



SLOVENSKI STANDARD

SIST EN 60893-1:1998

01-junij-1998

Specification for industrial rigid laminated sheets based on thermosetting resins for electrical purposes - Part 1: Definitions, designations and general requirements (IEC 60893-1:1987)

Specification for industrial rigid laminated sheets based on thermosetting resins for electrical purposes -- Part 1: Definitions, designations and general requirements

Bestimmung für Tafeln aus technischen Schichtpreßstoffen auf der Basis wärmehärtbarer Harze für elektrotechnische Zwecke -- Teil 1: Begriffe, Bezeichnungen und allgemeine Anforderungen (standards.iteh.ai)

Spécifications pour les stratifiés industriels rigides en plaques à base de résines thermodurcissables à usages électriques -- Partie 1: Définitions, désignations et prescriptions générales

Ta slovenski standard je istoveten z: EN 60893-1:1994

ICS:

29.035.01	Izolacijski materiali na splošno	Insulating materials in general
-----------	----------------------------------	---------------------------------

SIST EN 60893-1:1998

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 60893-1:1998

<https://standards.iteh.ai/catalog/standards/sist/a058769e-4852-4923-920b-cecc0100c472/sist-en-60893-1-1998>

EUROPEAN STANDARD

EN 60893-1

NORME EUROPEENNE

EUROPÄISCHE NORM

July 1994

ICS 29.040.20;83.120;01.040.29;01.040.83

Descriptors: Industrial laminated sheets, rigid laminated sheets, thermosetting sheets, specification, definition, designation, requirement

ENGLISH VERSION

Specification for industrial rigid laminated sheets based on thermosetting resins for electrical purposes
Part 1: Definitions, designations and general requirements
(IEC 893-1:1987)

Spécification pour les stratifiés industriels rigides en planches à base de résines thermodurcissables à usages électriques
Première partie: Définitions, désignations et prescriptions générales
(CEI 893-1:1987)

Bestimmung für technische Schichtpreßstofftafeln auf der Basis wärmehärtbarer Harze für elektrotechnische Zwecke
Teil 1: Begriffe, Bezeichnungen und allgemeine Anforderungen
(IEC 893-1:1987)

SIST EN 60893-1:1998

[https://standards.iteh.ai/catalog/standards/sis/a058769e-4852-4923-920b-](https://standards.iteh.ai/catalog/standards/sis/a058769e-4852-4923-920b-cecc0100c472/sist-en-60893-1-1998)

[cecc0100c472/sist-en-60893-1-1998](https://standards.iteh.ai/catalog/standards/sis/a058769e-4852-4923-920b-cecc0100c472/sist-en-60893-1-1998)

This European Standard was approved by CENELEC on 1994-03-08. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B-1050 Brussels

FOREWORD

The CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 893-1:1987 could be accepted without textual changes, has shown that no common modifications were necessary for the acceptance as European Standard.

The reference document was submitted to the CENELEC members for formal vote and was approved by CENELEC as EN 60893-1 on 8 March 1994.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1995-03-01
- latest date of withdrawal of conflicting national standards (dow) 1995-03-01

For products which have complied with the relevant national standard before 1995-03-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2000-03-01.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

The following publications are quoted in this standard:

- ISO 472:1979 - Plastics - Vocabulary
SIST EN 60893-1:1998
<https://standards.iteh.ai/catalog/standards/sist/a058769e-4852-4923-920b-cc0100c472/sist-en-60893-1-1998>
- ISO 1642:1979 - Plastics - Industrial laminated sheets based on thermosetting resins - specification

ENDORSEMENT NOTICE

The text of the International Standard IEC 893-1:1987 was approved by CENELEC as a European Standard without any modification.

NORME INTERNATIONALE INTERNATIONAL STANDARD

CEI IEC

893-1

Première édition
First edition
1987



Commission Electrotechnique Internationale

International Electrotechnical Commission

Международная Электротехническая Комиссия

Spécification pour les stratifiés industriels rigides en planches à base de résines thermodurcissables à usages électriques

Première partie: Définitions, désignations et prescriptions générales

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 60893-1:1998

<https://standards.iteh.ai/catalog/standards/sist/a058769e-4852-4923-920b-cecc0100c472/sist-en-60893-1-1998>

Specification for industrial rigid laminated sheets based on thermosetting resins for electrical purposes

Part 1: Definitions, designations and general requirements

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SPECIFICATION FOR INDUSTRIAL RIGID LAMINATED SHEETS BASED ON THERMOSETTING RESINS FOR ELECTRICAL PURPOSES

Part 1: Definitions, designations 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.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.
- 4) The IEC has not laid down any procedure concerning marking as an indication of approval and has no responsibility when an item of equipment is declared to comply with one of its recommendations.

