

ICS 29.035.01
CCS K 15



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 1303.12-2022

**Industrial rigid laminated sheets based on thermosetting resins
for electrical purposes - Part 12: Typical values
(English Translation)**

Issued on: July 11, 2022

Implemented on: February 1, 2023

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

Preface

Introduction

1 Scope

2 Normative references

3 Terms and Definitions

4 Typical values for industrial rigid laminates 2

4.1 Typical values for melamine resin-based industrial rigid laminates 2

4.2 Typical values for phenolic resin-based industrial rigid laminates 2

4.3 Typical values for polyester resin-based industrial rigid laminates 2

4.4 Typical Values for Silicone Resin-Based Industrial Rigid Laminates 2

4.5 Typical Values for Polyimide Resin-Based Industrial Rigid Laminates 2

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules of Standardization Documents" drafted.

This document is part 12 of GB/T 1303 "Industrial Rigid Laminates with Thermosetting Resins for Electrical Use". GB/T 1303 has been released the following parts.

--- Part 1: Definitions, classifications and general requirements;

--- Part 2: Test methods;

--- Part 3: Industrial rigid laminate models;

--- Part 4: Epoxy resin rigid laminates;

--- Part 5: Melamine resin rigid laminate;

--- Part 6: Phenolic resin rigid laminates;

--- Part 7: Polyester resin rigid laminate;

--- Part 8: Silicone resin rigid laminates;

--- Part 9: Polyimide resin rigid laminate;

--- Part 10: Bismaleimide resin rigid laminate;

--- Part 11: Polyamide-imide resin rigid laminate;

--- Part 12: Typical values.

This document is modified to adopt IEC TR60893-4:2017 "Insulating Materials Electrical Thermosetting Resin Industrial Rigid Laminates Part 4 Score. Typical Value", the file type is adjusted from IEC technical report to my country's national standard.

Compared with IEC TR60893-4:2017, this document has made the following structural adjustments.

--- Added "Terms and Definitions" chapter;

--- Chapter 4 corresponds to Chapter 3 in IEC TR60893-4:2017, of which 4.1~4.5 correspond to IEC TR60893-4:2017 3.2~3.6;

--- Deleted Table 1 in IEC TR60893-4:2017, and the serial numbers of other tables were rearranged in sequence.

The technical differences between this document and IEC TR60893-4:2017 and their reasons are as follows.

a) Table 1 in IEC TR60893-4:2017 is deleted to meet the actual needs of our country;

b) Changed the "tensile strength" of "PFCP204/205/206/308" in the typical value of phenolic resin (see Table 2) to adapt to the actual situation in my country Happening;

c) Changed the "tensile strength", "temperature index" and "density" in "polyimide typical value" (see Table 5) to adapt to the actual situation in my country Happening;

d) Changed the typical value of the nominal thickness of the plate for which the vertical lamellar compressive strength is applicable to the test (see Table 1 to Table 5) to adapt to the actual situation in my country.

actual situation.

The following editorial changes have been made to this document.

--- In order to harmonize with the existing standards, the standard name is changed to "Electrical Thermosetting Resin Industrial Rigid Laminates Part 12: Typical Values";

--- Deleted 3.1 in IEC TR60893-4:2017;

--- Deleted IEC 60893-3-2:2003 Amd1.2011 not cited in the text;

--- Removed references.

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

Electrical thermosetting resin industrial rigid laminate standards are widely used in the research and development, production, quality inspection, sales, acceptance and technical the formulation of this document mainly solves the problems of the lack of standards for this product in my country and the urgent need to apply and improve the series of standard systems in China.

At the same time, it is necessary to adopt the international corresponding IEC standard to formulate this series of standards. This document can guide the industry to develop electrical thermosetting resin engineering the inspection and quality evaluation of industrial rigid laminates can improve the quality and application reliability of such products.

There are mainly eight types of products involved in the electrical thermosetting resin industrial rigid laminates, and the corresponding IEC 60893 (electrical thermosetting resin) in order to maintain the basic consistency with the corresponding IEC document preparation method, add the technical performance requirements for different types of resin products are also different. When compiling this document, it is necessary to list different parts separately.

GB/T 1303 specifies the definition, classification and general requirements, test methods, individual items of electrical thermosetting resin industrial rigid laminates the material product standard consists of the following parts.

--- Part 1: Definitions, classification and general requirements. The purpose is to determine the definition, classification and classification of electrical thermosetting resin industrial rigid laminates.

Classes and general requirements.

--- Part 2: Test methods. The purpose is to determine a test method for industrial rigid laminates with thermosetting resins for electrical use.

--- Part 3: Industrial rigid laminate models. The purpose is to establish a guideline for the determination of industrial rigid laminate requirements for electrical thermoset resins.

--- Part 4: Epoxy resin rigid laminates. The purpose is to determine the classification and requirements of epoxy resin rigid laminates.

--- Part 5: Melamine resin rigid laminates. The purpose is to determine the classification and requirements of melamine resin rigid laminates.

--- Part 6: Phenolic resin rigid laminates. The purpose is to determine the classification, requirements and test methods for phenolic resin rigid laminates.

--- Part 7: Polyester resin rigid laminates. The purpose is to determine the classification and nomenclature, requirements and tests of polyester resin rigid laminates method and

delivery requirements.

--- Part 8: Silicone resin rigid laminates. The purpose is to determine the electrical properties of silicone resins and different reinforcing materials.

Classification requirements for industrial rigid laminates.

--- Part 9: Polyimide resin rigid laminates. The purpose is to determine the electrical polyimide resin and different reinforcing materials as the base the name, requirements, test methods and supply requirements of industrial rigid laminates.

--- Part 10: Bismaleimide resin rigid laminates. The purpose is to determine the classification of bismaleimide resin rigid laminates Classes, nomenclature, requirements, test methods and supply requirements.

--- Part 11: Polyamide-imide resin rigid laminates. The purpose is to identify polyamide-imide resins for electrical use and different reinforcements Designation, requirements, test methods and supply requirements for material-based industrial rigid laminates.

--- Part 12: Typical values. The purpose is to determine typical values for electrical thermoset resin industrial rigid laminates. The purpose is to bring for general technical guidance.

Thermosetting resin industrial rigid laminates for electrical use Part 12: Typical Values

1 Scope

This document gives typical values for the properties of electrical thermoset resins for industrial rigid laminates.

This document applies to melamine resin rigid laminates, phenolic resin rigid laminates, polyester resin rigid laminates, silicone resins Rigid laminates and polyimide resin rigid laminates.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

IEC 60893-2:2003 Industrial rigid laminates with thermosetting resins for electrical use - Part 2: Test methods (Industrialrigid Note. GB/T 1303.2-2009 Thermosetting resin industrial rigid laminates for electrical use - Part 2: Test methods (IEC 60893-2:2003, MOD) IEC 60893-3-3:2003 Amd1.2011 Insulation Materials Electrical Thermosetting Resin Industrial Rigid Laminates Part 3-3 Points. Requirements for individual material specifications for