



# SLOVENSKI STANDARD

## SIST EN 58:1998

01-maj-1998

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### Vzorčenje bituminoznih veziv

Sampling bituminous binders

Probenahme bituminöser Bindemittel

Echantillonnage des liants bitumineux

Ta slovenski standard je istoveten z: EN 58:1998

[SIST EN 58:1998](https://standards.iteh.ai/catalog/standards/sist/cd5a91f1-9bc7-4579-826f-efd132a4d729/sist-en-58-1998)

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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 58:1998**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
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**EN 58**

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English version

SAMPLING BITUMINOUS BINDERS

Echantillonnage des liants bitumineux

Probenahme bituminöser Bindemittel

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN 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 CEN Central Secretariat has the same status as the official versions.

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**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

Central Secretariat : Rue Bréderode 2, B-1000 Brussels

## BRIEF HISTORY

This European Standard - Sampling bituminous binders, was prepared by the Technical Committee CEN/TC 19 "Methods of test for petroleum products", the Secretariat of which was held by the British Standards Institution (BSI).

At the first meeting of TC 19 in January 1963, it was recognized that, for certain commonly used tests on petroleum products, the national standards organizations in many of the CEN countries had adopted (with or without minor modifications) the standard methods published by the American Society for Testing and Materials (ASTM). It was accordingly decided that a CEN Unification document for sampling bituminous materials should be based upon the ASTM method D 140.

A first draft document N 147 was circulated in February 1969 and was approved, no comments having been received, by the fourth CEN/TC 19 meeting in April 1969 for submission to the CEN Central Secretariat as a draft Unification Document.

The results of the CEN Member Body ballot were reviewed by the fifth TC 19 meeting held in Stockholm in September 1971 and it was decided to defer work on the production of a Unification Document and to commence a study of the draft German Standard DIN 52 001 as an alternative basis to ASTM D 140 for a European Standard. A first draft proposal (N 331) was circulated in September 1973 and the comments received, which were entirely of an editorial character, have been incorporated in the draft which was approved for submission to the CEN Secretariat as a draft European Standard by the seventh meeting of TC 19 which was held in The Hague in November 1973. The comments were incorporated in the final text which in 1983 was submitted to the CEN secretariat by the Netherlands Normalisatie-instituut who had assumed the secretariat of CEN TC 19 in 1981.

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The member countries of CEN which approved this European Standard are the following: Denmark, Finland, France, Germany, Italy, Portugal, United Kingdom.

The following member countries disapproved this European standard: Austria, Belgium.



## 1 SCOPE AND FIELD OF APPLICATION

This European Standard describes methods of sampling of bituminous binders.

The methods are not applicable to samples of manufactured bituminous materials containing significant quantities of mineral matter e.g. mastic asphalts, tar macadams or hot rolled asphalts. These materials require techniques significantly different from those specified in this Standard.

Samples may be taken, either to establish the average quality of the material under examination, or to determine deviations from its average quality. The latter samples shall be expressly marked as being for this purpose.

## 2 DEFINITIONS

For the purpose of this European Standard the following definitions apply:

- 2.1 material under examination: The whole quantity of the bituminous material the properties of which are to be assessed.
- 2.2 stationary material: Material in a container in which there is no flow, i.e. the valves of the container are closed and the container is not in motion.
- 2.3 flowing material: A liquid material which is in the process of being transferred.
- 2.4 spot sample: A sample, taken in a single operation at a single place and time of the material being sampled. If it can be assumed that the material is homogeneous, a spot sample can be regarded as an average sample. If the material is not homogeneous, a spot sample only can be regarded as representative of a limited region around the sampling point.
- 2.5 composite sample: A sample made up by mixing several spot samples. A composite sample can be regarded as an average sample, if the spot samples are taken according to a plan which makes it probable that the composition of the composite sample approaches that of the material under examination as closely as possible.
- 2.6 divided sample: A sample formed by dividing a spot, composite or average sample into several similar parts by appropriate means.
- 2.7 laboratory sample: A sample intended for laboratory tests. It may be a spot sample, a composite sample or a part thereof (a divided sample).
- 2.8 test sample: A sample produced by treatment or sub-division of a laboratory sample during laboratory preparation of the sample for individual laboratory tests.
- 2.9 referee sample: A spot or a composite sample which, as a whole or after sub-division, serves for arbitration tests.

