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

GB/T 21790-2025

Replacing GB/T 21790-2008

**Determination of flash point - Method for flash no-flash and
flash point by small scale closed cup tester**

闪点的测定 用小型闭杯试验仪测定闪燃非闪燃和闪点的方法

(English Translation)

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Table of Contents

Preface	
Introduction	
1 Scope	
2 Normative References	
3 Terms and Definitions	
4 Principle	
4.1 Quick Balancing Procedure A and Quick Balancing Procedure B	
4.2 Unbalanced Program C2	
5 Reagents and Materials	
5.1 Cleaning solvent	
5.2 Standard Sample	
5.3 Ignition device and ignition gas	
6 Instruments	
6.1 Flash Point Meter	
6.2 Barometer	
6.3 Heating bath or oven (optional)	
6.4 Cooling bath or refrigerator (optional)	
6.5 Windproof cover (optional)	
6.6 Test cup liner (optional)	
6.7 Syringe	
7 Instrument Preparation	
7.1 General Rules	
7.2 Instrument Location	
7.3 Cleaning of test cup components and accessories	
7.4 Instrument Validation	
8 Sampling	
9 Sample processing	
9.1 Petroleum products and fatty acid methyl esters	
9.2 Paints, varnishes and related materials	
10 Experimental Procedure	
10.1 General Rules	
10.2 Procedure A - Flashover and Non-Flashover Test	

10.3 Procedure B - Flash Point Determination	
10.4 Procedure C---Flash Point Determination	
11 Experimental Data Processing	
11.1 Conversion of Atmospheric Pressure Readings	
11.2 Correction of detected flash point	
12 Results Presentation	
13 Precision	
13.1 General Rules	
13.2 Repeatability r	
13.3 Reproducibility R	
14 Test Report	
Appendix A (Normative) Flash Point Meter	
A.1 Test cup and lid assembly	
A.2 Ignition source	
A.3 Timing Device	
A.4 Temperature Sensor	
A.5 Test Cup Cooler (Optional)	
A.6 Flash Point Detector (Optional)	
A.7 Electric Igniter Protective Screen	
Appendix B (Normative) Instrument Calibration	
B.1 General Rule	
B.2 RM	
B.3 Program	
B.4 Evaluation of Experimental Results	
Appendix C (Informative) Use of Test Cup Liners	
C.1 General Rule	
C.2 Material of the test cup liner	
C.3 Step	
C.4 Verification	
Appendix D (Normative) Low-Temperature Environment Procedures A and B for Manual Instruments	
D.1 Instrument Preparation	
D.2 Step	
Appendix E (Normative) Specifications for Temperature Measuring Equipment	
E.1 Digital Measuring Equipment	

E.2 Liquid Glass Thermometer

Appendix F (Informative) Flash Point Values of Chemicals

References

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 supersedes GB/T 21790-2008 "Determination of Flashfire and Non-Flashfire - Rapid Equilibrium Closed Cup Method" and is consistent with GB/T 21790-2008.

Aside from structural adjustments and editorial changes, the main technical changes are as follows.

- The scope has been changed (see Chapter 1, Chapter 1 of the 2008 edition);
- Added terms and definitions for "equilibrium," "fatty acid methyl esters," "flash point," and "non-equilibrium" (see Chapter 3);
- Added procedure B for rapid equilibrium flash point determination and procedure C for non-equilibrium flash point determination (see Chapters 4 and 8);
- Added low-temperature environment procedures A and B for manual instruments (see Appendix D).

This document is equivalent to ISO 3679:2022 "Determination of flash point - Small closed cup test apparatus for the determination of flash point of flammable and non-flammable materials".

method".

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 and is under the jurisdiction of the National Technical Committee on Standardization of Hazardous Chemicals Management (SAC/TC251).

Introduction

This document includes three procedures (A, B, and C), which relate to the determination of flash ignition and flash point, respectively. The rapid equilibration procedure A and rapid equilibration...

Balanced procedure B can determine flash ignition and flash point separately. Non-balanced procedure C uses automatic test cup temperature control to determine flash point.

GB/T 21792 and GB/T 21775 are also closed-cup equilibrium test methods, which can be considered when selecting a method.

Compared with the requirements in GB/T 21792 or GB/T 21775, the instruments specified in this document can use a faster procedure A or B and smaller sample sizes (2 mL or 4 mL) yielded similar test results. Furthermore, the instrument described in this document is portable and can be used in the field.

The tests can also be routinely used in the laboratory. Collaborative work has shown that the results obtained by these methods are comparable.

When using this method to test mixtures containing halogenated hydrocarbon solvents, unusual results may be obtained, and the interpretation of these results should be approached with caution.

In addition, some studies have shown that the flash point of certain water-based paints can be overestimated when using an electric igniter.

Flash point is used as a classification attribute in transportation, storage, handling, and safety regulations to define "flammable" and "combustible" materials. Each specific flash point...

The regulations for each category provide precise definitions.

Flash point indicates the presence of highly volatile substances in relatively non-volatile or non-flammable materials. Flash point testing is commonly used to determine the composition of unknown materials.

Preliminary steps to conduct further investigations.

This method is not suitable for testing the flash point of potentially unstable, easily decomposed, or explosive substances. That is, unless the required temperature for this method has been determined beforehand, it is not suitable.

Within a certain temperature range, heating a specified number of test samples in contact with the metal parts of the flash point apparatus will not cause decomposition, explosion, or other adverse effects.

The flash point value is not a constant representing a physicochemical property of the substance being tested. It is influenced by the design of the instrument, the conditions under which it is used, and the specific procedure performed.

The operating procedures are closely related. Therefore, flash point can only be defined according to one standard test method, and different test methods or methods using