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

GB/T 41382-2022

**Fire tests - Open calorimetry - Measurement of the rate of
production of heat and combustion products for fires of up to
40MW**

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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" drafted.

The modification of this document adopts ISO 24473.2008 "Fire test open calorimeter method below 40MW fire heat release rate and

Determination of Combustion Products".

Compared with ISO 24473.2008, this document has more structural adjustments.

Comparison list of structure number changes between two files

See Appendix A.

Compared with ISO 24473.2008, this document has many technical differences. In the outer margins of the clauses involved, vertical

A single line (|) is marked. See Appendix B for a list of these technical differences and their reasons.

The following editorial changes have been made to this document.

--- Deleted the introduction of the International Standard and redrafted the introduction;

--- Modified normative references;

--- Revised references;

--- Informative Appendix A (informative) is added to compare the chapter number of this document with the ISO 24473.2008 chapter number;

--- Added informative appendix B (informative) technical differences between this document and ISO 24473.2008 and their reasons;

--- Added informative appendix I (informative) n-heptane oil pool fire calibration.

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

The heat release rate in the fire is an important parameter to characterize the severity of the fire.

Accurate determination can quantitatively characterize relevant combustion performance parameters such as heat release rate, total heat release, smoke production rate and total smoke production. this document

Provides a test method for the determination of fire heat release rate and combustion products below 40MW - open calorimeter method. test sample

It was placed under the conical smoke collecting hood and ignited with the specified ignition source to evaluate the combustion behavior and combustion performance of the sample. can be tested by

Obtain the combustion characteristic data of the sample during the entire combustion stage; reflect the danger of the sample burning and the impact on adjacent areas by testing the heat release rate

The potential impact of the test smoke density reflects the impact of the burning of the sample on the visibility of the fire area and the impact of the smoke on personal safety.

Danger.

Fire Test Open Calorimeter Method 40MW

Determination of the following fire heat release rates and combustion products

1 Scope

This document specifies the requirements of the heat release rate test device and measuring instrument for the physical fire test under the specified test conditions.

Seek and test method.

This document is suitable for evaluating the development of fire after single or multiple specimens are ignited using a specified ignition source.

The heat release rate and combustion products of the sample after combustion.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

GB/T 25207 Fire test method for solid room fire test surface products (GB/T 25207-2010, ISO 9705.1993,

MOD)

GB/T 27904 Test method for combustion performance of flame ignition furniture and components

GB/T 38309 Guidelines for the Test of Toxicity Components in Fire Smoke Flow by FTIR Analysis of Gas Components in Fire Smoke (GB/T 38309-

2019, ISO 19702.2015, MOD)

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1

heat release rate

HRR

Under specified conditions, the heat released by the combustion of the sample per unit time.

Note. The unit is kilowatt (kW).

3.2

total heat release

THR

Under specified conditions, the total heat released by the combustion of the sample within the specified time.

Note. That is, the integral value of the heat release rate (3.1) in the specified time, the unit is megajoule (MJ).

3.3

smoke production rate

The amount of smoke generated per unit time.

Note. The unit is square meters per second (m²/s).