- 2.10 layer sample (e.g. upper, middle and lower layer samples): Spot samples (see 2.4) which are taken from various heights in a stationary liquid, usually in order to detect segregation in large storage containers.
- 2.11 surface sample: A spot sample taken from within 5 cm of the upper surface.
- 2.12 straight-through sample: A total depth sample, taken by drawing a sampling appliance through the total depth of the material under examination, and therefore including all the layers of the material. If a straight-through sample includes all layers of the material volume proportionally, it can be regarded as an average sample.
- 2.13 main stream sample: A sample taken from the outlet stream from a container, such that the whole cross-section of the outlet stream is included.
- 2.14 side-stream sample: A sample taken from the main stream by means of a sampling probe.

### 3 SAFETY PRECAUTIONS

- 3.1 The safety precautions given below apply in all cases and constitute good practice, but the list is not necessarily comprehensive. It is recommended that the list should be read in conjunction with the appropriate national safety regulations or any recognized code in the petroleum industry. The precautions given below shall be taken whenever they do not conflict with local or other regulations which shall, in any case, always be followed:
  - a) all regulations covering entry into hazardous areas shall be rigorously observed;
  - b) plant and equipment shall be adequately maintained, and it is recommended that a regular inspection should be made by a competent person.
- 3.2 Before commencing the collection of samples, check all the equipment and access facilities to ensure that they are adequate for safe working.
- 3.3 If metal sampling gear is used in flammable atmospheres, it shall be constructed of non-ferrous metal. Attention is also drawn to the fact that when using man-made fibre cords such as nylon, it is possible for the operator to build up a dangerous electrostatic charge on his person if he is not earthed and wearing plastics gloves. Cords made of vegetable fibre, for example manilla or sisal shall therefore be used in such cases.
- 3.4 Care shall be taken to avoid breathing petroleum vapour during sampling operations.

### 4 FUNDAMENTALS OF SAMPLING

Correct sampling techniques are a prerequisite if meaningful test results are to be obtained.

- 4.1 The person taking the sample shall be informed of the purpose of sampling and shall be competent in those methods described herein which it is intended to employ.
- 4.2 If the sample is required for use by more than one party, a suitably large sample shall be taken, homogenized if necessary, and divided into the required number of samples.
- 4.3 A report shall be prepared and signed by the person taking the sample and by any other authorized agent of any other party present. The report shall note the reasons for and methods of sampling, the surrounding circumstances and the required tests. A special form shall be used for this report (for model form, see Annex A). A copy of the report shall be made available for each divided sample.

Note

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

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## 5 SAMPLE SIZE (standards.iteh.ai)

The required size of a laboratory sample is dependent upon the nature and extent of the tests to be carried out. Each divided sample shall consist of at least 2 kg, or in the case of emulsions, at least 3 kg.

## 6 CHOICE OF SAMPLING METHOD

The sampling method to be used depends on:

- a) the tests to be carried out;
- b) the purpose of the tests;
- c) the nature, quantity and temperature of the material under examination;
- d) the 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.

Permitted arrangements, equipment and methods of sampling are described in clause 8.

If samples have to 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. For further details see table 1.

Viscous, plastic and semi-solid material should 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.

Note

Sampling from the main stream by disconnecting the pipe linking a container vehicle to a storage tank is not permitted, on the grounds of safety.

