

Bitumen and bituminous binders - Determination of the resistance to hardening under influence of heat and air - Part 1: RTFOT method

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NATIONAL FOREWORD

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English Version

Bitumen and bituminous binders - Determination of the resistance to hardening under influence of heat and air - Part 1: RTFOT method

Bitumes et liants bitumineux - Détermination de la résistance au durcissement sous l'effet de la chaleur et de l'air - Partie 1 : Méthode RTFOT

Bitumen und bitumenhaltige Bindemittel - Bestimmung der Beständigkeit gegen Verhärtung unter Einfluss von Wärme und Luft - Teil 1: RTFOT-Verfahren

This European Standard was approved by CEN on 16 August 2014.

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Foreword

This document (EN 12607-1:2014) has been prepared by Technical Committee CEN/TC 336 "Bituminous binders", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2015 and conflicting national standards shall be withdrawn at the latest by May 2015.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12607-1:2007.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

In comparison with EN 12607-1:2007, the following significant changes have been made:

- changed/added wording of the Warning in the Scope;
- the reference to mercury thermometer has been deleted (see subclause 4.3) and Annex A is informative;
- the second note in subclause 6.2 has been added to clarify the duration of the conditioning;
- the second to last paragraph in subclause 6.2 highlights that it is allowed for polymer modified bitumen to raise the temperature shortly to 180 °C to pour the sample out of the containers.

EN 12607 consists of the following parts under the general title "*Bitumen and bituminous binders – Determination of the resistance to hardening under the influence of heat and air*":

- *Part 1: RTFOT method;*
- *Part 2: TFOT method;*
- *Part 3: RFT method.*

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This part of EN 12607 specifies a method for measuring the combined effects of heat and air on a thin moving film of bitumen or bituminous binder simulating the hardening which most bituminous binders undergo during mixing in an asphalt mixing plant.

The method described is not applicable to some modified binders or to those where the viscosity is too high to provide a moving film. In some cases the sample may creep out of the glass container and flow on the heating elements of the oven during testing. The method is suitable for other bituminous binders than paving grade bitumen, but the reference temperature might give excessive hardening that do not resemble real conditions during mixing at the plant. The method may not represent the hardening that occurs during mixing of warm mix binders.

The method is referred to as RTFOT, i.e. Rolling Thin Film Oven Test.

WARNING — Use of this European Standard can involve hazardous materials, operations and equipment. This European Standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this European Standard to identify the hazards and assess the risks involved in performing this test method and to implement sufficient control measures to protect individual operators (and the environment). This includes appropriate safety and health practices and determination of the applicability of regulatory limitations prior to use.

If there is a likelihood of volatile components being present in a binder, this procedure should not be used. It should not be used for cutback bitumen or bituminous emulsions before these products have been stabilized, e.g. in accordance with EN 13074-2.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 58, *Bitumen and bituminous binders — Sampling bituminous binders*

EN 1425, *Bitumen and bituminous binders — Characterization of perceptible properties*

EN 1426, *Bitumen and bituminous binders — Determination of needle penetration*

EN 1427, *Bitumen and bituminous binders — Determination of the softening point — Ring and Ball method*

EN 12594, *Bitumen and bituminous binders — Preparation of test samples*

EN 12596, *Bitumen and bituminous binders — Determination of dynamic viscosity by vacuum capillary*

EN 12735-1, *Copper and copper alloys — Seamless, round copper tubes for air conditioning and refrigeration — Part 1: Tubes for piping systems*

EN 13302, *Bitumen and bituminous binders — Determination of dynamic viscosity of bituminous binder using a rotating spindle apparatus*