



SLOVENSKI STANDARD

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Nadomešča:

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Materiali za označevanje vozišča - Vzorčenje in preskušanje

Road marking materials - Sampling from storage and testing

Straßenmarkierungsmaterialien - Probenahme an rückgestellter Produktion und Prüfung

Produits de marquage routier - Échantillonnage sur stock et essais

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EUROPEAN STANDARD

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Road marking materials - Sampling from storage and testing

Produits de marquage routier - Échantillonnage sur stock et essais

Straßenmarkierungsmaterialien - Probenahme an rückgestellter Produktion und Prüfung

This European Standard was approved by CEN on 22 April 2011.

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

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Foreword

This document (EN 13459:2011) has been prepared by Technical Committee CEN/TC 226 "Road equipment", 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of an identical text or by endorsement, at the latest by December 2011, and conflicting national standards shall be withdrawn at the latest by December 2011.

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 ENV 13459-1:1999.

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.

The Annex A of this European Standard is normative.

This European Standard is one of a package of inter-related European Standards with a common date of withdrawal (dow) fixed on December 2011 (*including the request of an extension for the co-existence period*):

- EN 1790, Road marking materials — Preformed road markings,
- EN 1824, Road marking materials — Road trials,
- EN 1871, Road marking materials — Paint, thermoplastic and cold plastic materials — Specifications,
- EN 12802, Road marking materials — Laboratory methods for identification,
- EN 13197, Road marking materials — Wear simulator Turntable,
- EN 13212, Road marking materials — Requirements for factory production control,
- EN 13459, Road marking materials — Sampling and testing.

EN 13459:2011 (E)**1 Scope**

This document specifies methods to obtain representative samples of road marking materials for testing and gives the appropriate test methods. The methods to obtain representative samples are described as appropriate for the main product types, i.e. paint, cold plastics, thermoplastics, premix glass beads, drop-on materials, preformed road markings and retroreflecting road studs.

NOTE This document may apply to the verification and/or identification of consignments of road marking materials or materials held in stock, for example in a warehouse or at the manufacturer's storage facility, or for materials which require checking prior to application.

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 1423, *Road marking materials — Drop on materials — Glass beads, antiskid aggregates and mixtures of the two*

EN 1424, *Road marking materials — Premix glass beads*

EN 1463-1, *Road marking materials — Retroreflecting road studs — Part 1: Initial performance requirements*

EN 1790, *Road marking materials — Preformed road markings*

EN 1871, *Road marking materials — Paint, thermoplastic and cold plastic materials — Specifications*

EN 12802, *Road marking materials — Laboratory methods for identification*

EN ISO 15528, *Paints, varnishes and raw materials for paints and varnishes — Sampling (ISO 15528:2000)*

3 Terms and definitions

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

3.1**original product container**

primary packaging of each batch of a road marking material

3.2**intermediate bulk container (IBC)**

container used as an intermediate size between bags and tins and bulk transport.

4 Sampling procedures

NOTE Clause 4 specifies the procedure for the selection of original product containers and for obtaining representative samples from a stock for subsequent inspection and testing.

4.1 General

4.1.1 When a series of original product containers to be examined can be identified as being from a single batch, the number of containers to be selected for sampling shall be 1 %. Not less than two and not more than five containers shall be selected for sampling.

4.1.2 When a series of original product containers to be examined can be identified as being from different batches, the sampling shall be organized as follows.

Determine the number of batches and refer to Table 1 to obtain the number of batches to be selected for sampling. The number of original product containers to be selected for sampling from each batch for testing shall be 1 %. Not less than two and not more than five containers shall be selected for sampling for each batch.

4.1.3 When the consignment to be examined is not classified as being from different batches, or when the batch information is not known, determine the number of containers and refer to Table 1 to obtain the number of containers to be selected for sampling.

Table 1 – Selection of batches or containers from a multi-batch stock

Number of batches or containers in consignment (<i>N</i>)	Number of batches or containers to be sampled (<i>n</i>)
2 to 8	2
9 to 18	3
19 to 32	4
33 to 50	5
51 to 72	6
73 to 98	7
99 to 128	8
129 to 162	9
163 to 200	10
and thereafter at a rate of	$n = \sqrt{\frac{N}{2}}$
NOTE Where the calculation of <i>n</i> does not yield an integer, the number shall be rounded up to the next whole number.	

The samples shall be labelled with the information required to accompany the sample as specified in Annex A.

NOTE In order to avoid excessively large amounts of product being removed as samples it may be more appropriate to take representative samples on the storage site. When removing reduced samples from containers, reference should be made to the amount required for testing (see 5.1). Containers of large capacity should be sampled on the storage site by skilled personnel.