PREFACE

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

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

SIST EN 60893-1:1998	
Six Months Rule	Report on Voting
15C(CO)195	15C(CO)211

Further information can be found in the Report on Voting indicated in the table above.

The following publications are quoted in this standard:

- ISO Standards 472 (1979): Plastics – Vocabulary.
 1642 (1979): Plastics – Industrial laminated sheets based on thermosetting resins – Specification.

SPECIFICATION FOR INDUSTRIAL RIGID LAMINATED SHEETS BASED ON THERMOSETTING RESINS FOR ELECTRICAL PURPOSES

Part 1: Definitions, designations and general requirements

INTRODUCTION

This standard is one of a series which deals with industrial laminates for electrical purposes.

As far as technical considerations permit, this standard takes into account those laminates similar to ISO Standard 1642.

The series has three parts describing:

1. Definitions, designations and general requirements.
2. Methods of test.
3. Specification for individual materials.

1. Scope

This part of the standard contains the definitions related to, and the general requirements to be fulfilled by industrial laminated sheets for electrical purposes, made with any of the following resins as the binder: phenolic, unsaturated polyester, polyimide, epoxide (epoxy), melamine and silicone. This part also contains the general requirements to be fulfilled by industrial laminated sheets. The following reinforcements may be used either singly or in combination: asbestos paper, asbestos cloth, cellulosic paper, cotton cloth, glass cloth, glass roving, glass mat, polyester cloth and wood veneers.

<https://standards.iteh.ai/catalog/standards/sist/a058769e-4852-4923-920b-cecc0100e472/sist-en-60893-1-1998>

2. Definitions

For the purpose of this standard, the following definitions based on ISO Standard 472 are applicable.

2.1 *Laminated sheets*

Industrial laminated sheets based on thermosetting resins consist of superimposed layers of paper, cloth, felt (mat) or wood veneers that have been substantially impregnated with thermosetting or curable resin and bonded together under pressure, with or without heat, to form a single piece. Other constituents, for example colouring matter, may be incorporated.

2.2 *Phenolic resin*

Generic term for a class of resins made by the polycondensation of phenol, its homologues and/or derivatives, with aldehydes or ketones.

2.3 *Polyester resin (unsaturated)*

A polymer in which the repeated structural unit in the chain is of the ester type and which is cross-linked through polymerization of double bonds.

2.4 Epoxide (Epoxy) resin

Synthetic resin containing epoxide groups and capable of cross-linking.

2.5 Melamine resin

An amino resin made by polycondensation of melamine with formaldehyde or a compound that is capable of providing methylene bridges.

2.6 Silicone resin

Resin in which the main polymer chain consists of alternating silicon and oxygen atoms, with side groups containing carbon and capable of cross-linking.

2.7 Polyimide resin

Synthetic resin obtained by polycondensation of polyfunctional amines and acids.

3. Designation

The sheets covered by this specification are classified into two type groups which differ in the resin and reinforcement employed in the distinguishing properties. Individual types are designated by:

- a two-letter abbreviation denoting the resin;
- a second two-letter abbreviation, denoting the reinforcement;
- a serial number.

The serial number represents the use or essential properties of the laminate and begins at 201. Example of designation: Sheet of industrial rigid laminated sheet of PF CP 201 with a thickness of 10 mm, 500 mm wide, 1000 mm long. - Sheet IEC XXN-PF CP 201, 10 × 500 × 1000.

SIST EN 60893-1:1998

Types of resin:

PF Phenol-formaldehyde
 UP Polyester (unsaturated)
 EP Epoxide (epoxy)
 MF Melamine-formaldehyde
 SI Silicone
 PI Polyimide

Types of reinforcement:

AM Asbestos felt (mat)*
 AP Asbestos paper*
 AC Asbestos cloth*
 CP Cellulosic paper
 CC Woven cotton cloth
 WV Wood veneers
 GC Woven glass cloth
 GM Glass mat
 PC Polyester fibre cloth
 CR Composite reinforcement**

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

Note. - Table I of Sheet 1 of Part 3 details combinations of resins and reinforcements which constitute types covered by this standard.

4. General requirements

All material in any one consignment shall have properties within the limits of this specification at any point of the sheet.

* It should be noted that in some countries the use of asbestos is controlled by legislation.

** Designation CR (composite reinforcement) is used for those laminates containing more than one type of reinforcement (e.g. EP-CR-211). The actual composition is given in the appropriate sheet in Part 3.