TECHNICAL REPORT

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Suitability of typical electrical insulating material (EIM) for polymer recycling

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SUITABILITY OF TYPICAL ELECTRICAL INSULATING MATERIAL (EIM) FOR POLYMER RECYCLING

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IEC 62392, which is a technical report, has been prepared by IEC technical committee 112: Evaluation and qualification of electrical insulating materials and systems.[1]

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

Enquiry draft	Report on voting
15/235/DTR	15/263/RVC

[1] Technical committee 112 was created by combining the activities of sub-committee 15E and techical committee 98. This project was initially developed in technical committee 15 and then transferred to technical committee 112.

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 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- withdrawn,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.

SUITABILITY OF TYPICAL ELECTRICAL INSULATING MATERIAL (EIM) FOR POLYMER RECYCLING

1 Scope

This Technical Report gives information for the assessment of factors associated with the polymer recycling and/or reuse of typical insulating materials in electrotechnical equipment. It gives information and assistance to developers and design engineers for assessment in selecting polymers and polymer combinations, and is a contribution to the preservation of resources and the minimization of disposal costs at the end of a product life. The environmental compatibility of polymers must be assessed in the light of the function of the materials in the product and the total service life. An important aspect is the recovery of the material at the end of the product life. The value level of material recycling as recovery option can be improved by incorporation of suitability for dismantling into the design of the article and the choice of insulating materials which are generally used. This document will cover material recycling only as part of recovery.

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.

IEC 60093, *Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials*

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60216-1, *Electrical insulating materials – Properties of thermal endurance – Part 1: Ageing procedures and evaluation of test results*

IEC 60216-2, *Electrical insulating materials – Thermal endurance properties – Part 2: Determination of thermal endurance properties of electrical insulating materials – Choice of test criteria*

IEC 60216-3, *Electrical insulating materials – Thermal endurance properties – Part 3: Instructions for calculating thermal endurance characteristics*

IEC 60216-4-1, *Electrical insulating materials – Thermal endurance properties – Part 4-1: Ageing ovens – Single-chamber ovens*

IEC 60216-4-2, *Electrical insulating materials – Thermal endurance properties – Part 4-2: Ageing ovens – Precision ovens for use up to 300 °C*

IEC 60216-4-3, *Electrical insulating materials – Thermal endurance properties – Part 4-3: Ageing ovens – Multi-chamber ovens*

IEC 60216-5, *Electrical insulating materials – Thermal endurance properties – Part 5: Determination of relative thermal endurance index (RTE) of an insulating material*

IEC 60216-6, *Electrical insulating materials – Thermal endurance properties – Part 6: Determination of thermal endurance indices (TI and RTE) of an insulating material using the fixed time frame method*

IEC 60505, *Evaluation and qualification of electrical insulation systems*

IEC 61244-3, *Long-term radiation ageing in polymers – Part 3: Procedures for in-service monitoring of low-voltage cable materials*

ISO 179 (all parts), *Plastics – Determination of Charpy impact properties*

ISO 527 (all parts), *Plastics – Determination of tensile properties*

ISO 11469, *Plastics – Generic identification and marking of plastics products*

ISO 1043-1, *Plastics – Symbols and abbreviated terms – Part 1: Basic polymers and their special characteristics*

ISO 1043-2, *Plastics – Symbols and abbreviated terms – Part 2: Fillers and reinforcing materials*

ISO 1043-3, *Plastics – Symbols and abbreviated terms – Part 3: Plasticizers*

ISO 1043-4, *Plastics – Symbols and abbreviated terms – Part 4: Flame retardants*