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

GB/T 18258-2026

Replacing GB/T 18258-2000

Damping materials - Testing method for damping properties

阻尼材料 阻尼性能测试方法

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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 replaces GB/T 18258-2000 "Test Methods for Damping Performance of Damping Materials". Compared with GB/T 18258-2000, except for... Aside from structural adjustments and editorial changes, the main technical changes are as follows:

---The scope has been changed; "determined using the cantilever beam resonance method" has been removed; and examples of testable materials have been added (see Chapter 1, 2000 edition). Chapter 1);

---The terms "'ndB' bandwidth", "free layer (tensile) damping", and "constrained layer (shear) damping" and their definitions have been added (see 3.1.4~3.1.6); The term "eta2" and its definition have been removed (see section

3.2 of the 2000 edition);

---Changed "G" to "G1" and modified the definitions of some symbols, adding "M", "Cn", "fn", "Deltafn", "fc", "Deltafc", and "etac". Symbols such as "fm", "Deltafm", "etam", "fs", "Deltafs", "etas", "H", "H1", "T", "I", "n", "c", "m", "s", "rho", "rho1", "D", and their definitions Meaning (see 3.2, 2000 edition 3.2);

---Added a test method overview (see 4.1);

---The testing principles have been changed (see 4.2,

4.1 in the.2000 version);

---Specifications for testing equipment have been added (see Chapter 5);

---The experimental block diagram has been revised, and a block diagram of the test device with horizontal sample installation has been added (see Figure 1 and Figure 2, Figure 1 from the.2000 version);

---The specification for measuring instruments has been deleted (see

4.3 in the.2000 edition);

---Specifications for environmental chambers have been added (see 5.3);

1 Scope

GB/T 18258-2026 is the Chinese national standard covering the loss factor of a damping material - how much vibration energy it turns into heat, measured across frequency and temperature, because a damping treatment that works at 20 °C may do nothing at 60 °C. It replaces GB/T 18258-2000, a standard twenty-six years old, and it belongs with the tuned mass damper standard GB/T 47883-2026 of the same year. It was issued on 28 January 2026 and has been in force since 1 August 2026, replacing GB/T 18258-2000. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document describes the application of materials in structural vibration and architectural acoustics within a frequency range of 50Hz to 5000Hz and an effective operating temperature range. The vibration damping characteristics of materials, such as loss factor η , elastic modulus E , and shear modulus G , were tested for aspects related to noise and vibration control. method. This document applies to metals, enamels, ceramics, rubber, plastics, reinforced epoxy resin matrices, and wood that can be used to prepare cantilever beam specimen structures. Materials such as timber.

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 2298 Terminology for Mechanical Vibration, Shock and Condition Monitoring

GB/T 4472 Determination of density and relative density of chemical products

GB/T 5163 Sintered metallic materials (excluding cemented carbides) - Density, oil content and porosity of permeable sintered metallic materials Measurement

GB/T 14465 Terminology for Damping Characteristics of Materials

3.1 Terms and Definitions The terms and definitions defined in GB/T 2298 and GB/T 14465, as well as the following terms and definitions, apply to this document.

3.1.1 A type of damping material that is relatively hard and can be directly made into a sample for testing by a testing device without the need for other materials. Material.

3.1.2 A type of damping material that is relatively soft and cannot be directly formed into a sample for testing by a testing device without the assistance of other materials. Material.

3.1.3 Half-power bandwidth The frequency difference on both sides of the resonance peak on the resonance curve is

0.707 times the resonance amplitude (i.e., a drop of 3dB). 3.1.4 "ndB" bandwidth On the resonance curve, the frequency difference between two non-resonance points on both sides of the resonance peak, where the resonance peak value decreases by ndB.

Note. The value of n is selected by the user, and the allowable range is $0.5 < n < 3$.