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

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**Specification for indoor carrying capacity of wood-based
panels and finishing products based on volatile organic
compounds emission**

人造板及其制品VOCs释放下的室内承载量规范
(English Translation)

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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" Drafting.

Appendix A and Appendix B of this document are informative appendices.

Please note that certain contents of this document may involve patents, and the issuing agency of this document does not bear the responsibility for identifying these patents.

This document was proposed and managed by the National Wood-based Panel Standardization Technical Committee (SAC/TC 198).

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1 Scope

This document specifies the specification terms and definitions of indoor carrying capacity under the release of VOCs from wood-based panels and their products, as well as indoor air pollution evaluation methods and Calculation of indoor carrying capacity of wood-based panels and their products.

This document is applicable to the calculation of the indoor carrying capacity of man-made panels and their products based on the release of volatile organic compounds.

2 Normative references

The contents of the following documents constitute indispensable clauses of this document through normative references in the text. Among them, dated reference documents, Only the dated version is applicable to this document; for undated references, the latest version (including all amendments) is applicable to this document file.

Note: For undated references, if the latest version contains the quoted content, then the last version containing the quoted content applies.

GB/T 29899 Test method for emission of volatile organic compounds in wood-based panels and their products-Small release chamber method

3 Terms and definitions

The following terms and definitions defined in GB/T 29899 apply to this document.

Loading factor

The ratio of the exposed surface area of the test piece to the volume of the release chamber.

[GB/T 29899, definition 3.17] 3.2 Load carrying capacity the use area of wood-based panels and their products that can be carried under a certain indoor air quality.

4.1.1 Pollution concentration

When one type of board is used indoors, the pollution concentration of the main component i of VOCs under different load-bearing rates is detected according to the effective space of 1 m^3 , and a variety of boards are used when the material is used, the pollution concentration of the main component i of VOCs under different load-bearing rates is calculated according to the ratio of the respective exposed areas of the plates in the effective space of 1 m^3 . Calculation According to formula (1).

4.1.2 The largest sub-index the calculation is based on formula (2).

4.1.3 Arithmetic average index

The calculation is based on formula (3).

4.2 Classification of indoor air quality levels

The comprehensive index is divided into 3 intervals, corresponding to 3 air quality levels, as shown in Table 2. According to the comprehensive index to determine the VOCs interpretation of wood-based panels and their products the impact on indoor air quality is determined, and the corresponding indoor load-bearing rate of wood-based panels and its products is determined when a certain level of indoor air quality is reached.

5 Calculation of indoor carrying capacity of wood-based panels and their products

Apply the indoor air pollution evaluation method, according to the test results and acceptable indoor air pollution level, determine the air quality level the indoor load-bearing rate of wood-based panels and its products is calculated according to the indoor space size. Carrying capacity according to formula (5) Calculation.

Appendix A

(Informative appendix) Case study A.1 Overview this appendix lists the calculation cases of indoor carrying capacity under the release of VOCs from wood-based panels and their products. The data listed are only references for actual usage.

It cannot be used as a basis for actual decoration.

A.2 Examples

A.2.1 Test

Under the conditions of temperature $(23 \pm 0.5) ^\circ\text{C}$, relative humidity $(50 \pm 5)\%$, and air exchange rate 1 time/h, test 18 mm melamine finish the concentration of VOCs monomer and TVOC when the medium density fiberboard is released in equilibrium is shown in Table A.1.

A.2.2 Calculation

According to formulas (2), (3) and (4) and Table A.1, calculate the maximum sub-index P and arithmetic average of VOCs of melamine-finished MDF Index Q and composite index I are shown in Table A.2.

A.2.3 Assessment of indoor air pollution levels According to Table A.2, the load-bearing rate of 18 mm melamine-finished MDF is evaluated when it is released at equilibrium. When the load-bearing rate is $1.0 \text{ m}^2/\text{m}^3$, the overall the composite index I is less than 0.5, and the indoor air quality is good; when the load-bearing rate is $2.5 \text{ m}^2/\text{m}^3$, the composite index I is

less than 1.0, and the indoor air quality is qualified.

A.2.4 Calculation of indoor carrying capacity of wood-based panels and products Assuming that the indoor space height is 2.8 m and the usable area is 60 m², when the indoor air quality is good, only 18 mm is used in the empty room the indoor carrying capacity of melamine-finished MDF is 168 m².

Appendix B

(Informative appendix) Reference value of indoor load-bearing rate under the release of VOCs from wood-based panels and their products B.1 Overview this appendix lists the indoor load-bearing rate reference values of several man-made panels and their products under the release of VOCs. The listed data are only for actual use.

For reference, it cannot be used as a basis for actual decoration.

B.2 Load rate reference value in the temperature (23±0.5) °C, relative humidity (50±5)%, open and closed conditions, indoor air quality meets two different levels refer to Table B.1 for reference values of indoor load-bearing rate of grade man-made panels and their products.

Note 1: The open condition of this table is the air exchange rate 1 time/h, and the closed condition is no air exchange.