SLOVENSKI STANDARD
SIST EN 13991:2003

01-december-2003

Derivatives from coal pyrolysis - Coal tar based oils: creosotes - Specifications and test methods

Derivatives from coal pyrolysis - Coal tar based oils: creosotes - Specifications and test methods

Derivate der Kohlenpyrolyse - Öle aus Steinkohlenteer: Kreosot - Anforderungen und Prüfverfahren

Produits dérivés de la pyrolyse du charbon - Huiles de goudron de houille: Créosotes - Spécifications et méthodes d'essai

Ta slovenski standard je istoveten z: **EN 13991:2003**

ICS:

75.160.10	Trda goriva	Solid fuels

SIST EN 13991:2003 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13991

August 2003

ICS 71.100.50; 75.140

English version

Derivatives from coal pyrolysis - Coal tar based oils: creosotes - Specifications and test methods

Produits dérivés de la pyrolyse du charbon - Huiles de goudron de houille: Créosotes - Spécifications et méthodes d'essai

Derivate der Kohlenpyrolyse - Öle aus Steinkohlenteer: Kreosot - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 2 July 2003.

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 Management Centre 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 13991:2003 E

Contents

Foreword

This document (EN 13991:2003) has been prepared by Technical Committee CEN /TC 317, "Derivatives from coal pyrolysis", the secretariat of which is held by IBN.

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 February 2004, and conflicting national standards shall be withdrawn at the latest by February 2004.

Annexes A and B are normative. Annex C is informative.

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

1 Scope

This European Standard gives the specifications and the test methods for creosotes for industrial wood preservation.

Different grades of creosote are used depending on the desired properties of the treated wood.

WARNING — The use of this European Standard may involve hazardous materials, operations and equipment. This standard cannot address all of the safety implications associated with its use. It is the responsibility of the user of this standard to establish appropriate health and safety practices and assess the applicability of regulatory limitations prior to use. The warnings to use are covered in annex C.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 1014-1, *Wood preservatives - Creosote and creosoted timber - Methods of sampling and analysis - Part 1 : Procedure for sampling creosote*.

EN 1014-3, *Wood preservatives - Creosote and creosoted timber - Methods of sampling and analysis - Part 3 : Determination of the benzo[a]pyrene content of creosote*.

EN 1014-4, *Wood preservatives - Creosote and creosoted timber - Methods of sampling and analysis - Part 4 : Determination of the water-extractable phenols content of creosote*.

EN 12303:2000, *Coal tar based oils - Terminology*.

BS 144:1997, Coal tar creosote for wood preservation.

EN ISO 2719, *Determination of flash point - Pensky-Martens closed cup method (ISO 2719:2002)*

ISO 386, *Liquid-in-glass laboratory thermometers - Principles of design, construction and use.*

ISO 760, *Determination of water - Karl Fischer method (General method).*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions given in EN 12303:2000 apply.

4 Sampling

Sampling of creosotes and preparation of samples.

Samples for the assessment of the parameters listed in Table 1 shall be taken in accordance with EN 1014-1.

5 Specifications and test methods

Specifications for creosote grade A, B, C and the relevant test methods are given in Table 1.

Table 1 — Specifications for creosote grade A, B and C

Parameters	Grade A	Grade B	Grade C	Test Method
Density (kg/m^3) at 20/4 °C	1,040-1,150	1,020-1,150	1,030-1,170	BS144-annex B
Water content (m/m) %	max. 1	max. 1	max. 1	ISO 760 [a]
Crystallization temperature (°C)	max. 23	max. 23	max. 50	Annex A
Water-extractable phenols (m/m) %	max. 3	max. 3	max. 3	EN 1014-4
Insoluble matter in toluene (m/m) %	max. 0.4	max. 0.4	max. 0.4	BS144-annex G
Boiling range (volume) %				annex B
Distillate to 235 °C	max. 10	max. 20	-	
Distillate to 300 °C	20-40	40-60	max. 10	
Distillate to 355 °C	55-75	min.70	min. 65	
Benzo[a]pyrene content (mg/kg)	max. 500	max. 50	max. 50	EN 1014-3
Flash point (°C)	min. 61	min. 61	min. 61	EN ISO 2719

[a] As an alternative, the distillation method of ISO 3733 can be used.

