
Specification for solventless polymerisable resinous compounds used for electrical insulation - Part 1: Definitions and general requirements - Supplement 1: Basis for classification of polymerisable resinous compounds (IEC 60455-1:1974 + IEC 60455-1A:1980)

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Specification for solventless polymerisable
resinous compounds used for electrical insulation
Part 1: Definitions and general requirements
First supplement: Basis for classification of
polymerisable resinous compounds

Spécification relative aux composés
résineux polymérisables sans solvant
utilisés comme isolants électriques
Première partie: Définitions et
conditions générales
Premier complément: Principe de
classification des composés résineux
polymérisables

Bestimmungen für
Reaktionsharzmassen und -formstoffe
in der Elektrotechnik
Teil 1: Begriffe und allgemeine
Anforderungen
Erste Ergänzung: Grundlage für
die Klassifizierung von
Reaktionsharz-Massen und
-Formstoffen

RD: IEC 455-1 (1974) ed 1 + 455-1A (1980); IEC/SC 15C (not appended)

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- Title Page

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BE : NOS

CH : SEV/ASE 3366-1.1981; SEV/ASE 3366-1A.1982

DE : SP (DIN IEC 455-1/VDE 0355 Teil 1)

DK : DS/IEC 455-1A (1981)

ES : UNE 21 340

FI : NOS

FR : NF C 26-160 (1981)

GB : BS 5664 : 1978; SP (Amended 1981)

GR : NOS

IE : NOS

IT : NOS

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

(affiliée à l'Organisation Internationale de Normalisation — ISO)

RECOMMANDATION DE LA CEI

INTERNATIONAL ELECTROTECHNICAL COMMISSION

(affiliated to the International Organization for Standardization — ISO)

IEC RECOMMENDATION

Publication 455-1

Première édition — First edition

1974

Spécification relative aux composés résineux polymérisables sans solvant
utilisés comme isolants électriques

Première partie: Définitions et conditions générales

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Specification for solventless polymerisable resinous compounds
used for electrical insulation

Part 1: Definitions and general requirements

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SPECIFICATION FOR SOLVENTLESS POLYMERISABLE RESINOUS
COMPOUNDS USED FOR ELECTRICAL INSULATION

Part 1: Definitions and general requirements

FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
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PREFACE

iTeh STANDARD PREVIEW

This recommendation has been prepared by Sub-Committee 15C, Specifications, of IEC Technical Committee No. 15, Insulating Materials.

A first draft was discussed at the meeting held in Washington in 1970. As a result of this meeting, a final draft, document 15C(Central Office)31, was submitted to the National Committees for approval under the Six Months' Rule in March 1972. 2c6842b6098a/sist-hd-307-1-s2-1998

The following countries voted explicitly in favour of publication:

Australia	Netherlands
Belgium	Poland
Canada	Portugal
Czechoslovakia	Sweden
Denmark	Switzerland
Finland	Turkey
France	Union of Soviet
Germany	Socialist Republics
India	United Kingdom
Israel	United States of America
Japan	Yugoslavia

SPECIFICATION FOR SOLVENTLESS POLYMERISABLE RESINOUS COMPOUNDS USED FOR ELECTRICAL INSULATION

Part 1 : Definitions and general requirements

INTRODUCTION

This recommendation is one of a series which deals with solventless polymerisable resinous compounds for electrical insulation.

The series will have three parts describing:

- 1) Definitions and general requirements.
- 2) Methods of test.
- 3) Specifications for individual materials.

1. Scope

This specification relates to resinous or elastomeric compounds, composed of one or more chemically reactive components, with or without fillers. They can be furnished either as solids, semi-solids or liquid materials either as separate constituents or mixed together. The compound shall be capable of being applied in a liquid, paste or powder form. They cure (polymerize and cross-link) without pressure to compact products, without splitting of volatile substances and may or may not require heating to accomplish the curing reaction.

These compounds are commonly referred to as casting resins, solventless varnishes, embedding compounds, potting compounds, 100% solid-impregnating resins, encapsulating compounds and coating powders.

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2. Designation

The designation of the compound is based on the composition of the resin or elastomeric portion of the compound.

The more commonly used basic polymers are listed below:

- | | |
|-------|----------------------------------|
| — EP | Epoxide (aromatic and aliphatic) |
| — UP | Unsaturated polyester resin |
| — PUR | Polyurethane |
| — SI | Silicone. |

The associated code letters may be used to abbreviate the description when necessary.

Further materials and symbols will be added if the need for them becomes apparent.

These materials can be sub-divided into two classes:

- 1) heat curing;
- 2) room temperature curing.

These materials can be further sub-divided into two types:

- 1) filled;
- 2) unfilled.

Products may be described as rigid, flexible or elastomeric.

3. Definitions

3.1 *Basic polymerisable compounds*

The definitions for these products are to be found in ISO Recommendation R 472.

3.2 *Casting resins*

Compounds in a liquid state which are poured into a mould, in which is mounted the electrical or electronic component. The product so obtained, when removed from the mould, has a self-supporting function. With low viscosity compounds it is also possible to obtain satisfactory impregnation of coils, etc., especially if vacuum and/or pressure techniques are used.

3.3 *Encapsulating compounds or embedding compounds*

Compounds which are applied by dipping (high viscosity) or are applied as a paste using a spreading technique. They are normally highly filled or endowed with special rheological properties (thixotropy) and are not expected to provide impregnation of fine wires, etc.

3.4 *Potting compounds*

Compounds applied by the casting technique, but the term is usually applied to applications where inexpensive moulds are used, which are not removed and remain a permanent part of the equipment.

3.5 *Impregnating resins*

Solventless compounds, which are applied by casting or dipping techniques and are of low viscosity to permit complete penetration of resin into fine windings, etc. Often vacuum is applied.

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3.6 *Trickle resins*

Impregnating resins applied by means of a trickle procedure.

3.7 *Coating powders*

This term is often used to describe powders of chemically reactive resins, capable of being applied by coating processes such as fluidized bed, powder spraying and electrostatic coating. Generally, the powders are applied on objects heated to a temperature above the melting point of the resin. For final cure many powders require post-heating.

4. General requirements

All materials in any one consignment shall be of the same quality and have the specified properties, within the limits of Part 3 of this specification, for the entire shipment. When properly stored in a sealed container for a period not to exceed six months, at temperatures not to exceed 30 °C unless otherwise specified, the materials shall not be adversely affected to such an extent as to cause them to fail to meet the requirements of this specification.

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE
NORME DE LA CEI

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC STANDARD

Publication 455-1 A
1980

Premier complément à la Publication 455-1 (1974)

**Spécification relative aux composés résineux polymérisables
sans solvant utilisés comme isolants électriques**

Première partie: Définitions et conditions générales
Principe de classification des composés résineux polymérisables

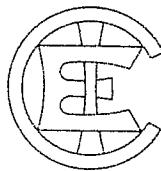
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First supplement to Publication 455-1 (1974)

**Specification for solventless polymerisable resinous compounds
used for electrical insulation**

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Part 1: Definitions and general requirements
Basis for classification of polymerisable resinous compounds



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