SLOVENSKI STANDARD
kSIST-TS FprCEN/TS 16916:2015

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Snovi iz izrabljenih avtomobilskih gum - Določanje specifičnih zahtev za vzorčenje in ugotavljanje deleža vlage z uporabo sušilnika

Materials obtained from End of Life Tyres - Determination of specific requirements for sampling and determination of moisture content using the oven-dry method

Materialien aus Altreifen - Bestimmung der spezifischen Anforderungen für die Probennahme und Bestimmung des Feuchtigkeitsgehaltes aus dem Ofen-Trockenverfahren

Ta slovenski standard je istoveten z: **FprCEN/TS 16916**

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13.030.50	Recikliranje	Recycling
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English Version

Materials obtained from End of Life Tyres - Determination of specific requirements for sampling and determination of moisture content using the oven-dry method

Materialien aus Altreifen - Bestimmung der spezifischen Anforderungen für die Probennahme und Bestimmung des Feuchtigkeitsgehaltes aus dem Ofen-Trockenverfahren

This draft Technical Specification is submitted to CEN members for formal vote. It has been drawn up by the Technical Committee CEN/TC 366.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (FprCEN/TS 16916:2015) 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 document is currently submitted to the Formal Vote.

1 Scope

This draft Technical Specification specifies a method for determining the total moisture content of materials obtained from End of Life Tyres (ELT) by drying samples in an oven. The method is applicable to chips, granulates, powders and textile derived from the treatment of End of Life Tyres.

This document is not intended for the determination of moisture content in steel wires.

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.

CEN/TS 14243:2010 *Materials produced from end of life tyres — Specification of categories based on their dimension(s) and impurities and methods for determining their dimension(s) and impurities*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in CEN/TS 14243:2010 apply.

4 Principle

The sample of material is dried at a temperature of 105 °C in air atmosphere until constant mass is reached. The percentage of moisture is calculated from the loss in mass of the sample. The method includes a procedure for the correction of buoyancy effects.

5 Apparatus

5.1 Drying oven, capable of being controlled at (105 ± 2) °C (see declaration of the manufacturer) and in which the air atmosphere changes between three and five times per hour.

The air velocity shall be such that the sample particles are not dislodged from their dish or tray (5.2).

5.2 Dishes or trays of non-corrodible and heat-resistant material and of such dimensions that they are able to hold the total sample in the proportion of about 1 g of sample per 100 mm^2 of surface area of the dish or tray respectively or about 0,5 g per 100 mm^2 for textile samples.

The surface of the dish or tray shall be such that the possibility to adsorption/absorption is minimized (very clean and even surface).

5.3 Balance, capable of weighing the sample and dish or tray (5.2), as received, to the nearest 0,1 g.

6 Preparation of the sampling plan and laboratory sample

6.1 Principles of correct sampling

6.1.1 General

The main principle of sampling is to obtain a representative sample(s) from a lot of material from which the moisture content shall be determined.

6.1.2 General

The objective of this procedure is to take samples in a way that is truly representative of the moisture content of the material produced. It can be distinguished two different alternatives. The first alternative is to control the moisture content of a production sample, in a point as close as possible to the entrance point in the big bag. The second alternative is to control the moisture content from stored material.

It is important to manipulate as less as possible the samples, as this manipulation can strongly affect the real moisture content of the sample.

6.1.3 Sampling plan

A written sampling plan shall be prepared before samples are taken according to Subclauses 6.2 to 6.6. The number of increments shall be not less than the minimum number of increments specified in 6.5.

The sampling scheme shall contain, at least, the following information:

a) the name of the sampler, the place where the sample was taken and the date when it was taken;

b) a full identification of the laboratory sample (reference);

c) a full identification of the big-bag from which the sample was taken;

d) the type of storage condition (outdoor or indoor);

e) the mass of the laboratory sample (g);

f) the name and the volume of the sampling tool (ml);

g) the number and position of the primary portions within the big-bag;

h) the type of ELTs specified in the test programme;

i) a reference to this document;

j) the report on all the operating conditions not specified in this standard, or any optional operations;

k) the report on any possible incidents that might have affected the representative nature of the sample.

6.2 Sampling point and apparatus

6.2.1 Sampling point for stocked materials

Six sampling points for the collection of sample increments shall be chosen for each material to be monitored.

Sampling shall be carried out taking the primary increments from different heights of a big bag, the mass of the laboratory sample shall be greater than or equal to 500 g. At least three increments shall be taken at different heights as specified in 6.5:

— P1: At the top (approximately 20 cm from the surface);

— P2: In the middle;

— P3: At the bottom of the big-bag (approximately 20 cm from the bottom).

