SLOVENSKI STANDARD
oSIST prEN 1463-2:2020

01-februar-2020

Materiali za označevanje vozišča - Odsevniki - 2. del: Terenski preskusi

Road marking materials - Retroreflecting road studs - Part 2: Road test performance specifications

Straßenmarkierungsmaterialien - Retroreflektierende Markierungsknöpfe - Teil 2: Feldprüfungen

Produits de marquage routier - Plots rétroréfléchissants - Partie 2 : Essai routier

Ta slovenski standard je istoveten z: **prEN 1463-2**

ICS:

93.080.20 Materiali za gradnjo cest Road construction materials

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English Version

Road marking materials - Retroreflecting road studs - Part 2: Road test performance specifications

Produits de marquage routier - Plots rétroréfléchissants - Partie 2 : Essai routier

Straßenmarkierungsmaterialien - Retroreflektierende Markierungsknöpfe - Teil 2: Feldprüfungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 226.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (prEN 1463-2:2019) has been prepared by Technical Committee CEN/TC 226 “Road equipment”, the secretariat of which is held by AFNOR.

This document is currently submitted to the Formal Vote.

This document will supersede EN 1463-2:2000.

This document has been prepared under a standardization given to CEN/CENELEC by the European Commission and the European Free Trade Association, and supports basic work requirements of Regulation (EU) Nr. 305/2011.

The main changes with respect to the previous edition are listed below:

— To adapt the structure of the standard to the new CEN rules when applying this standard as a harmonized standard under EU Regulation 305/2011.

— This standard have been fully harmonized with the structure of EN 1824 “Road marking materials”.

— To avoid redundancies with EN 1463-1 all definitions which are stated already in EN 1463 have been removed from Clause 3.

— In 4.2 “Test site characteristics and location” (former 4.1.2 “General specifications for test sites) the “in use” characteristic for “straight and flat” have been added as a reference.

— In 4.5 “Road surface conditions” (former 4.1.5) concrete road surfaces have been added as a suitable surface. To avoid any misunderstandings the following Note have been added: “Durability needs to be demonstrated at least on one road surface. Should the intended use of the road stud be for more than one road surface, bonding tests on the other road surfaces are recommended”.

— In 5.1 “Duration” (former 4.2.1) the duration of road trials had been reduced from 1 year down to 11 month as the number of test sites are limited. Accordingly time needs to be planned for removal and applying a new test.

— In 5.2 “Longitudinal application patterns” (former 4.2.2) drawings have been added to avoid any misunderstanding.

— In 7.2 “Stage 1: daylight examination” (former 5.2) the paragraph a) have been revised to avoid any misunderstanding.

— Added in 7.3 Stage 2: night-time examination (former 5.3) process step a) “clean the retroreflectors” and a note about cleaning. While this just describes best practice, this information has been added to avoid any misunderstanding.

— Added in 7.3 Stage 2: night-time examination (former 5.3) process step d) “if the total number of test studs remaining is less than 43, the assessment shall be considered void” as a further proceeding to stage 3 makes no sense under this condition.

— In Clause 8 “Result classification” (former Clause 6) the classes S0-S3 have been removed in accordance with the changes introduced in EN 1463-1:2009.

— Added informative Annex C “Standardized documentation of weather conditions using the Köppen classification”.

— As temporary road studs do not require CE mark, respective paragraphs have been moved to Annex D (informative).

— Added informative Annex E “In-Situ testing of retroreflective properties using a portable (hand-held) retroreflectometer”.

The Annexes A, B, C, D and E of this European standard are informative.

Introduction

Retroreflecting road studs are horizontal guiding devices that reflect incident light by means of retroreflectors in order to warn, guide or inform road users. They may be constructed in one or more integral parts and may be bonded to, anchored within or embedded within the road surface. Retroreflecting road studs are provided either as permanent or temporary devices for road users.

The initial performance requirements such as dimensions, night-time visibility, night-time colour, daytime visibility etc. are specified in prEN 1463-1:2019.

In this part of the standard suitable methods are given for conducting road trials with the aim of achieving comparability and reproducibility of test results.

1 Scope

This document describes a test method for carrying out road trials on retroreflecting road studs for use in permanent applications. Specifications are given for test sites and for application patterns, and a recommendation is given for the presentation of the results in the form of a test report.

Temporary road studs are covered in Annex D (informative).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

prEN 1463-1:2019, *Road marking materials — Retroreflecting road studs — Part 1: Initial performance requirements*

3 Terms, definitions and types

For the purposes of this document, the terms and definitions given in prEN 1463-1:2019 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
test stud
retroreflecting road stud submitted for conformity testing in accordance with this standard

4 Test sites and conditions

4.1 General

Test sites shall be arranged at suitable locations which meet at least the requirements of 4.1 to 4.5. The test results will depend on the weather, traffic and road surface conditions. These shall all be described in a general report for the test site.

4.2 Test site characteristics and location

Roads used for test sites shall be straight and flat (in use specifications refer to a maximum slope of 4 %), with the lowest longitudinal and transverse gradient possible and without singular points (such as traffic lights and intersections), substantial obstacles to daylight, sources of frequent dirt (such as quarries and field exits) and movement of tracked vehicles.

Any change of site conditions during the test period shall be avoided.

The lengthwise slope and any special circumstances shall be stated in the general report for the test site.