**Table — 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	above 800 m <sup>3</sup>	from 50 to 800 m <sup>3</sup>	from 2 to 50 m <sup>3</sup>	containers up to 2 m <sup>3</sup> and cans
sampling using permanently installed equipment	sampling probe	8.1.1		+				
	from extraction valve	8.1.2			+	+	+	
		8.1.3		+				
	3-way valve	8.1.4	+					
sampling using immersion methods	weighted sampling cans	8.2.1			+	+	+	(+)
	surface sampling cans	8.2.2				+	+	
	bottom closing sampling tube	8.2.3				(+)	+	+
	open sampling tube	8.2.4						0
	from spraying equipment	8.3	+					
Key: + usable (+) limited use 0 only usable for materials fluid at low temperature								

## 7 NUMBER OF SAMPLES

The number of samples is dependent upon the size and form of the container or the number of cans being sampled; the number of samples to be taken from a container is given for each sampling method in clause 8.

For deliveries in cans, the number of cans from which samples are to be taken is given in table 2. Initially, one sample from only one can shall be tested. If this test shows deviations from the specification, the remaining samples shall be tested. The parties to the contract shall agree whether these samples are to be tested individually or as a composite sample.



Lumps may also be sampled in accordance with the numbers shown in table 2.

If the sampling is intended to check segregation in stationary liquid material, at least 3 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

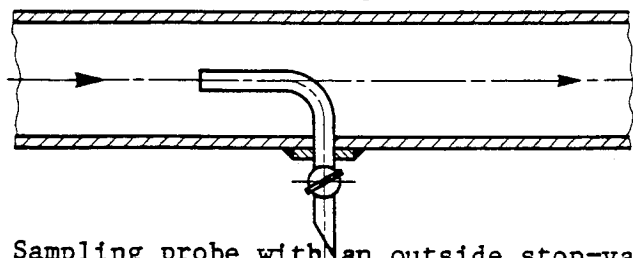
total number of cans or lumps	number of cans or lumps sampled
2 to 8	2
9 to 27	3
28 to 64	4
65 to 125	5
126 to 216	6
217 to 343	7
344 to 512	8
513 to 729	9
730 to 1000	10
over 1000	$\sqrt[3]{n}$ , rounded to the nearest integer, where n is the total number of cans or lumps

## 8 ARRANGEMENTS, EQUIPMENT AND METHODS OF SAMPLING

### 8.1 Sampling using permanently installed systems

#### 8.1.1 Sampling probe

If samples have to 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 that the moveable parts are totally immersed in the material. Figures 1 and 2 show examples of suitable arrangements.



**Figure 1** -- Sampling probe with an outside stop-valve

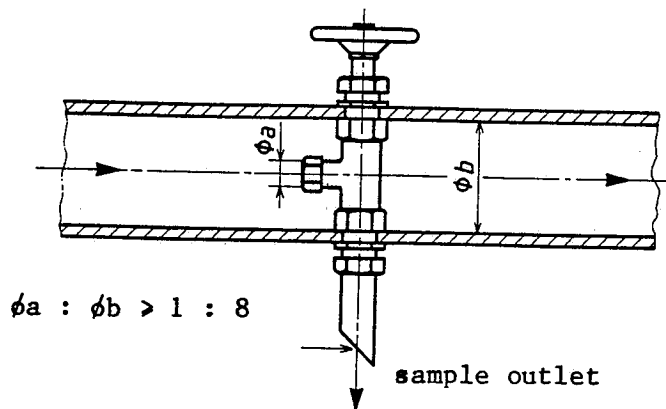


Figure 2 — Sampling probe with an inside stop valve

Immediately before taking a sample at least 5 litres of the material shall be drawn off via the sampling probe and discarded. If an average 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 second third of the material, can be regarded as an average 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.

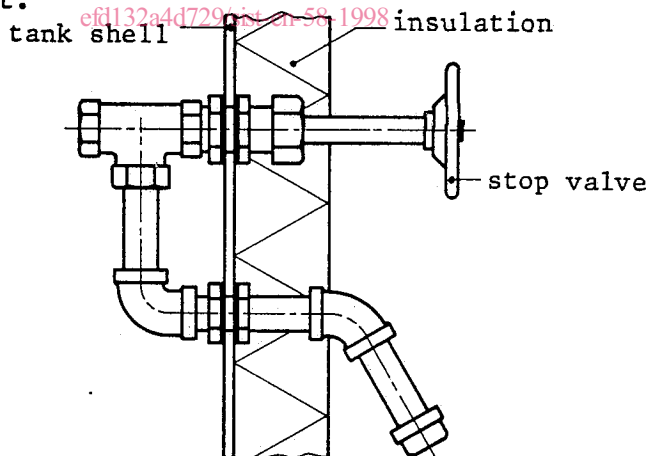


Figure 3 — Sampling valve in insulated container wall

Immediately before taking a sample at least 5 litres of the material shall be drawn off through the valve and discarded. The sample shall be drawn off into a suitable clean container.

