IEC 60455-3-8

Edition 1.0 2013-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Resin based reactive compounds used for electrical insulation – Part 3: Specifications for individual materials Sheet 8: Resins for cable accessories

Composés réactifs à base de résines utilisés comme isolants électriques – Partie 3: Spécifications pour matériaux particuliers Feuille 8: Résines pour accessoires de câble

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

RESIN BASED REACTIVE COMPOUNDS USED FOR ELECTRICAL INSULATION –

Part 3: Specifications for individual materials Sheet 8: Resins for cable accessories

FOREWORD

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International Standard IEC 60455-3-8 has been prepared by IEC technical committee 15: Solid electrical insulating materials, in collaboration with working group 11 of Cenelec technical committee 20.

The text of this standard is based on the following documents:

FDIS	Report on voting
15/701/FDIS	15/711/RVD

Full information on the voting for the approval of this standard 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.

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A list of all the parts in the IEC 60455 series, published under the general title *Resin based reactive compounds used for electrical insulation,* 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 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- withdrawn,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.

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INTRODUCTION

This part of IEC 60455-3-8 is one of a series which deals with specifications for reactive compounds and their components for electrical insulation. This series consist of three parts:

Part 1: Definitions and general requirements (IEC 60455-1);

Part 2: Methods of test (IEC 60455-2);

Part 3: Specifications for individual materials (IEC 60455-3)

IEC 60455-3-8 consists of one of the sheets comprising Part 3 as follows:

Sheet 8: Resins for cable accessories

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RESIN BASED REACTIVE COMPOUNDS USED FOR ELECTRICAL INSULATION –

Part 3: Specifications for individual materials Sheet 8: Resins for cable accessories

1 Scope

This sheet 8 of IEC 60455-3 gives the requirements for resins for power cable accessories which conform to this specification and meet established levels of performance. However, the selection of a material by a user for a specific application should be based on the actual requirements necessary for adequate performance in that application and not on this specification alone.

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

IEC 60212, *Standard conditions for use prior to and during the testing of solid electrical insulating materials*

IEC 60243-1, *Electric strength of insulating materials – Test methods – Part 1: Tests at power frequencies*

IEC 60250, *Recommended methods for the determination of the permittivity and dielectric dissipation factor of electrical insulating materials at power, audio and radio frequencies including metre wavelengths*

IEC 60455-2, *Resin based reactive compounds used for electrical insulation – Part 2: Methods of test* [1]

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

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

ISO 868, *Plastics and ebonite – Determination of indentation hardness by means of a durometer (Shore hardness)*

ISO 1183-1, *Plastics – Methods for determining the density of non-cellular plastics – Part 1: Immersion method, liquid pyknometer method and titration method*

ISO 2555, *Plastics – Resins in the liquid state or as emulsions or dispersions – Determination of apparent viscosity by the Brookfield Test method*

[1] Third edition to be published.

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ISO 4895, *Plastics – Liquid epoxy resins – Determination of tendency to crystallize*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
tendency to crystallization
measurement of the ability of epoxy base resin not to change from a liquid to a solid state at a certain temperature close to water freezing point for a fixed time

3.2
type tests
tests made on materials or components of a cable accessory in order to demonstrate satisfactory performance characteristics to meet the intended application

3.3
outer protection
cured resinous compound to protect the connections from damage by external mechanical forces

4 Designation

Resins for cable accessories are classified according to their application in categories as follows:

Table 1 – Categories of resins

Voltage Class	Function	Characteristic
Low Voltage (**L**)	Outer Protection (**OP**)	Cures in presence of water [a] (**W**)
Medium Voltage (**M**)	Insulation (**I**)	
[a] Low foaming during curing when in contact with water as described in the subclause dealing with curing under water in IEC 60455-2.		

A resin is identified by a combination of categories.

For example: Low voltage compound for outer protection: **L-OP**;
Low voltage compound for insulation, curing in presence of water: **L-I-W**;
Low voltage compound for insulation and mechanical protection: **L-OP-I**.

Tests for type testing are carried out in accordance with each of the resin categories.

Low voltage: 0,6/1,0 (1,2) kV
Medium voltage: 20,8/36 (42) kV

5 Type testing

5.1 General

Tests shall be carried out based on the category of the resins as defined in Table 1. These tests are of such a nature that, once successfully completed, they need not to be repeated unless changes are made in the material, component formulation or manufacturing process, which might change the performance characteristics.

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