

# **SLOVENSKI STANDARD**

## **SIST EN 58:2005**

**01-januar-2005**

**Nadomešča:**

**SIST EN 58:1998**

**SIST EN 58:1998/A1:1998**

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### **Bitumen in bitumenska veziva - Vzorčenje bitumenskih veziv**

Bitumen and bituminous binders - Sampling bituminous binders

Bitumen und bitumenhaltige Bindemittel - Probenahme bitumenhaltiger Bindemittel

Bitumes et liants bitumineux - Echantillonnage des liants bitumineux

[SIST EN 58:2005](https://standards.iteh.ai/catalog/standards/sist/2503596-5aae-4dcc-ace3-0d721b74d17c/sist-en-58-2005)

**Ta slovenski standard je istoveten z: EN 58:2004**

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#### **ICS:**

75.140	Voski, bitumni in drugi naftni proizvodi	Waxes, bituminous materials and other petroleum products
91.100.50	Veziva. Tesnilni materiali	Binders. Sealing materials

**SIST EN 58:2005**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 58**

July 2004

ICS 91.100.50

Supersedes EN 58:1984

English version

**Bitumen and bituminous binders - Sampling bituminous binders**

Bitumes et liants bitumineux - Echantillonnage des liants  
bitumineux

Bitumen und bitumenhaltige Bindemittel - Probenahme  
bitumenhaltiger Bindemittel

This European Standard was approved by CEN on 16 January 2004.

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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 Central Secretariat has the same status as the official versions.

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## Foreword

This document (EN 58:2004) 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of an identical text or by endorsement, at the latest by January 2005, and conflicting national standards shall be withdrawn at the latest by January 2005.

This document supersedes EN 58:1984.

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 United Kingdom.

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## 1 Scope

This document describes methods of sampling bituminous binders, to determine the average quality of the material under examination and/or to determine deviations from average quality.

## 2 Terms and definitions

For the purposes of this document the following terms and definitions apply.

### 2.1

#### **material under examination**

entire quantity of the bituminous binder of which the properties are to be assessed

NOTE "Material under examination" is termed simply "material" in the body of this document.

### 2.2

#### **stationary material**

material in a storage container when all valves are closed and there is no flowing in the container

### 2.3

#### **flowing material**

material which flows in a transport pipeline or out of the drainline of a storage container

### 2.4

#### **spot sample**

sample, taken in a single operation at a single place and time

NOTE If it can be assumed that the material is homogeneous, a spot sample can be regarded as a representative sample. If the material is not homogeneous, a spot sample can only be regarded as representative of a limited region around the sampling point.

### 2.5

#### **composite sample**

sample made up by the mixing of several spot samples

NOTE A composite sample can be regarded as a representative sample, if the spot samples are taken according to a sampling plan which makes it probable that the composition of the composite sample approaches that of the material as closely as possible.

### 2.6

#### **divided sample**

sample formed by dividing a spot, composite or representative sample into several similar parts by appropriate means

### 2.7

#### **layer sample**

upper, middle or lower layer sample

spot sample taken at a specific depth in a stationary material, usually in order to detect segregation in large storage containers

### 2.8

#### **surface sample**

spot sample taken at less than 5 cm below the upper surface

### 2.9

#### **vertical straight-through sample**

sample, taken by drawing a sampling device through the total depth of the material under examination and thereby including all layers of the material

**2.10****main stream sample**

sample taken from the outlet stream of a container, such that the entire cross-section of the outlet stream is included

**2.11****side-stream sample**

sample taken from the outlet stream by means of a sampling probe

**2.12****laboratory sample**

sample intended for laboratory tests

**2.13****test sample**

sample produced by treatment or subdivision of a laboratory sample during preparation in the laboratory of the sample for individual tests

**3 Safety precautions**

The safety precautions given in this clause represent good practice and shall be applied in all cases where they are not in conflict with local or other Regulations which shall be followed.

NOTE 1 The list of safety precautions given in this clause is not necessarily exhaustive and they should be considered in conjunction with relevant national safety Regulations and/or recognized safety code(s) for the petroleum industry.

- a) All Regulations concerning entry into hazardous areas shall be observed rigorously;
- b) equipment shall be maintained adequately;

NOTE 2 Regular inspections of equipment should be carried out by a competent person.

- c) all equipment and access facilities shall be checked to ensure that they are adequate for safe working before commencement of sampling;
- d) metallic sampling devices used in flammable atmospheres shall be constructed only from non-ferrous metal(s);
- e) cords used as components of sampling devices shall be constructed only from vegetable fibre(s), e.g. manilla or sisal; for emulsions, the cord used shall not absorb water from the emulsion;

NOTE 3 Attention is drawn to the situation that for cords made from man-made fibres, it is possible for an operator to build-up a dangerous level of electrostatic charge on his person, if he is not earthed and wearing insulating gloves, and that certain man-made fibres will melt or dissolve in hot bitumen.

