Bituumen ja bituumensideained. Polümeermodifitseeritud bituumenite määratlemise alused

Bitumen and bituminous binders - Framework specification for polymer modified bitumens

EESTI STANDARDIKESKUS
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NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 14023:2010 sisaldab Euroopa standardi EN 14023:2010 ingliskeelset teksti.	This Estonian standard EVS-EN 14023:2010 consists of the English text of the European standard EN 14023:2010.
Standard on kinnitatud Eesti Standardikeskuse 31.05.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 31.05.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 07.04.2010.	Date of Availability of the European standard text 07.04.2010.
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English Version

Bitumen and bituminous binders - Specification framework for polymer modified bitumens

Bitumes et liants bitumineux - Cadre de spécifications des bitumes modifiés par des polymères

Bitumen und bitumenhaltige Bindemittel - Rahmenwerk für die Spezifikation von polymermodifizierten Bitumen

This European Standard was approved by CEN on 6 March 2010.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Contents

Page

Foreword

This document (EN 14023:2010) 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of an identical text or by endorsement, at the latest by October 2010, and conflicting national standards shall be withdrawn at the latest by October 2010.

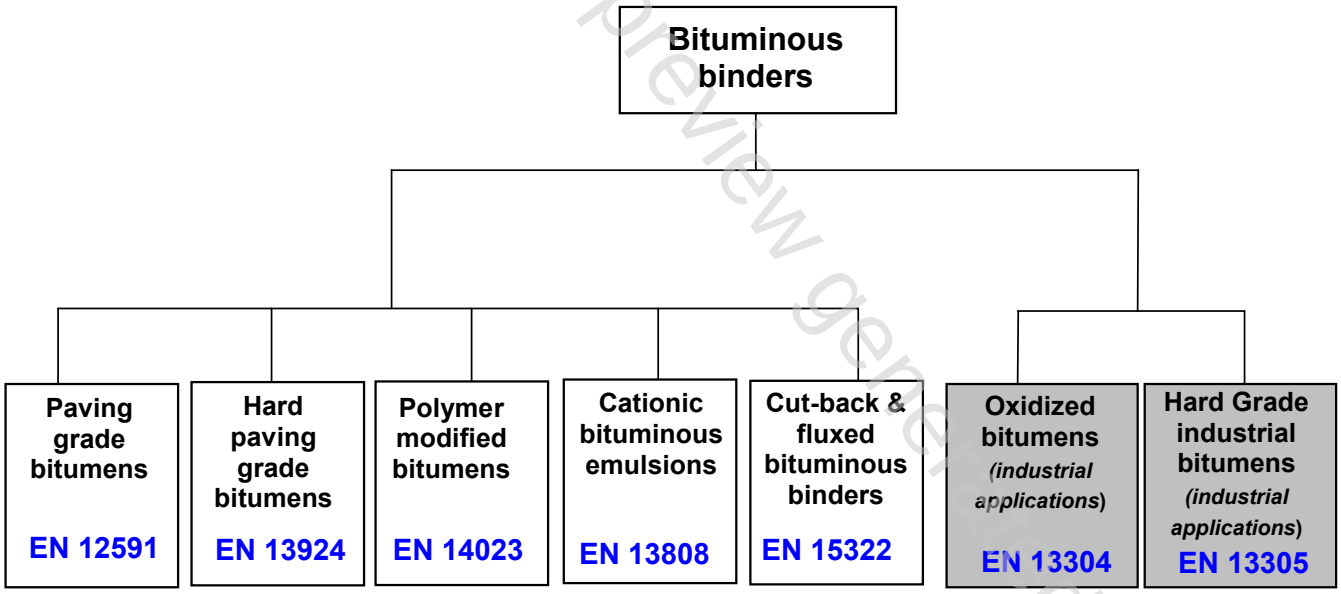
Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 14023:2005.

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).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This European Standard is part of a family of European Standards for bitumen as follows:



NOTE Industrial applications are not covered by mandate M/124.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

This European Standard is closely related to EN 12591, *Bitumen and bituminous binders – Specifications for paving grade bitumens* [1]. This introduction gives information on the basis for selection of the grades defined in this European Standard, the status of certain characteristics and test methods, and proposed development of this European Standard.

