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PHARMACEUTICAL INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

YY 0621-2025

Replacing YY 0621.1-2016, YY/T 0621.2-2020

Dentistry - Compatibility testing for metal-ceramic and ceramic-ceramic systems

牙科学 金属-陶瓷和陶瓷-陶瓷体系匹配性试验

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. This document supersedes YY 0621.1-2016 "Dental Compatibility Testing Part

1 Scope

YY 0621 is the mandatory compatibility test for layered dental restorations. It specifies the requirements for evaluating the thermodynamic compatibility between veneering porcelain and the metal or ceramic substrate it is fired onto, and describes the corresponding test methods. Compatibility here means thermal expansion: if the veneer and the coping expand and contract at different rates, the porcelain cracks or delaminates in service, and no amount of individual material testing catches it because the failure lives in the pairing. That is why the standard tests systems rather than materials. The YY prefix without /T makes it compulsory in China, and the 2025 edition takes effect on 1 July 2028. For a manufacturer of dental ceramics and alloy or zirconia substrates, this is the governing document.

2.Ceramic-Ceramic Systems, in accordance with YY 0621.1-2016 and YY/T 0621.2-2020 In comparison, aside from structural adjustments and editorial changes, the main technical changes are as follows:

---Biocompatibility has been moved from the requirements section to the introduction because this clause lacks specific methods and indicator requirements (see the introduction, YY 0621.1-). (

4.1 of YY/T 0621.2-2020)

---Due to the removal of biocompatibility from the requirements clause, Chapter 4 only contains physical performance requirements. Therefore, "

4.2 Requirements" is changed to "

4 Requirements". "Request", and all the serial numbers under it are changed sequentially;

---Added a note that the peel test is only applicable to ceramic substrate materials with a tensile modulus <=250 GPa (see section 4.3.2).

4.2 of YY 0621.1-2016 and Section

4.2.3 of YY/T 0621.2-2020.

---New requirements have been added for thermal shock testing of metal-ceramic systems, which can be conducted using one of two methods (see 4.4);

---If opaque porcelain, dentin porcelain, and enamel porcelain each have different colors, then take equal amounts of samples of each type of porcelain with different colors. The phrase "Testing with mixtures of [colors]" should be changed to "For products with multiple colors/hues, testing with the most commonly used color/hue." (See 5.3,

5.2 of YY 0621.1-2016);

---Added "The failure criterion is a sudden drop in force of 5% or more" (see 6.4.3.1). This document is modified to adopt ISO 9693.2019 "Dental science - Tests for compatibility of metal-ceramic and ceramic-ceramic systems". Compared with ISO 9693.2019, this document has undergone the following structural adjustments.

---Move the content on biocompatibility in section

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 9937 Terminology in Dentistry (GB/T 9937-2020, ISO 1942.2009, MOD)

GB 17168 Metallic materials for fixed and removable dental restorations (GB 17168-2013, ISO 22674.2006, IDT)

GB 30367 Dental Ceramic Materials (GB 30367-2013, ISO 6872.2008, IDT)

3 Terms and Definitions

The terms and definitions defined in GB/T 9937, GB 17168 and GB 30367, as well as the following terms and definitions, apply to this document. ISO and IEC maintain a terminology database for standardization at the following address.

---IEC Electropedia. http.//ww.Electropedia.org/.

3.1 Veneering ceramic The entire structure of the fired ceramic layer applied to a substrate material.

3.2 Preprocessing The process of treating the substrate to enhance its bonding with the decorative porcelain (3.1).

3.3 Liner Substances applied to the substrate (lower structure), when fired under appropriate time and temperature conditions, can improve the aesthetics and/or enhance the appearance of decorative porcelain. The bonding between the coating and the surface of the substrate structure.

4 Requirements

4.1 General Provisions Individual constituent materials shall comply with the requirements of GB 30367 for ceramics or GB 17168 for metallic materials. If applicable, the materials shall also comply with...