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

### 8.1.3 Sampling valve in delivery pipes

See also note in clause 6. To allow side-stream samples to be taken from narrow delivery pipes, a sampling valve can be installed in place of sampling probe in the supply line. The sampling valve shall be installed in an upward-sloping section of the supply line or on the pressure side 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 litres of the material shall be drawn off through the valve and discarded. If an average sample is to be taken, the sample shall be either taken continuously or several spot samples taken by opening the sampling valve at equal time intervals over the whole delivery period.

This method is suitable for flowing material. For a well mixed material a spot sample can be regarded as an average sample. For a material which is not well mixed, an average sample shall be obtained either by continuous sampling over the whole delivery period or by combining at least 3 spot samples.

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

### 8.1.4 Three-way valve (standards.iteh.ai)

(See also the note in 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 three-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 should be as short as possible. See figure 4 for an example of a three-way valve.

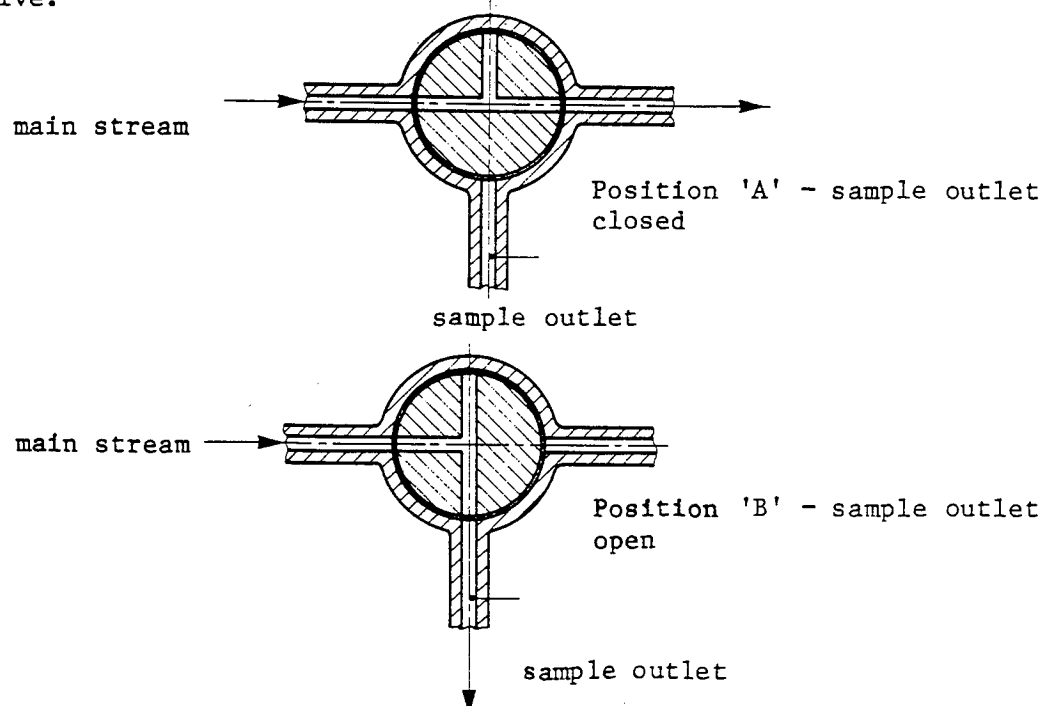


Figure 4 — Three-way valve in a pipeline