4.3 Weather conditions

At the termination of a road trial, it is recommended to produce a weather report for the duration of the road trial. The weather report can be based on data from the nearest meteorological station and it can include data obtained on the test site itself; it should include aspects of the weather of influence to the results of the road trial.

If it is agreed between the participating parties that weather information is to be collected, the weather report shall include as a minimum an account of temperature conditions during the testing period.

NOTE Annex C (informative) is providing guidance for a simplified reporting method in accordance with the Köppen Climate Classification. The weather report can include a monthly account of mean minimum and maximum day temperatures, the cumulated precipitations in millimetres of water and the number of sand/grit scattering actions, snow ploughing actions etc.

4.4 Traffic conditions

Studs shall be tested on a dual carriageway road of two lanes in each direction so that traffic can be re-directed for safe installation and subsequent assessments. On this test site there shall be no other than the national maximum speed limit.

The annual average daily traffic (AADT) of test sites shall be at least 5 000 for the total carriageway in the test direction and shall contain 10 % to 25 % heavy vehicles. A vehicle is considered a heavy vehicle if its maximum gross mass is greater than 7 500 kg.

Other special requirements (e.g. snow clearance, studded tyres) not included in the general minimum requirements as specified in this clause, but considered indispensable for some countries or special applications, may be taken into account by the participating parties for the selection of the test site and recorded in the general report for the test site.

4.5 Road surface conditions

Road trials shall be carried out on asphaltic or concrete road surfaces of an age of one year or more, in good condition and without damage in the form of wheel tracks, fissures, cracks or similar.

Durability needs to be demonstrated at least on one road surface. Should the intended use of the road stud be for more than one road surface, bonding tests on the other road surfaces are recommended.

5 Organization of road trials

5.1 Duration

The duration of road trials shall be:

— approximately one year for permanent studs; minimum 11 months which should include summer and winter season.

5.2 Longitudinal application patterns

Test studs shall be applied as:

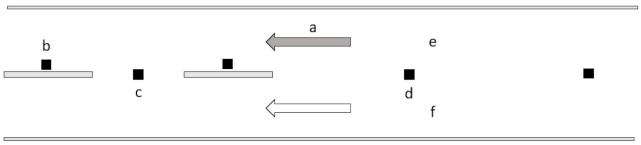
— lane separation lines instead of road marking, or

— in the gaps between existing lane separation lines, or

— alongside and immediately adjacent to existing lane separation lines (to the right of the line for traffic driving on the right and to the left of the line for traffic driving on the left).

The longitudinal spacing of the test studs shall be as follows:

— permanent studs: minimum 2,5 m.



Key

a driving direction

b alongside and immediately adjacent to existing lane separation lines

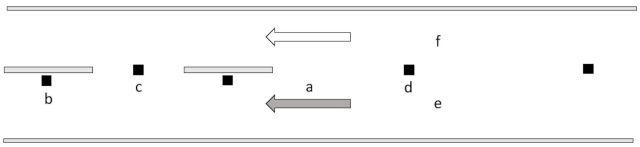
c studs in the gaps between existing lane separation lines

d studs as lane separation lines instead of road marking

e lane 1

f lane 2

Figure 1 — Road stud application patterns for right side driving



Key

a driving direction

b alongside and immediately adjacent to existing lane separation lines

c studs in the gaps between existing lane separation lines

d studs as lane separation lines instead of road marking

e lane 1

f lane 2

Figure 2 — Road stud application patterns for left side driving

6 Application of road studs

6.1 Technical specifications

Reference shall be made to the technical specifications for the stud product and the fixing system which shall be submitted by the supplier. These technical specifications shall be accompanied by a dimensioned drawing and description of the material(s) and fixing methods appropriate to the stud.

6.2 Number of studs

Fifty test studs shall be applied.

Test studs of one product shall not be interspaced or mixed with test studs of another product.

6.3 Retroreflecting lens colour

For the road trial white, yellow or amber retroreflecting road studs shall be used.

6.4 Periods of application

The periods of application of test studs shall be at a time of the year when weather conditions are suitable.

NOTE The participating parties can agree to include one or more periods for application. One period can for instance be for temporary studs and another for permanent studs. It is of practical advantage to keep the periods as short as possible.

6.5 Conditions suitable for application

Application of test studs shall be in accordance with the instructions of the manufacturer.

NOTE 1 The participating parties can agree to include a specification for suitable weather conditions, for example, the road surface temperature to be at least 3 °C above the dew point of the air and the road surface temperature to be between 10 °C and 50 °C. The participating parties can agree that the application of test studs with a slow drying adhesive can be delayed if the road is to be opened to traffic within at most 2 h.

NOTE 2 Studs can be applied when the road surface is wet if water tolerant adhesives are specified by the test stud manufacturer.

7 Measurements related to performance

7.1 General

At the end of the field trial testing period, the procedures described in 7.2 to 7.7 shall be followed.

7.2 Stage 1: daylight examination

a) Any parts of the stud of all test studs present sharp edges to traffic as a result of damage, wear or separation of parts of the stud shall be considered as non-conforming;

b) any missing test stud or reflector shall be considered as non-conforming;

c) record conforming and non-conforming studs on the Road Trial Assessment Form (RTAF);

d) if the total number of test studs remaining is less than 45, the assessment shall be considered void;

e) all non-conforming studs according to 7.2 a) should for safety reasons be removed from the road as quickly as possible before proceeding to 7.3.