



BSI Standards Publication

Resin based reactive compounds used for electrical insulation

Part 3-8: Specifications for individual materials — Resins for cable accessories

National foreword

This British Standard is the UK implementation of EN IEC 60455-3-8:2021. It is identical to IEC 60455-3-8:2021. It supersedes BS EN 60455-3-8:2013, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GEL/15, Solid electrical insulating materials.

A list of organizations represented on this committee can be obtained on request to its committee manager.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2021
Published by BSI Standards Limited 2021

ISBN 978 0 580 51088 5

ICS 29.035.01

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 August 2021.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

English Version

**Resin based reactive compounds used for electrical insulation -
Part 3-8: Specifications for individual materials - Resins for cable
accessories
(IEC 60455-3-8:2021)**

Composés réactifs à base de résines utilisés comme
isolants électriques - Partie 3-8: Spécifications pour
matériaux particuliers - Résines pour accessoires de câble
(IEC 60455-3-8:2021)

Reaktionsharzmassen für die Elektroisolierung - Teil 3:
Anforderungen an einzelne Werkstoffe - Blatt 8:
Reaktionsharzmassen für Kabelgarnituren
(IEC 60455-3-8:2021)

This European Standard was approved by CENELEC on 2021-07-21. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 15/937/FDIS, future edition 2 of IEC 60455-3-8, prepared by IEC/TC 15 “Solid electrical insulating materials” was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60455-3-8:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2022-04-21 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2024-07-21 document have to be withdrawn

This document supersedes EN 60455-3-8:2013 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60455-3-8:2021 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60455-1	NOTE Harmonized as EN 60455-1
IEC 60455-3 (series)	NOTE Harmonized as EN 60455-3 (series)
IEC 61234-2	NOTE Harmonized as EN 61234-2
ISO 291	NOTE Harmonized as EN ISO 291
ISO 2592	NOTE Harmonized as EN ISO 2592
ISO 3521	NOTE Harmonized as EN ISO 3521

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60212	-	Standard conditions for use prior to and during the testing of solid electrical insulating materials	EN 60212	-
IEC 60243-1	-	Electric strength of insulating materials - Test methods - Part 1: Tests at power frequencies	EN 60243-1	-
IEC 60455-2	2015	Resin based reactive compounds used for electrical insulation - Part 2: Methods of test	EN 60455-2	2015
IEC 62631-2-1	-	Dielectric and resistive properties of solid insulating materials - Part 2-1: Relative permittivity and dissipation factor - Technical Frequencies (0,1 Hz - 10 MHz) - AC Methods	EN IEC 62631-2-1	-
IEC 62631-3-1	-	Dielectric and resistive properties of solid insulating materials - Part 3-1: Determination of resistive properties (DC methods) - Volume resistance and volume resistivity - General method	EN 62631-3-1	-
IEC 62631-3-2	-	Dielectric and resistive properties of solid insulating materials - Part 3-2: Determination of resistive properties (DC methods) - Surface resistance and surface resistivity	EN 62631-3-2	-
ISO 179	series	Plastics - Determination of Charpy impact-properties		-
ISO 527	series	Plastics - Determination of tensile properties	EN ISO 527	series
ISO 868	-	Plastics and ebonite - Determination of indentation hardness by means of a durometer (Shore hardness)	EN ISO 868	-

EN IEC 60455-3-8:2021 (E)

ISO 1183-1	-	Plastics - Methods for determining the density of non-cellular plastics - Part 1: Immersion method, liquid pycnometer method and titration method	EN ISO 1183-1	-
ISO 2137	-	Petroleum products and lubricants -- Determination of cone penetration of lubricating greases and petrolatum		-
ISO 2555	-	Plastics - Resins in the liquid state or as emulsions or dispersions - Determination of apparent viscosity using a single cylinder type rotational viscometer method	EN ISO 2555	-
ISO 4895	-	Plastics - Liquid epoxy resins - Determination of tendency to crystallize	EN ISO 4895	-

CONTENTS

FOREWORD	3
INTRODUCTION	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
4 Designation	7
5 Type testing.....	8
5.1 General.....	8
5.2 Sampling.....	8
5.3 Preparation and conditioning.....	8
5.3.1 General	8
5.3.2 Individual components prior to mixing	8
5.3.3 Resin just after mixing (curing stage)	8
5.3.4 Cured resin (original)	9
5.3.5 Cured resin after thermal ageing (dry and wet)	9
5.4 Sequence of tests	9
5.5 Test report	9
6 Test methods.....	9
7 Information on supply, packaging, marking and labelling	16
7.1 Packaging	16
7.2 Marking and labelling.....	16
7.2.1 General	16
7.2.2 Components	16
7.2.3 Accessory kit	16
Annex A (normative) Examination grid	17
Bibliography.....	18
Figure A.1 – Examination grid	17
Figure A.2 – Position of examination grid on the specimen	17
Table 1 – Categories of resins	7
Table 2 – Type tests: test methods and requirements for Polyurethane resins	10
Table 3 – Type tests: test methods and requirements for Polybutadiene resins.....	12
Table 4 – Type tests: test methods and requirements for Epoxy resins	13
Table 5 – Type tests: test methods and requirements for Silicone resins.....	15

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**RESIN BASED REACTIVE COMPOUNDS USED
FOR ELECTRICAL INSULATION –****Part 3-8: Specifications for individual materials –
Resins for cable accessories**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60455-3-8 has been prepared by IEC technical committee 15: Solid electrical insulating materials.

This second edition cancels and replaces the first edition published in 2013. This edition constitutes a technical revision.

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

- a) Clause 1: a link to assemblies according to IEC 60502-4 and EN 50393 was introduced;
- b) designation: the categories, especially the mechanical ones, were redefined;
- c) type tests: the testing was updated based on the chemical basis of the material;
- d) type tests: additional materials were introduced;
- e) Annex A: an examination grid was established.