Irish Standard
I.S. EN 13286-41:2021

Unbound and hydraulically bound mixtures - Part 41: Test method for the determination of the compressive strength of hydraulically bound mixtures

I.S. EN 13286-41:2021

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:	*Published:*
EN 13286-41:2021	2021-11-03

This document was published under the authority of the NSAI and comes into effect on:	ICS number:
2021-11-22	93.080.20
	NOTE: If blank see CEN/CENELEC cover page

NSAI	T +353 1 807 3800	Sales:
1 Swift Square,	F +353 1 807 3838	T +353 1 857 6730
Northwood, Santry	E standards@nsai.ie	F +353 1 857 6729
Dublin 9	W NSAI.ie	W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN 13286-41:2021 is the adopted Irish version of the European Document EN 13286-41:2021, Unbound and hydraulically bound mixtures - Part 41: Test method for the determination of the compressive strength of hydraulically bound mixtures

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13286-41

November 2021

ICS 93.080.20

Supersedes EN 13286-41:2003

English Version

Unbound and hydraulically bound mixtures - Part 41: Test method for the determination of the compressive strength of hydraulically bound mixtures

Mélanges traités et mélanges non traités aux liants hydrauliques - Partie 41: Méthode d'essai pour la détermination de la résistance à la compression des mélanges traités aux liants hydrauliques

Ungebundene und hydraulisch gebundene Gemische - Teil 41: Prüfverfahren zur Bestimmung der Druckfestigkeit hydraulisch gebundener Gemische

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

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

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

Contents

Page

European foreword

This document (EN 13286-41:2021) 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 supersede EN 13286-41:2003.

The following changes have been made in comparison with EN 13286-41:2003:

— editorial changes;

— to cater for the wide range of strengths possible for hydraulically bound mixtures – from < 1 MPa to 50 MPa or more - an increase in the permitted ‘time window’ for rupture of the specimen.

This document is one of a series of standards as listed below.

— 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 method for the determination of the compressive 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 — Test methods — 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 methods 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

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 describes a test method for the determination of the compressive strength of specimens of hydraulically bound mixtures. This document applies to specimens manufactured in the laboratory or prepared from cores.

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 12390-3:2019, *Testing hardened concrete - Part 3: Compressive strength of test specimens*

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: Methods for the manufacture of test specimens of hydraulically bound mixtures using axial compression*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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
hydraulically bound mixture
mixture that hardens by hydraulic and/or pozzolanic and/or sulfatic and/or carbonatic reaction, which usually has a workability to suit compaction by rolling and which is generally used in bases, sub-bases and capping layers

3.2
compressive strength
stress at failure of a specimen when tested in uniaxial unconfined compression

3.3
slenderness ratio
ratio of the length to the diameter of a cylindrical specimen

4 Principle

A specimen is subjected to a compressive force until failure. The maximum load sustained by the specimen is recorded and the compressive strength is calculated.