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 14023:2007 sisaldab Euroopa standardi EN 14023:2005 ingliskeelset teksti.	This Estonian standard EVS-EN 14023:2007 consists of the English text of the European standard EN 14023:2005.
Standard on kinnitatud Eesti Standardikeskuse 25.11.2005 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 25.11.2005 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 12.10.2005.	Date of Availability of the European standard text 12.10.2005.
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English Version

Bitumen and bituminous binders - Framework specification 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 24 February 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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 Central Secretariat has the same status as the official versions.

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Foreword

This European Standard (EN 14023:2005) has been prepared by Technical Committee CEN/TC 336 “Bituminous binders”, the secretariat of which is held by AFNOR.

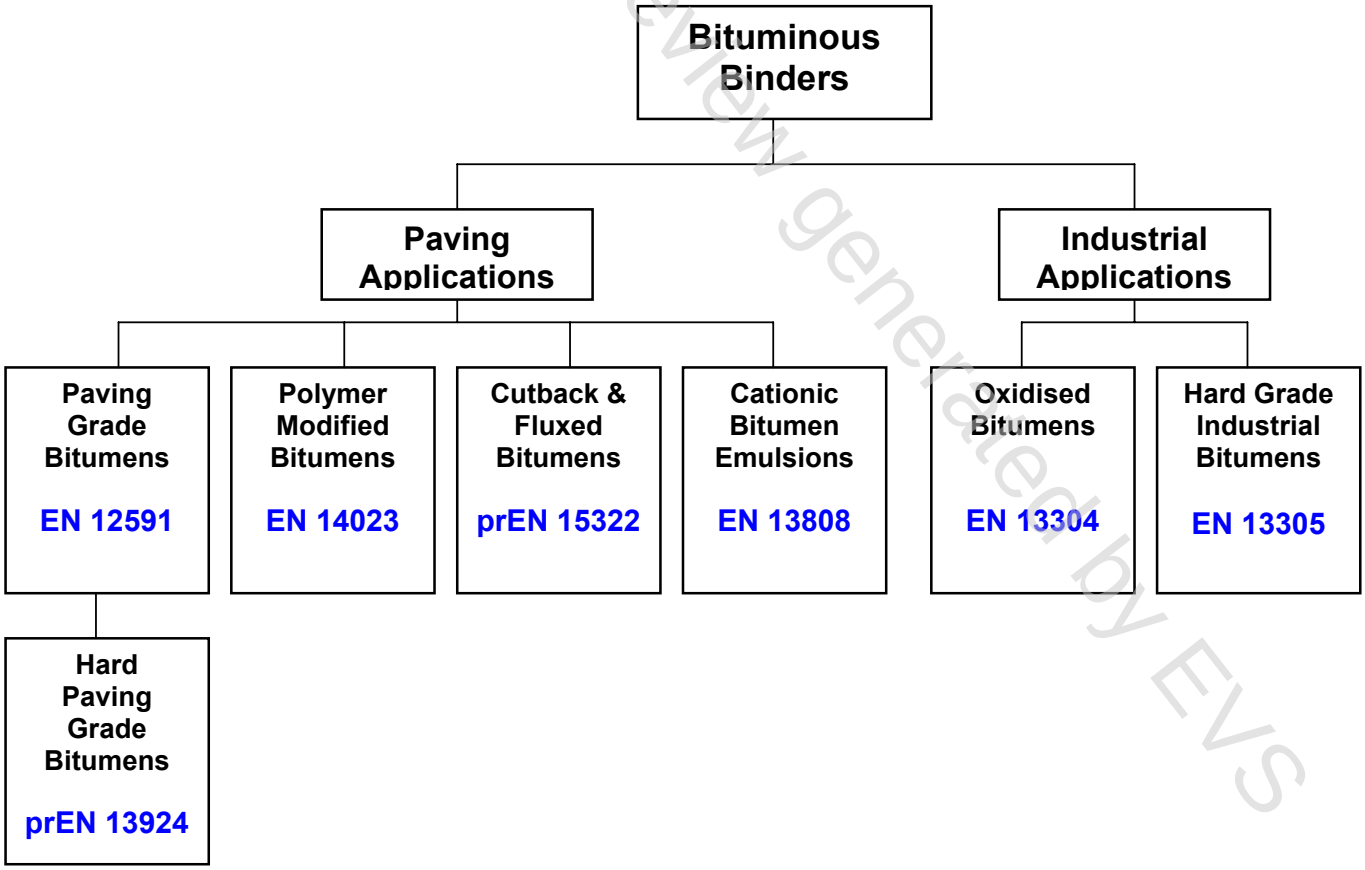
This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2006, and conflicting national standards shall be withdrawn at the latest by April 2006.

This European Standard 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 Construction Products Directive (89/106/EEC).

For relationship with EU Construction Products Directive, see informative Annex ZA, which is an integral part of this document.

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

This document is part of a family of documents for bitumens as follows:



Introduction

This European Standard is closely related to EN 12591 [1], *Bitumen and bituminous binders – Specifications for paving grade bitumens*. 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 EATA countries. However, it is permitted for each country to define the most suitable grades and classes.

This document has been based on the various national documents that were in existence when the process started. It is a first step in harmonising the so-called "empirical" specifications and it is intended to evaluate alternative characteristics and test methods to develop new specifications that are more directly performance-related. To this end, work programmes are being undertaken and the results will be considered for a future revision of this document.

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" (surrogate characteristic: penetration);

— "Consistency at elevated service temperature" (surrogate characteristic: softening point);

— “Cohesion";

— "Durability" of consistency.

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 Tables 1 and 2 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 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 12607-1*, Bitumen and bituminous binders – Determination of the resistance to hardening under the influence of heat and air – Part 1: RTFOT method.*

EN 12607-3, *Bitumen and bituminous binders – Determination of the resistance to hardening under the influence of heat and air – Part 3: RFT method.*

EN 13357, *Bitumen and bituminous binders – Determination of the efflux time of petroleum cut-back and fluxed bitumens.*

EN 13398, *Bitumen and bituminous binders – Determination of 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 13702-2, *Bitumen and bituminous binders – Determination of dynamic viscosity of modified bitumen – Part 2: Coaxial cylinders method.*

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

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

EN ISO 3838, *Crude petroleum and liquid or solid petroleum products – Determination of density or relative density – Capillary-stoppered pyknometer and graduated bicapillary pyknometer methods (ISO 3838:2004).*

EN ISO 4259, *Petroleum products – Determination and application of precision data in relation to methods of test (ISO 4259:1992/Cor 1:1993)*.

EN ISO 9001, *Quality management systems – Requirements (ISO 9001:2000).*

3 Symbols and abbreviations

The following abbreviation terms are used in the specification tables of this document (see Tables 1 and 2):

NPD for "No Performance Determined": this class has been included to accommodate countries where the characteristic, for a given intended use, is not subject to regulatory requirements (see ZA.1).

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

NOTE These reported values may be used for future specifications.

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 Characteristics and related test methods

5.1.1 General

The values for the characteristics are given in Table 1 which is subdivided into eleven classes. The characteristics of, and the related test methods for polymer modified bitumens shall be selected from the classes given in Table 1. When tested by the methods given in a table, the various grades shall conform to the limits specified in that table.

In Table 2 further characteristics that have been considered useful for specifications are described.