



NSAI
Standards

Irish Standard
I.S. EN 13108-31:2019

Bituminous mixtures - Material specifications - Part 31: Asphalt Concrete with Bituminous Emulsion

I.S. EN 13108-31:2019

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:

EN 13108-31:2019

Published:

2019-09-25

This document was published under the authority of the NSAI and comes into effect on:

2019-10-14

ICS number:

93.080.20

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN 13108-31:2019 is the adopted Irish version of the European Document EN 13108-31:2019, Bituminous mixtures - Material specifications - Part 31: Asphalt Concrete with Bituminous Emulsion

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

EN 13108-31

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2019

ICS 93.080.20

English Version

Bituminous mixtures - Material specifications - Part 31: Asphalt Concrete with Bituminous Emulsion

Mélanges bitumineux - Spécifications sur le matériau -
Partie 31: Enrobés bitumineux à l'émulsion de bitume

Asphaltnischgut - Mischgutanforderungen - Teil 31:
Emulsionsgebundene Asphaltbetone

This European Standard was approved by CEN on 5 August 2019.

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

CEN members are the national standards bodies of 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 United Kingdom.



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.....	5
Introduction	6
1 Scope.....	7
2 Normative references.....	7
3 Terms, definitions, symbols and abbreviations.....	9
3.1 Terms and definitions	9
3.2 Symbols and abbreviations	12
4 Requirements for constituent materials	12
4.1 General.....	12
4.2 Binder.....	12
4.2.1 General.....	12
4.2.2 Selection of binder	12
4.3 Aggregates	12
4.3.1 General.....	12
4.3.2 Coarse aggregate	13
4.3.3 Fine aggregate	13
4.3.4 All-in aggregates.....	13
4.3.5 Added filler.....	13
4.4 Reclaimed asphalt.....	13
4.5 Additives.....	13
4.6 Water	13
5 Requirements for the mixture.....	14
5.1 General.....	14
5.2 Composition, grading, binder content.....	14
5.2.1 Composition	14
5.2.2 Grading.....	14
5.2.3 Minimum binder content	16
5.3 Properties	17
5.3.1 Specimens	17
5.3.2 Void content requirements	17
5.3.3 Water sensitivity	19
5.3.4 Indirect Tensile Strength.....	20
5.3.5 Compressive strength.....	20
5.3.6 Stiffness.....	21
5.4 Temperature.....	22
5.5 Reaction to fire.....	22
5.6 Regulated dangerous substances	22
5.7 Conflicting requirements	22
6 Assessment and verification of constancy of performance — AVCP	22
7 Identification	23
Annex A (normative) Product Type Assessment	24
A.1 General.....	24

A.2	Validity	24
A.2.1	Period of validity.....	24
A.2.2	Changes in aggregate.....	24
A.2.3	Change in bituminous emulsion.....	24
A.2.4	Change in Reclaimed Asphalt.....	25
A.2.5	Change in additive.....	25
A.3	Constituent materials.....	25
A.4	Bituminous Emulsion Mixtures	25
A.4.1	General	25
A.4.2	Application.....	25
A.4.3	Sampling and testing	26
A.4.4	Composition.....	26
A.4.5	Specimen preparation	26
A.4.5.1	General	26
A.4.5.2	Laboratory validation	26
A.4.5.3	Production validation	26
A.5	Product type assessment Report	27
A.5.1	General	27
A.5.2	Constituents.....	27
A.5.3	Mix formulation.....	27
A.5.4	Temperatures	27
A.5.5	Test results.....	28
A.6	Properties and test methods for constituent materials	28
A.7	Methods of specimen preparation.....	29
A.7.1	General	29
A.7.2	Compaction energy	29
A.7.3	Reference density	29
A.7.4	Compaction degree	30
A.7.5	Void content.....	30
A.7.6	Water sensitivity.....	31
A.7.6.1	Water sensitivity according to EN 12697-12:2018, Method A	31
A.7.6.2	Water sensitivity according to EN 12697-12:2018, Method B	32
A.8	Test procedures and conditions.....	33
A.8.1	General	33
A.8.2	Stiffness	33
A.9	Special requirements for airfields.....	34

EN 13108-31:2019 (E)

Annex B (normative) Factory Production Control	35
B.1 General.....	35
B.2 Testing, tolerances and conformity assessment.....	35
Annex C (informative) Performance characteristic assessment.....	37
C.1 General.....	37
C.2 Resistance to permanent deformation.....	37
C.2.1 Wheel-tracking test	37
C.3 Fracture toughness.....	40
C.4 Spreadability.....	41
C.5 Coating and homogeneity.....	41
Bibliography.....	42

European foreword

This document (EN 13108-31:2019) 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 March 2019, and conflicting national standards shall be withdrawn at the latest by March 2019.

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.

A list of all parts of the EN 13108 series 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.

EN 13108-31:2019 (E)

Introduction

The aim of this document is to enable specification of asphalt concrete mixtures with bituminous emulsion on a performance basis. In general, however, there are currently more empirical tests available to describe the mixtures.

This document covers a large variety of materials for different applications, traffic and climate conditions. The standard gives properties and listings of possible categories. It has to accommodate the road industry for all of Europe. For this reason, the menu approach for properties has been chosen. The tables represent categories that are required all over Europe. For this reason, numerical values in tables do not always obey statistical rules. Based on conditions of use, specific properties and categories may be defined, in documents related to the application of the product. The categories defined in those documents take into account the reproducibility of the test when this is given in the appropriate test method.

Care is to be taken to only select those tests which are applicable to the application of the asphalt and the use of the pavement and to avoid a combination of potentially conflicting requirements.

1 Scope

This document specifies requirements for plant mixtures of the mix group Asphalt concrete with bituminous emulsion for use on roads, and other trafficked areas. Asphalt concrete with bituminous emulsion is used for surface courses, binder courses, regulating courses, and bases. It is a mixture in which mechanical properties evolve over time following installation. This is not just in terms of cooling, as other asphalts but also includes curing effects.

NOTE Asphalt concrete with bituminous emulsion is a mixture in which mechanical properties evolve over time following installation because of curing.

Mixtures utilizing bituminous emulsion based on *in situ* recycling are not covered by this document.

This document includes requirements for the selection of the constituent materials. It is designed to be read in conjunction with:

- Annex A Product Type Assessment (Normative);
- Annex B Factory Production Control (Normative);
- Annex C Performance characteristic assessment (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.

EN 932-3, *Tests for general properties of aggregates — Part 3: Procedure and terminology for simplified petrographic description*

EN 933-1, *Tests for geometrical properties of aggregates — Part 1: Determination of particle size distribution — Sieving method*

EN 933-10, *Tests for geometrical properties of aggregates — Part 10: Assessment of fines — Grading of filler aggregates (air jet sieving)*

EN 1008, *Mixing water for concrete — Specification for sampling, testing and assessing the suitability of water, including water recovered from processes in the concrete industry, as mixing water for concrete*

EN 1097-6:2013, *Tests for mechanical and physical properties of aggregates — Part 6: Determination of particle density and water absorption*

EN 1097-7, *Tests for mechanical and physical properties of aggregates — Part 7: Determination of the particle density of filler — Pyknometer method*

EN 1426, *Bitumen and bituminous binders — Determination of needle penetration*

EN 1427, *Bitumen and bituminous binders — Determination of the softening point — Ring and Ball method*

EN 1428, *Bitumen and bituminous binders — Determination of water content in bituminous emulsions — Azeotropic distillation method*

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-