

BITUUMEN JA BITUUMENSIDEAINED. VÄLJAVOOLUAJA  
MÄÄRAMINE VÄLJAVOOLU VISKOSIMEETRIGA. OSA 1:  
BITUUMENEMULSIONID

Bitumen and bituminous binders - Determination of  
efflux time by the efflux viscometer - Part 1:  
Bituminous emulsions

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 12846-1:2022 sisaldab Euroopa standardi EN 12846-1:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 12846-1:2022 consists of the English text of the European standard EN 12846-1:2022.
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 07.12.2022.	Date of Availability of the European standard is 07.12.2022.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 91.100.50

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis-ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardimis-ja Akrediteerimiskeskusega: Koduleht [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation and Accreditation:

Homepage [www.evs.ee](http://www.evs.ee); phone +372 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

English Version

**Bitumen and bituminous binders - Determination of efflux  
time by the efflux viscometer - Part 1: Bituminous  
emulsions**

Bitumes et liants bitumineux - Détermination du temps  
d'écoulement à l'aide d'un viscosimètre à écoulement -  
Partie 1 : Émulsions bitumineuses

Bitumen und bitumenhaltige Bindemittel -  
Bestimmung der Ausflusszeit mittels  
Ausflussviskosimeter - Teil 1: Bitumenemulsionen

This European Standard was approved by CEN on 21 November 2022.

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, Türkiye 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.....	3
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions .....	5
4 Principle .....	6
5 Reagents and materials.....	6
6 Apparatus.....	6
7 Sampling.....	7
8 Procedure.....	7
8.1 General.....	7
8.2 Preparation of apparatus.....	7
8.3 Measurement.....	8
9 Expression of results.....	9
10 Precision.....	9
10.1 General.....	9
10.2 Repeatability.....	9
10.3 Reproducibility.....	10
11 Test report.....	10
Bibliography.....	14

## European foreword

This document (EN 12846-1:2022) has been prepared by Technical Committee CEN/TC 336 “Bituminous binders”, 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 June 2023, and conflicting national standards shall be withdrawn at the latest by June 2023.

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 12846-1:2011.

EN 12846-1:2022 includes the following significant technical changes with respect to EN 12846-1:2011:

- possibility to use a vegetal oil, requirement on density replaces requirement on viscosity (Clause 5);
- the use of Sa and Sc solutions has been abandoned;
- Figures 1 and 2 have been modified to be in line with the evolution of test equipment (6.1 and 6.2);
- possibility to use alternative working apparatus that meet the requirements of this document, such as for example an integrated block viscometer (6.1);
- mercury stem thermometers are no longer specified as reference thermometers (6.4) and Annex A has been removed;
- emulsion samples, viscometer cups, valves and lids are preconditioned at test temperature to minimize time of presence of the emulsion sample in the viscometer cup (8.3.3 and 8.3.4);
- more accurate description of measurement procedure (8.3);
- introduction in 8.3.9 of the possible use of a balance (alternative method) instead of a receiver (reference method);
- precision data have been re-evaluated based on more comprehensive operational experience (Clause 10).

The EN 12846 series consists of the following parts under the general title *Bitumen and bituminous binders — Determination of efflux time by the efflux viscometer*:

- *Part 1: Bituminous emulsions*;
- *Part 2: Cut-back and fluxed bituminous binders*.

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, Türkiye and the United Kingdom.

This document is a preview generated by EVS

## 1 Scope

This document specifies a method for the determination of the efflux time at 40 °C of bituminous emulsions in seconds using an efflux viscometer. Alternative test temperature is 50 °C.

NOTE The procedure described in this document can also be followed to determine efflux time at other temperatures such as 25 °C.

**WARNING** — The use of this document can involve hazardous materials, operations and equipment. This document does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.

## 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 58, *Bitumen and bituminous binders — Sampling bituminous binders*

EN 12594, *Bitumen and bituminous binders — Preparation of test samples*

EN 13302, *Bitumen and bituminous binders — Determination of dynamic viscosity of bituminous binder using a rotating spindle apparatus*

EN ISO 4788:2005, *Laboratory glassware — Graduated measuring cylinders (ISO 4788:2005)*

## 3 Terms and definitions

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

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org>

### 3.1

#### **viscosity**

internal resistance of a fluid to flow

### 3.2

#### **efflux time**

time needed for a specified volume of a material to flow through a specified orifice at a specified temperature

Note 1 to entry: The efflux time is an indirect measure of the viscosity and is also referred to as “pseudo-viscosity”.