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IEC/TR 62730

Edition 1.0 2012-03

# TECHNICAL REPORT

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

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

PRICE CODE

**R**

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ICS 29.080.10

ISBN 978-2-88912-032-1

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## CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope and object.....	6
2 Normative references .....	6
3 Terms and definitions .....	6
4 Background to the tracking and erosion tests .....	8
4.1 Difference between the tracking and erosion and accelerated ageing tests on polymeric insulators .....	8
4.2 The wheel test.....	8
4.3 The 5 000h multiple stress test.....	9
5 Classification of tests .....	10
6 General requirements for insulator test specimens .....	10
7 The tests .....	10
7.1 Wheel test.....	10
7.1.1 Test specimens .....	10
7.1.2 Procedure.....	10
7.1.3 Test conditions .....	12
7.1.4 Acceptance criteria.....	12
7.2 5 000 hour test (test at multiple stresses).....	12
7.2.1 Test specimen .....	12
7.2.2 Procedure.....	12
7.2.3 Test conditions .....	13
7.2.4 Voltage.....	15
7.2.5 Solar simulation.....	15
7.2.6 Artificial rain .....	15
7.2.7 Dry heat .....	16
7.2.8 Humidity .....	16
7.2.9 Pollution .....	16
7.2.10 Salt fog calibration.....	16
7.2.11 Acceptance criteria.....	18
Bibliography.....	19
Figure 1 – Test arrangement of the tracking wheel test.....	11
Figure 2 – Typical layout of the test specimens in the chamber and main dimensions of the chamber.....	13
Figure 3 – Multiple stress cycle.....	14
Figure 4 – Typical layout of the rain and salt fog spray systems and the xenon lamp .....	14
Figure 5 – Spectrum of xenon arc lamp and solar spectrum .....	15
Figure 6 – Reference porcelain insulator.....	17

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

#### FOREWORD

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

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
36/305/DTR	36/316A/RVC

Full information on the voting for the approval of this technical report 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 stability 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

IEC 62217 [1]<sup>1</sup> 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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<sup>1</sup> 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*