INTERNATIONAL STANDARD

ISO 9038

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Test for sustained combustibility of liquids

Essai de combustion entretenue de liquides

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 9038 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

It cancels and replaces ISO/TR 9038:1991, which has been technically revised.

Annexes A and B form a normative part of this International Standard.

Introduction

A product with a flash point within a given range may continue to burn after initial ignition, while a similar product, although it has a similar flash point, may not. This International Standard describes a method for discriminating between those products that, after ignition under controlled laboratory conditions and subsequent removal of the flame, sustain combustion and those which do not.

The method determines whether a flammable product, when maintained at a selected test temperature and under the conditions of test, gives off sufficient flammable vapour at this temperature to cause ignition when an external source of flame is applied in a standard manner, and continues to generate sufficient vapour to burn when the ignition source is removed.

This method of test does not determine the flash point of the product under test but, by means of a pass/fail procedure, merely determines if it sustains combustion at a selected test temperature, as may be required to comply with laws or regulations relating to the storage, transport and use of flammable products. Before performing this test, it will normally be necessary to determine either the actual flash point of the material or the temperature range in which the flash point is located.

The apparatus specified in this International Standard enables a result to be determined by a rapid procedure using a small test portion (2 ml).

Test for sustained combustibility of liquids

WARNING — The use of this International Standard may involve hazardous materials, operations or equipment. This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.

1 Scope

Many national and international regulations classify liquids as presenting a flammable hazard on the basis of their flash point, as determined by a recognized method. Some of these regulations allow a derogation if the substance cannot "sustain combustion" at some specified temperature or temperatures. This International Standard specifies a pass/fail procedure to determine whether or not a liquid product, that would be classified as "flammable" by virtue of its flash point, has the ability to sustain combustion at the temperature or temperatures specified in the appropriate regulations.

NOTE 1 In the United Nations Recommendations on the Transport of Dangerous Goods, temperatures of 60,5 °C and 75,0 °C are specified.

The procedure is applicable to paints (including water-borne paints), varnishes, paint binders, solvents, petroleum or related products and adhesives, which have a flash point. It is not applicable to painted surfaces in respect of assessing their potential fire hazards.

NOTE 2 This test method can be used in addition to the test method for flash point in assessing the fire hazard of a product. Particular care needs to be taken in translating results from small-scale tests to large-scale (real-life) situations, as liquids in large quantities may not behave in the same way as small samples because geometry and the surface-to-volume ratio affect rates of heat transfer and evaporation from the surface.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 1513, *Paints and varnishes — Examination and preparation of samples for testing*

ISO 3170, *Petroleum liquids — Manual sampling*

ISO 3171, *Petroleum liquids — Automatic pipeline sampling*

ISO 15528, *Paints, varnishes and raw materials for paints and varnishes — Sampling*

3 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply.