

STN	Materiály získané z pneumatík po skončení životnosti (ELT) Stanovenie skutočnej hustoty granulátov a práškov Metóda založená na vodnej pyknometrii	STN EN 17189 63 1026
------------	---	--

Materials obtained from End-of-Life Tyres (ELT) - Determination of the true density of granulates and powders - Method based on water pycnometry

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 04/25

Obsahuje: EN 17189:2024

Oznámením tejto normy sa ruší
STN P CEN/TS 17189 (63 1026) z novembra 2018

140173

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2025
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii v znení neskorších predpisov.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 17189

December 2024

ICS 13.030.50; 83.160.01

Supersedes CEN/TS 17189:2018

English Version

**Materials obtained from End-of-Life Tyres (ELT) -
Determination of the true density of granulates and
powders - Method based on water pycnometry**

Matériaux obtenus à partir de pneus usagés non
réutilisables (PUNR) - Détermination de la densité
vraie des granulats et des poudrettes - Méthode basée
sur la pycnométrie à eau

Materialien aus Altreifen (ELTs) - Bestimmung der
tatsächlichen Dichte von Granulaten - Methode auf der
Grundlage von Wasser-Pyknometrie

This European Standard was approved by CEN on 25 November 2024.

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

EN 17189:2024 (E)

Contents	Page
European foreword	3
Introduction	4
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions	5
4 Principle	5
5 Apparatus	6
6 Preparation.....	6
6.1 Sample preparation	6
6.2 Surfactant solution.....	7
7 Procedure for rubber granulates.....	7
7.1 Method	7
7.2 Preparation of pycnometer and sample.....	7
7.3 Removal of trapped air	8
7.4 Filling of pycnometer.....	8
8 Expression of results	8
9 Test report.....	9
Annex A (normative) Specific Method for ELT rubber powder.....	10
Bibliography	11

European foreword

This document (EN 17189:2024) has been prepared by Technical Committee CEN/TC 366 “Materials obtained from End-of-Life Tyres (ELT)”, the secretariat of which is held by UNI.

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 2025 and conflicting national standards shall be withdrawn at the latest by June 2025.

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 CEN/TS 17189:2018.

This document includes the following significant technical changes with respect to CEN/TS 17189:2018:

- addition of a sampling and true density determination method for powders in the Title and Scope;
- revision of the used terminology to integrate powders;
- review of the general structure of the document.

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 organizations 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.

EN 17189:2024 (E)**Introduction**

True density is a key measurement for product characterization of size-reduced materials such as granulates and powders. This document specifies a specific method for granulates and powders considering that, to obtain an accurate value of true density, a representative sample of the material to be tested is taken according to the principle that every particle of the sample that represents the lot will have an equal probability of being included in the sample.

Sampling criteria to assess characteristics of granulates and powders at various stages of a production process by size reduction of End-of-Life Tyres are given in EN 14243-2.

Measurement of true density could be useful to identify the nature of particles of different origin, for example, when a customer needs to check if they received granular material derived from End-of-Life Tyres (ELTs) or from products based on EPDM polymers. True density is different between these two products and could be a reliable element to discriminate.

Typical values are:

- ELT granulates: 1.12 - 1.22;
- EPDM granulates: 1.4 - 1.6.

1 Scope

This document specifies methods and test protocols used to determine the true density of granulates and powders produced from ELTs, based on water pycnometry.

This document is applicable for powders and granulates below 12 mm.

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 14243-1, *Materials obtained from end of life tyres — Part 1: General definitions related to the methods for determining their dimension(s) and impurities*

EN 14243-2, *Materials obtained from end of life tyres — Part 2: Granulates and powders — Methods for determining the particle size distribution and impurities, including free steel and free textile content*

EN 17188, *Materials obtained from End-of-Life Tyres (ELT) — Sampling method for granulates and powders stored in big-bags*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN