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

GB/T 25077.2-2026

**Acoustics - Determination of airflow resistance - Part 2:
Alternating airflow method**

声学 流阻测定 第2部分：交变气流法

(English Translation)

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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 is Part 2 of GB/T 25077 "Acoustic Flow Resistance Measurement". GB/T 25077 has the following parts published.

---Part 1: Static Airflow Method;

---Part 2: Alternating airflow method.

This document is equivalent to ISO 9053-2:2020 "Acoustic flow resistance measurement - Part 2: Alternating flow method".

The following minimal editorial changes have been made to this document.

---The symbols in formulas (C.5) and (C.6) in Appendix C have been corrected, and ukappa has been changed to ukappa' ;

---Corrected the statement in C.2 from " $\text{kappa}=1.4008$ decreased to $\text{kappa}'=1.307$ " to " $\text{kappa}'=1.401$ decreased to $\text{kappa}'=1.37$ ";

---Corrected in C.2 " $\text{ukappa kappa}=0.0062$ $1.37=0.0045$ " for " $\text{ukappa}' kappa'=0.0062$ $1.37=0.0045$ ".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the Chinese Academy of Sciences.

This document is under the jurisdiction of the National Acoustics Standardization Technical Committee (SAC/TC17).

Introduction

Flow resistance is a fundamental parameter of porous materials, reflecting their internal pores and some structural characteristics, and is a major factor affecting their sound absorption performance.

One of the elements. GB/T 25077 "Determination of Acoustic Flow Resistance" provides two methods for determining the flow resistance of porous sound-absorbing materials, aiming to standardize and guide the determination of acoustic flow resistance.

The flow resistance measurement of the material is proposed to consist of two parts.

---Part 1: Static Airflow Method. The aim is to provide a method for measuring the flow resistance of acoustic porous materials using a stable airflow under laminar flow conditions.

method.

---Part 2: Alternating Airflow Method. The aim is to provide a method for measuring the flow of acoustic porous materials using alternating airflow generated by a piston undergoing simple harmonic motion.

Methods of obstruction.

Acoustic flow resistance measurement, Part 2: Alternating airflow method

1 Scope

This document describes an alternating airflow method for measuring the flow resistance of acoustic porous materials.

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.

ISO/IEC Guide 98-3 Measurement Uncertainty Part 3: Guidelines for the Expression of Measurement Uncertainty (GUM..1995)

1995)

Note: GB/T 27418-2017 Evaluation and expression of measurement uncertainty (ISO/IEC Guide 98-3:2008, MOD).

3 Terms and Definitions

The following terms and definitions apply to this document.

The URLs for the terminology databases maintained by ISO and IEC for standardization are as follows.

airflow resistance

The ratio of the pressure difference across the specimen to the volume velocity of the airflow passing through the specimen.

deltap

In the formula.

deltap --- the root mean square value of the pressure difference across the specimen, in

Pascals (Pa);

q_v --- The root mean square value of the volumetric velocity of the airflow through the specimen, in cubic meters per second (m^3/s).

Note: The unit of flow resistance is Pascal-second per cubic meter ($Pa \cdot s/m^3$).

The ratio of the pressure difference across the specimen to the linear velocity of the airflow passing through the specimen is the product of the flow resistance and the cross-sectional area of the specimen.

$$R_s = R \cdot A$$

In the formula.

R --- Specimen flow resistance, in Pascals per cubic meter ($Pa \cdot s/m^3$);

A --- Cross-sectional area of the specimen perpendicular to the airflow direction, in square meters (m^2).