Samples removed for testing from original product containers shall be suitably packaged and stored in conditions in accordance with the manufacturer's recommendations.

4.2 Paint

A number (*n*) of original product containers shall be selected for sampling, at random, from the consignment or stock (*N*) in accordance with 4.1.

Representative samples of paint shall be taken from each selected container in accordance with EN ISO 15528.

4.3 Thermoplastics

4.3.1 General

NOTE Thermoplastic road marking material is usually supplied in powder form or in block form. In powder form the material can be packed in individual bags and then supplied stacked on a pallet with an outer wrapping. Alternatively the material can be supplied in intermediate bulk containers (IBC).

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An appropriate amount of additives and meltable packaging shall also be sampled for subsequent incorporation during the testing of the thermoplastic road marking.

The selection of packages or containers shall be as specified in 4.3.2 to 4.3.4 as appropriate for the form of the packaging.

4.3.2 Powder mix in bags

A number (n) of full pallets, containing stacked bags, shall be selected for sampling, at random, from the consignment or stock (N) in accordance with 4.1.

Remove three bags from each selected pallet ensuring that they are all from the same production batch.

Either divide each bag separately using a suitable sample divider, having apertures of no more than 50 mm, to obtain three representative samples, each having a mass of approximately 4 kg, and combine the three samples.

Or if according to the manufacturer's recommendations such separate division is not possible, melt the three bags of material. Either divide the sample after cooling as described in 4.3.4, or take the sample directly from the melter.

4.3.3 Powder mix in IBC

A number (n) of IBC shall be selected for sampling, at random, from the consignment or stock (N) in accordance with 4.1.

Representative samples of thermoplastic material shall be taken from each selected IBC. Melt the material and remove samples from the melter to yield a combined sample of 12 kg.

4.3.4 Block material

A number (n) of full pallets of block material shall be selected for sampling, at random, from the consignment or stock (N) in accordance with 4.1.

Remove three blocks from each selected pallet, remove the packaging and break up the material from all three blocks. Discard any material which is not uniform in texture and colour, including burnt material from the production process. Take a portion of not less than 4 kg from the centre of each of the three blocks and combine these portions in a clean container. Do not apply heat at any stage of the sampling procedure.

4.4 Cold plastics

NOTE This procedure applies to any of the components of cold plastics, which can be in liquid form, in paste form, or in solid form.

4.4.1 Liquid or paste components

A number (n) of original product containers shall be selected for sampling, at random, from the consignment or stock (N) in accordance with 4.1.

Representative samples of each component shall be taken from each selected container in accordance with EN ISO 15528.

The correct proportion of each component shall be maintained when taking the samples.

4.4.2 Powder (solid) component

A number (n) of original product containers shall be selected for sampling, at random, from the consignment or stock (N) in accordance with 4.1.

Representative samples of each component shall be taken from each container in accordance with EN ISO 15528.

Glass beads or aggregates, shall be sampled in accordance with EN 1423.

All solid components should be handled with care, following the instructions of the manufacturer.

The correct proportion of each component shall be maintained when taking the samples.

4.5 Retroreflecting road studs

NOTE This procedure applies to retroreflecting road studs and to retroreflecting inserts for road studs, and assumes that the road studs are stored in original product containers.

A number (n) of original product containers shall be selected for sampling, at random, from the consignment or stock (N) in accordance with 4.1.

Representative samples shall be taken by removing a minimum of three pieces from each selected container.

If the road stud is to be installed using a primer and/or an adhesive, then a sample of this material shall be taken in accordance with 4.2 for one-component products, 4.3.4 for hot-melted adhesives, or 4.4 for two-component products.

4.6 Preformed road markings

NOTE Preformed road markings are typically supplied in rolls or in packages containing a number of preformed sheets of the material.

A number (n) of original product containers shall be selected for sampling, at random, from the consignment or stock (N) in accordance with 4.1.

Smaller representative samples of preformed road markings shall be taken from each selected container in order to carry out all the tests required in accordance with EN 1790.

If a preformed road marking material is to be installed using a primer and/or an adhesive then a sample shall be taken in accordance with 4.2.

4.7 Drop on materials and premix glass beads

A number (n) of original product containers shall be selected for sampling, at random, from the consignment or stock (N) in accordance with 4.1.

Representative samples of drop-on materials and premix glass beads shall be taken from each selected container in accordance with EN 1423 and EN 1424 respectively.

NOTE Only containers without damage or deterioration of the packaging which could directly affect the quality of the sample, should be selected for sampling.

5 Testing of samples

5.1 Minimum sample quantities

Table 2 gives the minimum sample quantities for conducting all of the tests specified in 5.2 and 5.3.