The general principle adopted in the development of EN 12591 [1] was to provide a range of grades suitable for the manufacture of the materials for road construction and maintenance used, and the climatic and traffic conditions encountered, in all the Member States. This European Standard extends the range of grades specified in EN 12591 [1], following the wider use of modified binders for road construction and maintenance having improved performances.

As with EN 12591 [1], it is compulsory for the full specification to be published in all EU and EFTA countries. However, it is permitted for each country to define the most suitable grades and classes.

Annex B lists informative characteristics which producers of polymer modified bitumens are invited to supply to the client on a voluntary basis. It is hoped that the data so gathered will be of assistance in developing performance-related specifications in the future.

1 Scope

This European Standard provides a framework for specifying the characteristics and relevant test methods for polymer modified bitumens which are suitable for use in the construction and maintenance of roads, airfields and other paved areas.

This framework covers the following characteristics:

— "consistency at intermediate service temperature";

— "consistency at elevated service temperature";

— "cohesion";

— "durability" of consistency;

— "brittleness at low service temperature";

— "strain recovery".

The cohesion property has been included as a means of discriminating between polymer modified bitumens and other bituminous binders. The other essential requirements, "adhesion" and "setting ability" are indicated by tests carried out on the finished asphalt mixtures.

The introduction of classes of convenience in Table 1, Table 2 and Table 3 enables the selection of the most suitable specification for the bitumen taking account of local conditions of climate and use. The nomenclature of polymer modified bitumens comprises the penetration range and the minimum softening point (see example in Annex A).

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 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 12593, *Bitumen and bituminous binders — Determination of the Fraass breaking point*

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

EN 12595, *Bitumen and bituminous binders — Determination of kinematic viscosity*

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

EN 12597:2000, *Bitumen and bituminous binders — Terminology*

EN 12607-1*, Bitumen and bituminous binders — Determination of the resistance to hardening under the influence of heat and air — Part 1: RTFOT method*

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

EN 13398, *Bitumen and bituminous binders — Determination of the elastic recovery of modified bitumen*

EN 13399, *Bitumen and bituminous binders — Determination of storage stability of modified bitumen*

EN 13587, *Bitumen and bituminous binders — Determination of the tensile properties of bituminous binders by the tensile test method*

EN 13588, *Bitumen and bituminous binders — Determination of cohesion of bituminous binders with pendulum test*

EN 13589, *Bitumen and bituminous binders — Determination of the tensile properties of modified bitumen by the force ductility method*

EN 13702-1, *Bitumen and bituminous binders — Determination of dynamic viscosity of modified bitumen — Part 1: Cone and plate method*

EN 13703, *Bitumen and bituminous binders — Determination of deformation energy*

EN 15326, *Bitumen and bituminous binders — Measurement of density and specific gravity — Capilliary-stoppered pyknometer method* (including EN 15326:2007/A1:2009)

EN ISO 2592, *Determination of flash and fire points — Cleveland open cup method (ISO 2592:2000)*

EN ISO 4259, *Petroleum products — Determination and application of precision data in relation to methods of test (ISO 4259:2006)*

EN ISO 9001:2008, *Quality management systems — Requirements (ISO 9001:2008)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12597:2000 apply.

The following abbreviation term is used in the specification tables of this document (see Table 1, Table 2 and Table 3):

TBR for "To Be Reported": this class shall mean that the manufacturer is invited, but not required, to provide information, regarding performance characteristics, with the product.

NOTE The reported values (TBR) are intended to be used for future development of specifications.

NR for "No Requirement" may be used when there are no regulations or other regional requirements for the property in the territory of intended use.

4 Sampling

Samples of bulk products shall be taken as described in EN 58.

Test samples shall be taken from the laboratory samples, and prepared for testing, as described in EN 12594.

5 Requirements and test methods

5.1 General

European product standards cover a large variety of road materials for different applications, to accommodate local traffic loads and climatic conditions. This European Standard therefore also covers a large range of bitumens to facilitate the production and application of the designed paving.

This European Standard is a framework of specifications and classes for properties of polymer modified bitumens which are chosen from Table 1, Table 2 and Table 3.