

This is a preview of "ISO 2719:2016". Click [here](#) to purchase the full version from the ANSI store.

Fourth edition  
2016-06-15

---

---

## Determination of flash point — Pensky-Martens closed cup method

*Détermination du point d'éclair — Méthode Pensky-Martens en vase clos*



Reference number  
ISO 2719:2016(E)

© ISO 2016



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
[copyright@iso.org](mailto:copyright@iso.org)  
[www.iso.org](http://www.iso.org)

This is a preview of "ISO 2719:2016". Click here to purchase the full version from the ANSI store.

## Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>2</b>
<b>4 Principle</b> .....	<b>2</b>
<b>5 Chemicals and materials</b> .....	<b>2</b>
<b>6 Apparatus</b> .....	<b>2</b>
<b>7 Apparatus preparation</b> .....	<b>3</b>
7.1 General.....	3
7.2 Location of the apparatus.....	3
7.3 Cleaning the test cup.....	3
7.4 Apparatus assembly.....	3
7.5 Apparatus verification.....	3
<b>8 Sampling</b> .....	<b>4</b>
<b>9 Sample handling</b> .....	<b>4</b>
9.1 Petroleum products.....	4
9.1.1 Sub-sampling.....	4
9.1.2 Samples containing undissolved water.....	4
9.1.3 Samples that are liquid at ambient temperature.....	4
9.1.4 Samples that are very viscous, semi-solid or solid at ambient temperature.....	4
9.2 Paints and varnishes.....	5
<b>10 Procedure</b> .....	<b>5</b>
10.1 General.....	5
10.2 Procedure A.....	5
10.3 Procedure B.....	6
10.4 Procedure C.....	7
<b>11 Calculation</b> .....	<b>8</b>
11.1 Conversion of barometric pressure reading.....	8
11.2 Correction of observed flash point to standard atmospheric pressure.....	8
<b>12 Expression of results</b> .....	<b>8</b>
<b>13 Precision</b> .....	<b>8</b>
13.1 General.....	8
13.2 Repeatability, <i>r</i> .....	8
13.3 Reproducibility, <i>R</i> .....	9
<b>14 Test report</b> .....	<b>10</b>
<b>Annex A (informative) Apparatus verification</b> .....	<b>11</b>
<b>Annex B (normative) Pensky-Martens closed cup test apparatus</b> .....	<b>14</b>
<b>Annex C (normative) Temperature measuring device specification</b> .....	<b>20</b>
<b>Bibliography</b> .....	<b>22</b>

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

The committee responsible for this document is ISO/TC 28, *Petroleum products and related products of synthetic or biological origin*, in conjunction with ISO/TC 35, *Paints and varnishes*.

This fourth edition cancels and replaces the third edition (ISO 2719:2002), which has been technically revised.

The main technical updates include:

- a) introduction of procedure C for FAME products;
- b) revision of temperature measuring device requirements, allowing alternatives for Hg-containing thermometers;
- c) removal of the original Annex D on the adaptor for the low-range thermometer, it being optional when a permanent ferrule is attached to the thermometer;
- d) revision of procedures regarding sampling and sample handling;
- e) inclusion, for automated apparatus, manufactured after 1 January 2017, of a device to automatically dispense an inert gas or vapour over the test cup in the event of a test cup fire.

This is a preview of "ISO 2719:2016". [Click here to purchase the full version from the ANSI store.](#)

## Introduction

Flash point values are used in shipping, storage, handling, and safety regulations, as a classification property to define “flammable” and “combustible” materials. Precise definition of the classes is given in each particular regulation.

A flash point value can indicate the presence of highly volatile material(s) in a relatively non-volatile or non-flammable material and flash point testing can be a preliminary step to other investigations into the composition of unknown materials.

It is not appropriate for flash point determinations to be carried out on potentially unstable, decomposable, or explosive materials, unless it has been previously established that heating the specified quantity of such materials in contact with the metallic components of the flash point apparatus, within the temperature range required for the method, does not induce decomposition, explosion or other adverse effects.

Flash point values are not a constant physical-chemical property of materials tested. They are a function of the apparatus design, the condition of the apparatus used, and the operational procedure carried out. Flash point can therefore be defined only in terms of a standard test method, and no general valid correlation can be guaranteed between results obtained by different test methods or with test apparatus different from that specified.

ISO/TR 29662<sup>[6]</sup> (CEN/TR 15138<sup>[12]</sup>) gives useful advice in carrying out flash point tests and interpreting their results.