- f) precautions shall be taken to prevent the breathing of petroleum vapours during sampling operations;
- g) for samples taken from the main stream, the sampling device shall be selected such that sampling can be performed without pressure.

**4 Fundamentals of sampling**

**4.1** Correct sampling techniques are a prerequisite if meaningful test results are to be obtained. There should be a facility for heating the sampling device.

**4.2** The person taking the sample shall be experienced in the methods to be employed.

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**4.3** If the sample is to be subdivided, a suitably large representative sample shall be taken and divided into the required number of divided samples.

**4.4** A sampling report shall be prepared and signed by the person taking the sample.

The sampling report shall include:

- a) the reason for sampling;
- b) the method of sampling;
- c) the circumstances surrounding sampling;
- d) the date, time and location (batch number or storage container or pipe identification);
- e) the name of the sampler.

A prepared form shall be used for the sampling report (for example, see Annex A); a copy of the sampling report shall be placed with each divided sample. Sampling reports shall not be put into sample containers.

**NOTE** Because of the variety of materials for which the same container vehicle or storage tank may be used, account should always be taken of possible contamination by residues, deposits or solvents. For this reason it is relevant to enter data in the report on the previous history of the container vehicle or storage tank.

**5 Sample size**

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Each divided sample should consist of at least 0,5 kg material.

**NOTE** The required size of a laboratory sample is dependent upon the nature and extent of the tests to be carried out.

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**6 Choice of sampling method**

The sampling method to be used depends upon:

- a) tests to be carried out;
- b) purpose of the tests;
- c) nature, quantity and temperature of the material under examination;
- d) number, type and size of the containers or cans from which the sample is to be taken;
- e) whether the sample is to be taken from a stationary or a flowing material.

Arrangements, equipment and methods of sampling are described in Clause 8.

If samples shall be taken frequently from a large volume liquid material container, sampling appliances such as sampling valves, sampling probes or threeway cocks can conveniently be installed permanently. Otherwise, liquid test materials shall be sampled by immersion techniques, for example, by weighted sampling cans or bottom closing sampling tubes; materials fluid at low temperature can be sampled from drums or containers of up to 2 m<sup>3</sup> capacity by means of open sampling tubes. Table 1 gives an informative guideline for sampling devices.

Viscous, plastic and semi-solid material shall be sampled using tools of the kind described in 8.4, semi-solid to brittle material by means of hand-operated tools described in 8.5 and granular material or lumps according to 8.5 and 8.6.

Sampling from the main stream by disconnecting the pipe linking a container vehicle to a storage tank shall not be carried out.



**Table 1 — Sampling methods for material liquid at either high or low temperatures in pipelines, containers or cans**

	Sampling method		Sampling from pipelines		Sampling from containers of capacity			
		according to Clause	main stream	side stream	> 800 m <sup>3</sup>	from 50 m <sup>3</sup> to 800 m <sup>3</sup>	from 2 m <sup>3</sup> to 50 m <sup>3</sup>	≤ 2 m <sup>3</sup> and cans
<i>sampling using permanently installed equipment</i>	sampling probe	8.1.1	-	+	-	-	-	-
	from sampling valve	8.1.2	-	-	+	+	+	-
		8.1.3	-	+	-	-	-	-
	3-way valve	8.1.4	+	-	-	-	-	-
<i>sampling using immersion methods</i>	weighted sampling can	8.2.1	-	-	+	+	+	(+)
	surface sampling can	8.2.2	-	-	-	-	+	-
	bottom closing sampling tube	8.2.3	-	-	-	(+)	+	+
	open sampling tube	8.2.4	-	-	-	-	-	0
	vertical straight-through can	8.2.5	-	-	-	-	+	+
<i>sampling directly from installations</i>	from spraying equipment	8.3	+	-	-	-	-	-
<b>Key</b> + usable (+) limited use 0 only usable for materials fluid at low temperature - not applicable								

## 7 Number of samples

The number of samples taken shall be dependent upon the size and form of the container and for deliveries in cans and lumps upon the number of those in a delivery; the number of samples to be taken from a container shall be as given for each sampling method in Clause 8.

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For deliveries in cans and lumps, the number of cans or lumps from which samples are to be taken shall conform to Table 2. Initially, one sample from each can or lump shall be tested. If this test shows deviation from the specification, the remaining samples shall be tested.

If sampling is intended to check homogeneity (segregation) in stationary liquid material, at least three layer samples (upper layer, middle layer and lower layer) shall be taken. They shall not be mixed to form a composite sample.