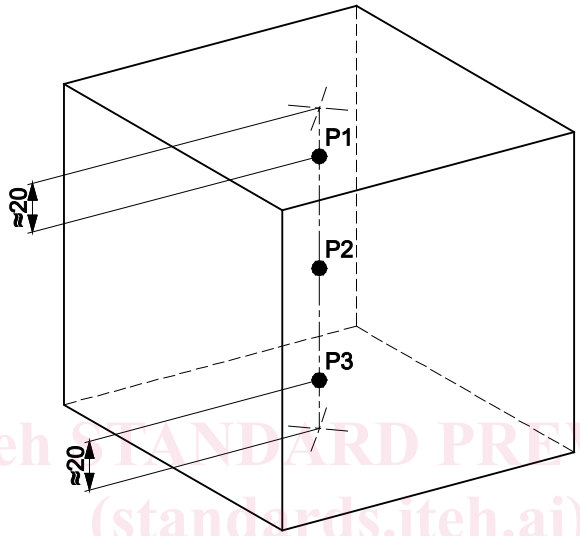

Figure 1 — Position of increments for three portions

If it is not possible to take samples in the centre axis of big-bag (see Figure 1) then six increments shall be taken on two opposite sides of the big bag at different height.

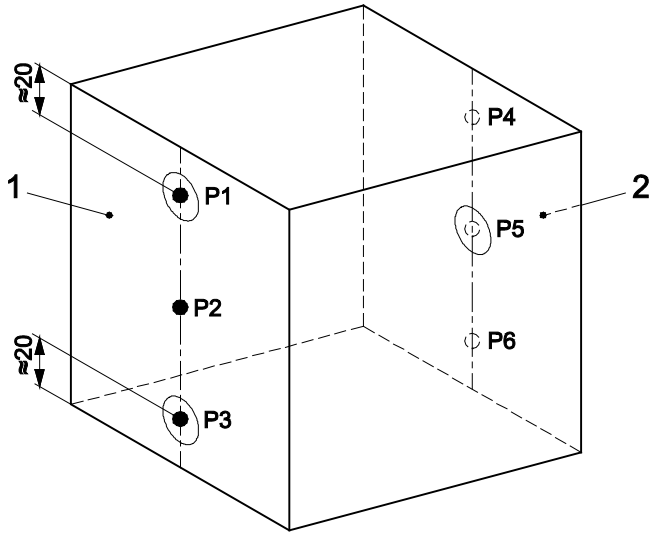

Figure 2 — Position of increments for six portions

1) mix the primary portions in a pan to make up the laboratory sample;

2) weight the laboratory sample.

Two apparatus for taking samples are shown in 6.5.2 (taking of an increment by the top of the sample and taking of an increment by the side of the big bag).

Each user can choose his tool provided that the tool chosen is specified in the sampling scheme.

6.2.2 Sampling point for production samples

A fixed sampling point for the collection of sample increments shall be chosen for each material fraction to be monitored. The best sampling point for moisture determination on a production sample is the sealing closure of the big bag when the moisture content of the sample due to the production conditions shall not change.

Sampling shall be carried out using a sample box or other suitable equipment. The sampling box is passed through the stream of falling material so that it uniformly cuts the full flow of falling material. The box shall be large enough so that it does not become overloaded. Automatic systems fulfilling these criteria may also be used.

6.3 Determination of lot size

6.3.1 Lot size for production

The lot size shall be defined by the producer in accordance with requested specifications and is a fixed quantity for which a characteristic shall be determined. The lot size (Mlot) may be defined by the producer as:

— a fixed quantity in a production day/shift;

— a fixed quantity minimum of 20 t (10 t for powders).

The lot size should be determined based on production quality management decisions or specific customer requirements.

6.3.2 Lot size of stocked material

The lot size shall be defined by the producer or by agreement between producer and customer.

The lot size should be based on specific customer requirements.

6.4 Size of a sample increment

The sampling box shall have a capacity of not less than 2 000 cm^3. Each increment should be not less than 200 cm^3 and not bigger than 500 cm^3.

6.5 Number of increments

6.5.1 Number of increments from production process

The minimum number of increments to be taken from a lot depends on the nominal top size of the granulate material to be sampled. The granulate shall be assigned by the sampler to one of two groups in Table 1.

Table 1 — Classification of material according to size

Group 1	Group 2
nominal top size < 10 mm	**nominal top size is between 10 mm and 20 mm**

When sampling from moving material:

Group 1: $n = 3 + 0{,}025 \times \text{mlot}$ size of granulates from 0,8 mm to 10 mm and powders under 0,8 mm

Group 2: $n = 5 + 0{,}040 \times \text{mlot}$ size of granulates from 10 mm to 20 mm and chips considered as very large granulates

where

n is the minimum permitted number of increments rounded off to the higher nearest whole number;

mlot is the mass of the lot in tonnes.

Sample collection is carried out according to the sample plan and the increments are collected manually using the sampling box. Each increment is placed in a separate container. Increments shall be taken at regular intervals during the discharge of the lot in accordance with the sampling plan. The time of increment collection is recorded in the sampling plan. At the end of this process, all the increments corresponding to the lot are put together to create the combined sample(s) which are sent to the laboratory as laboratory sample(s).

6.5.2 Number of increments from stocked materials in big bags

For stocked materials the minimum number of increments is three when using a screw (Figure 3) and six when using a sampler (Figure 4).

Figure 3 — Screw