric insulators whose insulating body consists of one or various organic materials. Polymeric insulators covered by this technical report 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 technical report is:

– to define the common terms used;
– to give the background behind the development and use of the 5 000 h multiple stress test and the tracking wheel test;
– to describe the test methods for the 5 000 h multiple stress test and the tracking wheel tests on polymeric insulators;
– to describe possible acceptance or failure criteria, if applicable;

These tests, criteria and recommendations are intended to give a common basis for the 5 000h multiple stress test and the tracking wheel test when they are used for research or required as a supplementary design test. These tests are not mandatory and their use is subject to prior agreement between the interested parties.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-47:2007, *International Electrotechnical Vocabulary – Part 471: Insulators*

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

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

IEC 60815-2, *Selection and dimensioning of high-voltage insulators intended for use in polluted conditions – Part 2: Ceramic and glass insulators for a.c. systems*

3 Terms and definitions

For the purposes of this document the terms and definitions given in IEC 60050 (471) and the following apply:

3.1
polymeric insulator
insulator whose insulating body consists of at least one organic based material. Coupling devices may be attached to the ends of the insulating body

Note 1 to entry: Polymeric insulators are also known as non-ceramic insulators.

[SOURCE: IEC 60050-471:2007, 471-01-13, modified]