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

GB/T 1303.5-2017

**Industrial rigid laminated sheets based on thermosetting resins
for electrical purposes -- Part 5: Requirements for rigid
laminated sheets based on melamine resins
(English Translation)**

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Foreword

GB/T 1303 "Electrical thermosetting resin industrial hard laminate" is divided into the following sections.

- Part 1. Definition, classification and general requirements;
- Part 2. Test methods;
- Part 3. Industrial hard laminate models;
- Part 4. Epoxy hard laminates;
- Part 5. Melamine resin hard laminates;
- Part 6. Phenolic resin hard laminates;
- Part 7. Polyester resin hard laminates;
- Part 8. Silicone resin hard laminates;
- Part 9. Polyimide resin hard laminates;
- Part 10. Bismaleimide resin hard laminates;
- Part 11. Polyimide resin hard laminates;

This section GB/T 1303 Part 5.

This Part Replaces GB/T 1303.2-2002 "Specification for Thermosetting Industrial Hard Laminate for Electrical Use - Part 3. Specifications for Single Material Fan Part 3. Melamine resin hard laminates requirements ", and GB/T 1303.2-2002 compared to the main technical changes are as follows.

- Added "name composition", "resin type" and "type of reinforcing material" requirements for laminate; and added MFCC Type.201 Melamine Resin Hard laminate models, not just the MFGC201 (see Chapter 3 "Classification and Nomenclature");
- Added thickness tolerance MFCC201 type provisions (see Chapter 4 Table 2);

--- Added "arc-resistant" performance requirements, deleted the "compared to the tracking index" and "load deflection temperature" performance requirements (see Chapter 4 table 5);

--- MFGC201 type "parallel to the layer impact strength (cantilever method)" required value increased from 31kJ/mm² 35kJ/mm² (See Chapter 4, Table 5, Chapter 4, Table 4 of the 2002 edition);

--- Remove GB/T 1303.2-2002 Chapter 6 "Inspection Rules", Chapter 7 "Marking, Packaging, Transport and Storage", Appendix A (Informative) and Appendix B (informative).

This section uses the redrafted law to amend the use of IEC 60893-3-3:2003 and Amendment (2011) "insulating materials for electrical thermosetting Resin industrial rigid laminates - Part 3. Specifications for individual materials - Part 3. Requirements for melamine resin hard laminates".

This section and IEC 60893-3-3:2003 and the amendment (2011) technical differences and the reasons are as follows.

--- On the normative references, this section made a technical difference with the adjustment to adapt to China's technical conditions, adjust the situation Concentration reflected in the second chapter "Normative references" in the following specific adjustments.

- Equivalent to the international standard GB/T 1303.1 instead of IEC 60893-1.

- Replacing IEC 60893-2-2003 with International Standard GB/T 1303.2-2009 modified.

--- According to the preparation of GB /1.1 requirements, Chapter 4 "requirements" of "Table 1 melamine resin hard laminate model" into Chapter 3 "Classification and Naming" (see Chapter 3 Table 1);

--- According to the domestic application requirements, in Table 5 "performance requirements" increased the "apparent flexural modulus" "vertical compressive strength" "flat Row shear strength" "Tensile strength" "Arc resistance" "Long-term heat resistance" "Density" "Dielectric constant (below 50Hz)" "Dielectric Constant (below 1MHz)" "Dielectric Loss Factor (below 50Hz)" "and" "Dielectric Loss Factor (below 1MHz)" "Performance Requirements (See Chapter 4, Table 5);

--- According to the domestic technical level, the requirements of "Insulation resistance after immersion" in Table 5 "Performance Requirements" in Chapter 4 "Requirements", the MFCC 201 type from $\geq 1 \times 10^7 \text{ohm}$ increased to $\geq 1 \times 10^9 \text{ohm}$; MFGC201 from $\geq 1 \times 10^8 \text{ohm}$ raised to $\geq 1 \times 10^{10} \text{ohm}$;

The MFGC201 type "parallel to the layer impact strength (Charpy method)" required value from 35kJ/mm² down to 30kJ/mm²; the MFCC201 "parallel to the layer impact strength (cantilever method)" required value from 3.0kJ/mm² down 2.5kJ/mm² (see Chapter 4 Table

5);

--- For ease of use, an increase of Chapter 5 "test methods" (see Chapter 5).

This standard made the following editorial changes.

--- The standard name was changed to "Electrical thermosetting resin industrial hardwood laminate Part 5. Melamine resin hard laminating board".

This part is proposed by China Electrical Equipment Industry Association.

This part of the National Standardization Technical Committee insulation materials (SAC/TC51) centralized.

This part of the drafting unit. Xiamen Hong Cheng Insulation Materials Co., Ltd., Beijing Xin Fu Runda Insulation Materials Co., Ltd. Guilin Institute of Electrical Science Institute Co., Ltd.

1 Scope

GB/T 1303 provisions of this part of the electric melamine resin and different reinforcing materials for industrial hard laminates Classification and requirements.

The purpose and characteristics of this type of laminate are shown in Table 1.

This section applies to electrical melamine resin hard laminates (hereinafter referred to as "laminate").

Table 1 melamine resin hard laminate model

Laminate model

Resin Reinforcement Serial Number Uses and characteristics a MF CC GC Mechanical and electrical use. Arc resistance and tracking resistance (coarse cloth) b Mechanical and electrical use. High mechanical strength, resistance to electric arc and tracking, low flammability a should not be inferred from Table 1. Any particular type of laminate must not be suitable for those purposes that are not listed, or a specific laminate will be suitable for the wide variety of uses.

b PC and CC reinforced materials, textiles.

Quality per unit area (g/m²) Number of lines (cm-1) Ruff > 130 ≤ 30 the above values are used as information only and not as normative values. In general the finer the textile material the better mechanical properties.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the

latest edition (including all amendments) applies to this document.

GB/T 1303.1 Thermosetting resins for electrical industry - Industrial rigid laminates - Part 1. Definitions, classifications and general requirements (GB/T 1303.1-2009, IEC 60893-1:2004, IDT) Industrial rigid laminates for thermosetting resins for use in the electrical industry - Part 2. Test methods (IEC 60893-2).

2003, MOD)

3 Classification and naming

This section relates to the laminate according to the different resin and reinforcing material used and the characteristics of the laminate is divided into various models. Various the name of the board is as follows.

- National Standard No. (GB/T 1303.5);
- Representative resin two-letter abbreviation;
- Represents the second two-letter abbreviation of reinforcing materials;
- Serial Number;