If, in exceptional circumstances, it is desired to assess the average quality from layer samples, the geometry of the container shall be taken into account.

**Table 2 - Number of cans or lumps from which samples are to be taken**

Total number of cans or lumps ( <i>n</i> )	Number of cans or lumps sampled
2 to 8	2
9 to 27	3
28 to 64	4
65 to 125	5
126 to 216	6
217 to 343	7
344 to 512	8
513 to 729	9
730 to 1000	10
over 1000	$\sqrt[3]{n}$ , rounded to the nearest integer above, where <i>n</i> is the total number of cans or lumps

## 8 Arrangements, equipment and methods of sampling

NOTE Before opening a valve in a line under pressure, be sure that the sampling can be performed without pressure.

### 8.1 Sampling using permanently installed systems

**8.1.1 Sampling probe.** If samples shall be taken from a flowing material, it is convenient to take side-stream samples using a sampling probe installed in the delivery pipe. The sampling probe shall be installed in an upward-sloping section of the pipe or on the pressure side of the pump, or in the case of a gravity-fed system in a completely full section of pipe. The internal diameter of the sampling probe shall be less than 1/8 of the internal diameter of the delivery pipe, and its opening shall be approximately central in the pipe facing upstream. The sampling probe shall be equipped with a stop-valve. For very viscous material, it may be advantageous to arrange for the movable parts to be totally immersed in the material. Figures 1 (for pipes without pressure) and 2 show examples of suitable arrangements; the arrangements shown in Figures 1 and 2 shall be equipped with a protecting box in the sampling device.

Immediately before taking a sample at least 5 litres of the material shall be drawn off.

NOTE It is desirable to have the possibility to return these five litres to the system.

If a representative sample is required, sampling can either be continuous, or spot samples can be taken by opening the stop valve at equal time intervals throughout the period of flow.

This method is usable for flowing material. For a well mixed material, a spot sample, usually taken from the middle third of the material, can be regarded as a representative sample. For material which is not well mixed, a sample taken during the whole period of flow, or a composite sample formed from at least three spot samples, shall be used.

**8.1.2 Sampling valve in container walls.** Sampling valves in the walls of heated containers can advantageously be installed so that the movable parts and the pipework are as far as possible within the heated material. Figure 3 shows a suitable arrangement. For this arrangement, a simple cover shall be provided for the sampling device.

Immediately before taking a sample, at least 5 l of the material shall be drawn off.

NOTE It is desirable to have the possibility to return these 5 l to the system.

The sample shall be drawn off into a suitable clean container or bottle.

This method is suitable for all liquid materials, whether hot or cold, and especially for containers larger than 50 m<sup>3</sup>. For a well-mixed material, a spot sample, usually from the middle third, can be regarded as a representative sample.

For material which is not well mixed, layer samples shall be taken from at least the top, middle and lower thirds.

**8.1.3 Sampling valve in delivery pipes** (see Clause 6). To allow side-stream samples to be taken from narrow delivery pipes, a sampling valve can be installed in place of a sampling probe in the supply line. The sampling valve shall be installed in an upward-sloping section of the supply line or on the outlet of the pump. For systems flowing under their hydrostatic head the sampling valve shall be installed on the pressure side of the supply pipe.

Immediately before taking a sample, at least 5 l of the material shall be drawn off.

NOTE It is desirable to have the possibility to return these 5 l to the system.

If a representative sample is to be taken, the sample shall either be taken continuously or several spot samples shall be taken by opening the sampling valve at intervals over the whole delivery period.

This method is suitable for flowing material. For a well-mixed material, a spot sample, usually taken during the delivery of the middle third of the material, can be regarded as a representative sample. For a material which is not well mixed, a representative sample shall be obtained either by continuous sampling over the whole delivery period or by combining at least three spot samples.

If thoroughly mixed material is unloaded from a container vehicle, the sample shall be taken during the delivery of the middle third of the material.

An example of a suitable valve is shown in Figures 4 and 5.

**8.1.4 Three-way valves** (see Clause 6).

If samples of flowing material are to be taken from narrow pipes, e.g. on mixing plants, the installation of an easily accessible 3-way valve is convenient. The cock shall have an internal diameter appropriate to the size of the pipe, and shall be installed with the sampling outlet pointing downwards. The length of the pipe leading to the outlet shall be as short as possible. Figures 6 and 7 show an example of a three-way valve.

Immediately before taking a sample, at least 5 l of material shall be drawn off.

NOTE It is desirable to have the possibility to return these 5 l to the system.

If a representative sample is to be obtained, several spot samples shall be taken by opening the three-way valve at equal time intervals over the whole supply period.