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TECHNICAL REPORT

Selection guidelines for polymeric materials for outdoor use under HV stress

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SELECTION GUIDELINES FOR POLYMERIC MATERIALS FOR OUTDOOR USE UNDER HV STRESS

FOREWORD

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IEC TR 62039 has been prepared by IEC technical committee 112: Evaluation and qualification of electrical insulating materials and systems. It is a Technical Report.

This second edition cancels and replaces the first edition published in 2007. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) addition of hydrophobicity definitions and hydrophobicity transfer test;
b) addition of stress corrosion test.

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

Draft	Report on voting
112/526/DTR	112/535/RVDTR

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

The language used for the development of this Technical Report is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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INTRODUCTION

There is a need within utilities and industry for material standards that define the physical properties of the polymers applied for outdoor insulation. This requirement was identified during discussions in IEC TC 36 and IEC TC 112. As a consequence, in 2001, CIGRE formed the working group D1.14 and later on working groups D1.27, C4.303 and D1.58 with the specific task of defining the physical parameters which are important for the polymeric materials applied in outdoor insulation and developing the relevant test methods, where necessary. As a first step, a state-of-the-art report was issued by CIGRE in Technical Brochure 255. Thirteen properties were identified; standardized test methods and minimum requirements were available for eleven of them. For the remaining property of hydrophobicity retention and recovery, test methods and minimum requirements still need to be defined. This will be the future task of SC D1. This document presents, as a conclusion of the CIGRE report, the important material properties for polymeric materials used in outdoor insulation, where they are applicable, and lists standardized test methods including minimum requirements. If no standardized tests are available, then test methods reported in literature (references in the bibliography) are summarized.