

Bitumen and Bituminous Binders - Multiple Stress  
Creep and Recovery Test (MSCRT)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 16659:2015 sisaldab Euroopa standardi EN 16659:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 16659:2015 consists of the English text of the European standard EN 16659:2015.
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.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 16.12.2015.	Date of Availability of the European standard is 16.12.2015.
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English Version

## Bitumen and Bituminous Binders - Multiple Stress Creep and Recovery Test (MSCRT)

Bitumes et liants bitumineux- Essai de fluage-recouvrance sous contraintes répétées (essai MSCR)

Bitumen und bitumenhaltige Bindemittel - MSCR-Prüfung (Multiple Stress Creep and Recovery Test)

This European Standard was approved by CEN on 16 November 2015.

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## European foreword

This document (EN 16659:2015) 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of an identical text or by endorsement, at the latest by June 2016, and conflicting national standards shall be withdrawn at the latest by June 2016.

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

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## 1 Scope

**1.1** This test method covers the determination of percent recovery and non-recoverable creep compliance of bitumen and bituminous binders by means of Multiple Stress Creep and Recovery (MSCR) testing. The MSCR test is conducted using the Dynamic Shear Rheometer (DSR) in creep mode at a specified temperature.

**1.2** The percent recovery at multiple stress levels is intended to determine the presence of elastic response and stress dependence of bituminous binders.

**1.3** The non-recoverable creep compliance at multiple stress levels is intended as an indicator for the sensitivity to permanent deformation and stress dependence of bituminous binders.

**1.4** This European Standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this European Standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

## 2 Normative References

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 12597, *Bitumen and bituminous binders - Terminology*

EN 14770, *Bitumen and bituminous binders - Determination of complex shear modulus and phase angle - Dynamic Shear Rheometer (DSR)*

ISO 5725-2:1994, *Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12597 and the following apply.

**3.1**  
**creep and recovery**  
standard rheological test protocol whereby a specimen is subjected to a constant load for a fixed time period, then allowed to recover, at zero load, for a fixed time period

**3.2**  
**percent recovery (%R)**  
recovered strain in a specimen during the recovery portion of a cycle, expressed in percent