

ILNAS

Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

ILNAS-EN 12607-1:2007

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

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

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

03/2007



National Foreword

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EUROPEAN STANDARD ^{ILNAS-EN 12607-1:2007} **EN 12607-1**
NORME EUROPÉENNE
EUROPÄISCHE NORM

March 2007

ICS 75.140; 91.100.50

Supersedes EN 12607-1:1999

English Version

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resistance to hardening under the influence of heat and air - Part
1: RTFOT method**

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résistance au durcissement sous l'effet de la chaleur et de
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Beständigkeit gegen Verhärtung unter Einfluss von Wärme
und Luft - Teil 1: RTFOT-Verfahren

This European Standard was approved by CEN on 3 February 2007.

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Foreword

This document (EN 12607-1:2007) 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of an identical text or by endorsement, at the latest by September 2007, and conflicting national standards shall be withdrawn at the latest by September 2007.

This document supersedes EN 12607-1:1999.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

This European standard 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard 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 that a bituminous binder undergoes 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. The sample may creep out of the glass container and flow on the heating elements of the oven during testing.

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

WARNING —Use of this standard can involve hazardous materials, operations and equipment. This standard does not purport to address all of the safety problems 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.

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 stabilised, e.g. in accordance with EN 14895.

2 Normative references

The following referenced documents are indispensable for the application of this document. 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*

3 Principle

A moving film of bituminous binder is heated in an oven to a specified temperature for a given period of time with a constant supply of air.

The effects of heat and air are determined based on the change in mass (expressed as a percentage) or on the change in the bituminous binder's characteristics such as penetration (EN 1426), softening point (EN 1427) or dynamic viscosity (EN 12596), before and after the period in the oven.