NOTE 1 Grade A is intended for treatment of timber by pressure impregnation.

Grade B is also intended for pressure impregnation. In contrast to grade A, the distillation residue is lowered in order to reduce the benzo[a]pyrene content. It is especially suitable for treatment of poles for overhead power and telecommunication lines, and for structural timbers where bleeding in service can occur.

Grade C excludes the lower boiling fraction allowable in the other types of creosote and because of the low volatility a reduction in odour is achieved.

NOTE 2 All types of creosotes are suitable for the hot-and-cold open-tank process.

NOTE 3 Creosote in use should not contain more than 3 % of water.

NOTE 4 The density is determined at a temperature above the crystallization temperature. For each degree Celsius above 20 °C, a fixed value of 0.7 kg/m^3 is added to the density reading.

Annex A
(normative)

Determination of the crystallization temperature of coal tar oil

A.1 Scope

This method describes the procedure for the determination of the crystallization temperature of coal tar oil and is applicable to creosote, carbolineum, carbon black feedstock, fluxing oils and other coal tar based oils.

A.2 Sampling

Sampling shall follow the procedures described in EN 1014-1.

A.3 Apparatus : an example of the apparatus is given in Figure A.1

A.3.1 Porcelain dish, top diameter (105 ± 5) mm, height (60 ± 5) mm, capacity ca. 300 ml.

A.3.2 Porcelain dish, flat shape, diameter (250 ± 10) mm, capacity ca. 2 000 ml.

A.3.3 Electric heating plate, (500 - 1 000) W.

A.3.4 Thermometer, (0° - 100) °C, graduated in 0,5 °C as described in ISO 386.

A.3.5 Metal support ring.

A.4 Procedure

Heat the sample until completely free of crystals. The temperature shall be at least 10 °C above the specified maximum crystallization temperature.

Pour (150 ± 5) ml of the so prepared oil into the small porcelain dish.

Place the dish with oil on the support ring in the larger dish and fill the latter with water at a temperature about 10 °C lower than the specified maximum crystallization temperature.

The water surface shall be (10 ± 2) mm above the oil surface in the smaller dish.

Stir the oil gently with the thermometer, the oil shall be crystal free at the temperature indicated in Table 1.

If it is required to know the crystallization temperature, repeat the determination with water at a lower temperature. Use some ice when necessary.

The temperature at which crystal formation starts is the crystallization temperature.

A.5 Test report

The test report shall at least include the following:

— type of tar oil ;

— references of sample ;

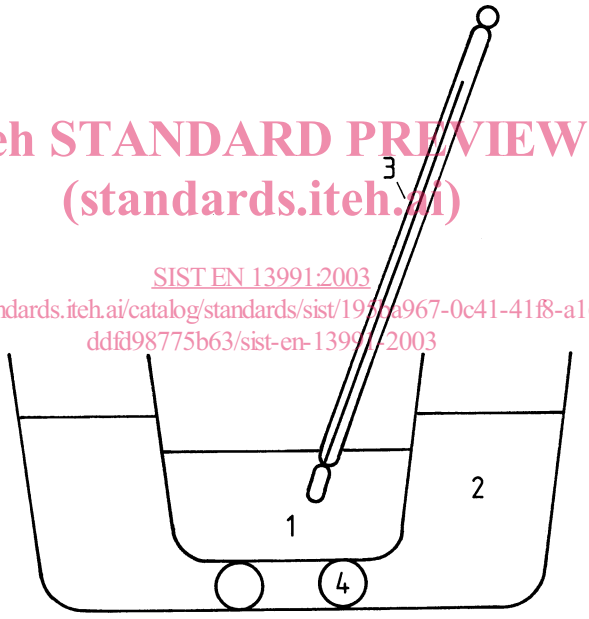
— the reference to this European Standard ;

— the date of determination ;

— the name of the operator ;

— the result of the determination, (Pass or Fail), the crystallization temperature if required, expressed in degrees Celsius ;

— any particular points observed in the course of the sampling procedure and the test procedure.



Key

1 Coal tar oil
2 Water
3 Thermometer
4 Metal support ring

Figure A.1 — Determination of the crystallization temperature