

SIDUMATA JA HÜDRAULILISELT SEOTUD SEGUD. OSA 1:
KATSEMEETODID LABORATOORSE VÕRDLUSTIHEDUSE
JA VEESISALDUSE KOHTA. SISSEJUHATUS, ÜLDISED
NÕUDED JA PROOVIDE VÕTMINE

Unbound and hydraulically bound mixtures - Part 1:
Test methods for laboratory reference density and
water content - Introduction, general requirements and
sampling

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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| See Eesti standard EVS-EN 13286-1:2021 sisaldab Euroopa standardi EN 13286-1:2021 ingliskeelset teksti. | This Estonian standard EVS-EN 13286-1:2021 consists of the English text of the European standard EN 13286-1:2021. |
| Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. | This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. |
| Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 10.11.2021. | Date of Availability of the European standard is 10.11.2021. |
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English Version

Unbound and hydraulically bound mixtures - Part 1: Test methods for laboratory reference density and water content - Introduction, general requirements and sampling

Mélanges traités et mélanges non traités aux liants hydrauliques - Partie 1: Méthode d'essai de détermination en laboratoire de la masse volumique de référence et la teneur en eau - Introduction et exigences générales

Ungebundene und hydraulisch gebundene Gemische - Teil 1: Laborprüfverfahren für die Trockendichte und den Wassergehalt - Einführung, allgemeine Anforderungen und Probenahme

This European Standard was approved by CEN on 5 July 2021.

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European foreword

This document (EN 13286-1:2021) has been prepared by Technical Committee CEN/TC 227 “Road Materials”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by May 2022, and conflicting national standards shall be withdrawn at the latest by May 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13286-1:2003.

The following changes have been made in comparison with EN 13286-1:2003:

- editorial changes;
- in Table 1, a change to the particle size range for the vibrating hammer test in reflection of the change in EN 13286-4.

This document is one of a series of standards as follows:

- EN 13286-1, Unbound and hydraulically bound mixtures — Part 1: Test methods for laboratory reference density and water content — Introduction, general requirements and sampling
- EN 13286-2, Unbound and hydraulically bound mixtures — Part 2: Test methods for laboratory reference density and water content — Proctor compaction
- EN 13286-3, Unbound and hydraulically bound mixtures — Part 3: Test methods for laboratory reference density and water content — Vibrocompression with controlled parameters
- EN 13286-4, Unbound and hydraulically bound mixtures — Part 4: Test methods for laboratory reference density and water content — Vibrating hammer
- EN 13286-5, Unbound and hydraulically bound mixtures — Part 5: Test methods for laboratory reference density and water content — Vibrating table
- EN 13286-7, Unbound and hydraulically bound mixtures — Part 7: Cyclic load triaxial test for unbound mixtures
- EN 13286-40, Unbound and hydraulically bound mixtures — Part 40: Test method for the determination of the direct tensile strength of hydraulically bound mixtures
- EN 13286-41, Unbound and hydraulically bound mixtures — Part 41: Test methods for the determination of the compressive of strength of hydraulically bound mixtures
- EN 13286-42, Unbound and hydraulically bound mixtures — Part 42: Test method for the determination of the indirect tensile strength of hydraulically bound mixtures
- EN 13286-43, Unbound and hydraulically bound mixtures — Part 43: Test method for the determination of the modulus of elasticity of hydraulically bound mixtures

- EN 13286-44, Unbound and hydraulically bound mixtures — Part 44: Test method for the determination of the alpha coefficient of vitrified blastfurnace slag
- EN 13286-45, Unbound and hydraulically bound mixtures — Part 45: Test method for the determination of the workability period of hydraulically bound mixtures
- EN 13286-46, Unbound and hydraulically bound mixtures — Part 46: Test method for the determination of the moisture condition value
- EN 13286-47, Unbound and hydraulically bound mixtures — Part 47: Test method for the determination of California bearing ratio, immediate bearing index and linear swelling
- EN 13286-48, Unbound and hydraulically bound mixtures — Part 48: Test method for the determination of the degree of pulverisation
- EN 13286-49, Unbound and hydraulically bound mixtures — Part 49: Test method for the determination of the accelerated swelling of soil treated by lime and/or hydraulic binder
- EN 13286-50, Unbound and hydraulically bound mixtures — Part 50: Method for the manufacture of test specimens of hydraulically bound mixtures using Proctor equipment or vibrating table compaction
- EN 13286-51, Unbound and hydraulically bound mixtures — Part 51: Method for the manufacture of test specimens of hydraulically bound mixtures using vibrating hammer compaction
- EN 13286-52, Unbound and hydraulically bound mixtures — Part 52: Method for the manufacture of test specimens of hydraulically bound mixtures using vibrocompression
- EN 13286-53, Unbound and hydraulically bound mixtures — Part 53: Method for the manufacture of test specimens of hydraulically bound mixtures using axial compression
- CEN/TS 13286-54, Unbound and hydraulically bound mixtures — Part 54: Test method for the determination of frost susceptibility — Resistance to freezing and thawing of hydraulically bound mixtures

Annex A is informative.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document specifies a number of test methods for the determination of the relationship between the water content and the density of unbound and hydraulically bound mixtures under specified test conditions. The test results provide an estimate of the mixture density that can be achieved and provides a reference parameter for assessing the density of the compacted layer of the mixture.

The test results are used as a basis for specifying requirements for hydraulically bound and unbound mixtures.

The test result also allows a conclusion to be drawn as to the water content at which a mixture can be satisfactorily compacted in order to achieve a given density.

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.

EN 932-1:1996, *Tests for general properties of aggregates - Part 1: Methods for sampling*

EN 932-2:1999, *Tests for general properties of aggregates - Part 2: Methods for reducing laboratory samples*

EN 932-5, *Tests for general properties of aggregates - Part 5: Common equipment and calibration*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 932-1:1996, EN 932-2:1999 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 <https://www.iso.org/obp>

3.1

laboratory dry density

maximum dry density that can be determined from the dry density/water content relationship derived using a specified test method

3.2

optimum water content

water content associated with the maximum value of laboratory dry density

3.3

aggregate size

designation of aggregate in terms of lower (d) and upper (D) sieve sizes expressed as d/D

Note 1 to entry: This designation accepts the presence of some particles which will be retained on the upper sieve (oversize) and some which will pass the lower sieve (undersize). The lower sieve size (d) may be zero.