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

LY/T 3230-2020

**Classification of volatile organic compounds emission contents
from wood-based panels and their finishing products**

人造板及其制品挥发性有机化合物释放量分级

(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.

Please note that some contents of this document may involve patents, the publication of this document the agency is not responsible 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 terms and definitions, emission classification, inspection methods, Inspection rules and inspection reports.

This document is applicable to the grading of volatile organic compound emissions of wood-based panels and their products for interior decoration.

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 18259-2018 Artificial board and its surface decoration terms GB/T 29899-2013 Test method for the emission of volatile organic compounds in wood-based panels and its products. Small release chamber method

3 Terms and definitions

The following terms and definitions defined in GB/T 18259-2018 and GB/T 29899-2013 apply to this document. For ease of use, to Some terms and definitions in GB/T 18259-2018 and GB/T 29899-2013 are repeatedly listed below.

Wood-based panel

Using wood or non-wood plant fiber materials as the main raw materials, processing into various material units, applying (or not applying) adhesives and other Additives, made of sheets or shaped products.

Note: Mainly includes plywood, particle board, fiberboard, etc.

[GB/T 18259-2018, definition 2.1] 3.2 Volatile organic compounds; VOCs all organic compounds released by the test specimen and detected in the air at the outlet of the release chamber.

Note: The VOCs selected and analyzed in the product are called "target volatile organic compounds" (denoted as target VOCs). The target volatile organic compounds in this standard for benzene, toluene, xylene (ortho, m, and p), biphenyl, terphenyl (o, m, and p), 4-phenylcyclohexene and naphthalene.

[Rewrite GB/T 29899-2013, definition 3.10] 3.3 Total volatile organic compounds; TVOC the retention time of non-polar column separation and gas chromatography detection is between n-hexane and n-hexadecane (including n-hexane and n-hexadecane) the sum of organic compounds. According to the peak area quantification, except for the target volatile organic compound, the mass of other compounds is measured by the response factor of toluene Calculation.

Note 1: The calculation of TVOC is similar to the process of summing the VOCs concentration in the outlet air.

Note 2: When using GC/MS, use total ion current (TIC) to analyze TVOC.

[GB/T 29899-2013, definition 3.11] 3.4 Carbonyl compounds Aldehydes and Ketones all aldehydes and ketone compounds that are released from the test specimen and detected in the air at the outlet of the release chamber.

Note: The selection and analysis of aldehydes and ketones in the product is called "target aldehydes and ketones". In this standard, the target aldehydes and ketones are formaldehyde (CAS No.

50-00-0), acetaldehyde (CAS No.75-07-0), acrolein (CAS No.107-02-8), acetone (CAS No.97-64-1), benzaldehyde (CAS No. 100-52-7), butyraldehyde (CAS No. 123-72-8), valeraldehyde (CAS No. 110-6203), 2,5-dimethylbenzaldehyde (CAS No.

5779-94-2), crotonaldehyde (CAS No. 4170-30-3), isovaleraldehyde (CAS No. 590-86-3), propionaldehyde (CAS No. 123-38-6), Hexanaldehyde (CAS No.66-25-1), o-tolualdehyde (CAS No.529-20-4), p-tolualdehyde (CAS No.104-87-0) and meta-formaldehyde Benzaldehyde (CAS No. 620-23-5).

[Rewrite GB/T 29899-2013, definition 3.12] 3.5 Total carbonyl compounds Formaldehyde, acetaldehyde, acrolein, acetone, benzaldehyde, butyraldehyde, valeraldehyde, 2,5-dimethylbenzaldehyde, crotonaldehyde, isovaleraldehyde, propionaldehyde, the total mass concentration of 15 compounds of hexanal, o-tolualdehyde, p-tolualdehyde and m-tolualdehyde.

Background concentration Use clean air as the carrier gas to release the outlet

concentration of the target compound in the chamber when it is empty.

[GB/T 29899-2013, definition 3.15] 3.7 Loading factor Product load rate the ratio of the exposed surface area of the test piece to the volume of the release chamber.

[GB/T 29899-2013, definition 3.17] 3.8 Equilibrium concentration After the test piece is placed in the release chamber, the total volatile organic compounds and total aldehydes and ketones measured at the outlet of the release chamber when they reach a stable release state the mass concentration of the compound.

Classification of emission contents According to the balance concentration of total volatile organic compounds and total aldehydes and ketones of wood-based panels and their products, the release of products is classified.

4 Release classification

The emission levels of volatile organic compounds from wood-based panels and their products are divided into level I and level II, as shown in Table 1.

5.1 Sample preparation

The samples should be taken at the same place, the same category, and the same specification of wood-based panels and their products after reaching room temperature. When collecting and packaging the samples, Use non-organic release gloves for operation, and use non-polluting, non-damaging polyester film or polyethylene lined film barrier bags to package a single Sample, ensure that the package is sealed; the product name, production unit, contact information and production date are marked on the package; delivery within two days, arrival within seven days to reach the laboratory; human damage, high temperature and pollution should be avoided during transportation; samples should be stored in a dry environment at room temperature.

5.2 Test method

Release of total volatile organic compounds, total aldehydes and ketones and benzene, toluene, xylene, biphenyl, terphenyl, 4-phenylcyclohexene and naphthalene the release test is carried out in accordance with GB/T 29899-2013, and the product release test conditions are shown in Table 2.

5.3 Sampling and analysis of volatile organic compounds

Sampling of total volatile organic compounds, benzene, toluene, xylene, biphenyl, terphenyl, 4-phenylcyclohexene and naphthalene shall be in accordance with GB/T 29899-2013 the sampling of 7.6.2 VOCs in 7.6.2 is carried out, and the analysis of the collected samples is carried out according to the analysis of 7.7.1 VOCs in GB/T 29899-2013.