

# TECHNICAL REPORT



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**Electrical insulating materials – Thermal endurance properties –  
Part 7-2: Results of the round robin tests to validate procedures of  
IEC TS 60216-7-1 by non-isothermal kinetic analysis of thermogravimetric data**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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## FOREWORD

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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 TR 60216-2-7, which is a Technical Report, has been prepared by IEC technical committee 112: Evaluation and qualification of electrical insulating materials and systems.

The text of this Technical Report is based on the following documents:

Enquiry draft	Report on voting
112/354/DTR	112/370/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.

A list of all parts in the IEC 60216 series, published under the general title *Electrical insulating materials – Thermal endurance properties*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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- withdrawn,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.

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## INTRODUCTION

IEC technical committee 112, (IEC/TC112) has been working on the development of IEC TS 60216-7-1 that considers the use of activation energy determined through thermal analytical tools plus abbreviated conventional heat ageing to determine a thermal index on a polymeric compound. At the same time, the UL LTTA Forum has been discussing alternative methods that could speed up the determination of a thermal index. Members of the IEC/TC112 and of the UL LTTA Forum have joined efforts to determine whether the Technical Specification developed by IEC/TC112 can be used to offer an alternative method of evaluating polymeric compounds for a thermal index.

Members of IEC/TC112 and the UL LTTA Forum decided to conduct a round robin test (RRT) using thermogravimetric analysis (TGA) according to ISO 11358-2 on a known compound, with a known activation energy determined through conventional ageing with a view to validate the acceptability of IEC TS 60216-7-1, and to determine whether a similar thermal index could be calculated. The round robin testing was conducted with conventional TGA by multiple heating rates. However, running isothermal tests can be a follow up of this RRT.

## **ELECTRICAL INSULATING MATERIALS – THERMAL ENDURANCE PROPERTIES –**

### **Part 7-2: Results of the round robin tests to validate procedures of IEC TS 60216-7-1 by non-isothermal kinetic analysis of thermogravimetric data**

#### **1 Scope**

The purpose of this part of IEC 60216, which is a Technical Report, is to validate the procedures of IEC TS 60216-7-1 in providing a similar temperature index to conventional methods used in other parts of the IEC 60216 series.

These round robin test results do not provide statistical analysis for precisions. The round robin test focuses on preliminary studies to understand the evaluation and calculation procedures, influence on apparatus, and data variance among laboratories before determination of precisions.

#### **2 Normative references**

There are no normative references in this document.