



BSI Standards Publication

Surfaces for sport areas — Synthetic turf and textile sports surfaces

Part 5: Specification for infill materials

National foreword

This British Standard is the UK implementation of EN 15330-5:2025.

The UK participation in its preparation was entrusted to Technical Committee PRI/57, Surfaces for sports areas.

A list of organizations represented on this committee can be obtained on request to its committee manager.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2025
Published by BSI Standards Limited 2025

ISBN 978 0 539 21837 4

ICS 97.220.10

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 September 2025.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

English Version

Surfaces for sport areas - Synthetic turf and textile sports surfaces - Part 5: Specification for infill materials

Sols sportifs - Sols sportifs en gazon synthétique et en textile - Partie 5 : Spécification des matériaux de remplissage

Sportböden - Kunststoffrasenflächen und textile Sportflächen - Teil 5: Spezifikation für Verfüllgut

This European Standard was approved by CEN on 20 July 2025.

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	4
Introduction	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions	7
4 Sampling and conditioning.....	8
5 Classification.....	8
6 Physical properties	9
6.1 General.....	9
6.2 Infill composition.....	9
6.3 Particle size distribution.....	10
6.4 Particle shape.....	10
6.5 Bulk density	10
6.6 Polymer characterization	10
6.7 Buoyancy.....	10
6.8 Water absorption.....	11
7 Performance and material requirements.....	11
7.1 Introduction.....	11
7.2 Elastic properties.....	11
7.3 Resistance to residual deformation after static load.....	11
7.4 Durability.....	11
7.4.1 Polymeric infills	11
7.4.2 Vegetal, mineral, coated mineral and blended infills	12
7.5 Surfaces temperature during exposure to infrared energy	12
7.6 Resistance to melting / permanent agglomeration.....	12
7.7 Inhalable dust content	13
7.8 Water infiltration.....	13
7.9 Resistance to artificial weathering of polymeric and coated mineral infills	13
7.9.1 General.....	13
7.9.2 Elastic properties.....	13
7.9.3 Durability.....	13
7.9.4 Colour fastness.....	14
7.9.5 Resistance to permanent agglomeration	14
7.10 Resistance to ageing of vegetal and blended infills	14
7.10.1 General.....	14
7.10.2 Elastic properties.....	14
7.10.3 Durability.....	14
7.11 Resistance to freeze-thaw cycles	14
8 Reaction to fire.....	15
9 Toxicology	15
9.1 Polycyclic organic hydrocarbons (PAH) content.....	15
9.2 Migration of chemical elements through accidental human digestion	15

9.3	Leaching of chemical elements through immersion in water	15
10	Production tolerances.....	16
10.1	Introduction	16
10.2	Particle size distribution	16
10.3	Particle shape.....	16
10.4	Bulk density.....	16
10.5	Polymer characterization.....	17
10.6	Infill colour.....	17
10.7	Blended infills.....	17
11	Assessment of reclaimed infills to determine suitability for reuse	17
11.1	General	17
11.2	Sampling	17
11.3	Testing and requirements.....	17
11.3.1	General	17
11.3.2	Infill composition.....	17
11.3.3	Particle size.....	17
11.3.4	Particle shape.....	17
11.3.5	Bulk density.....	17
11.3.6	Inhalable dust content.....	18
11.3.7	PAH content.....	18
11.3.8	Migration of chemical elements through accidental human digestion.....	18
11.3.9	Elastic properties of reclaimed polymeric infills.....	18
11.3.10	Durability of reclaimed performance infills	18
11.3.11	Resistance to permanent agglomeration	18
12	Test reports	18
Annex A (normative)	Particle size distribution – Presentation of results.....	19
Annex B (normative)	Test method for the characterization of polymeric infills and coating.....	21
Annex C (normative)	Test method for the buoyancy characteristics and the water absorption properties infill materials	23
Annex D (normative)	Method of test for the determination of the elastic properties of performance infill materials	27
Annex E (normative)	Method of test for the determination of infill durability	34
Annex F (normative)	Method of test of for the determination of temperature build-up of infill materials when exposed to infrared heat.....	39
Annex G (normative)	Method of test of for the determine the temperature required for permanent agglomeration	43
Annex H (normative)	Method of test of for the determination of infill material's resistance to freeze-thaw cycles	47
Annex I (normative)	Method of test of for reaction to fire	49
Annex J (informative)	Guidance on the polycyclic aromatic hydrocarbons (PAH) content of infill materials.....	51
Bibliography		52

European foreword

This document (EN 15330-5:2025) has been prepared by Technical Committee CEN/TC 217 *Surfaces for sports areas*, 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 March 2026, and conflicting national standards shall be withdrawn at the latest by March 2026.

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.

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.

Introduction

Sports performance characteristics

The sports performance characteristics of a synthetic turf or textile sports surface are provided by the combined characteristics of the synthetic turf or textile surface, any infill within the playing surface pile and any shockpad laid beneath the synthetic turf or textile sports surface. The selection of the correct permutations of each is complex and the responsibility of the sports surface designer. Guidance on the specific sports performance characteristics required by various sports is provided in EN 15330-1 and in the standards and sporting regulations issued by international sports governing bodies.

Minimizing infill migration into the environment

If infill materials migrate from a synthetic turf or textile sports surface into the surrounding natural environment, they can become a source of environmental contamination. To minimize the risk of this occurring, sports fields and courts having synthetic turf or textile sports surfaces containing infill materials should be designed to incorporate measures to prevent the infill migration. Guidance on appropriate infill containment is given in CEN Technical Report PD CEN/TR 17519.

1 Scope

This document:

- a) specifies minimum performance and durability requirements for performance infill materials used in synthetic turf, and textile sports surfaces;
- b) describes how the performance of an infill shall be measured, and the results classified;
- c) specifies the physical and chemical properties of an infill that are to be declared in a manufacturer's product declaration;
- d) specifies minimum production control tolerance to ensure consistency of infill materials between production batches;
- e) describes how reclaimed infill is to be tested to assess its suitability for use.

NOTE If requested, the procedures described in this document can also be used to assess materials intended to be used as stabilizing infills, although not all of the characteristics described in this document are required for stabilizing infills.

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 71-3:2019+A2:2024, *Safety of toys — Part 3: Migration of certain elements*

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

EN 933-2, *Tests for geometrical properties of aggregates — Part 2: Determination of particle size distribution — Test sieves, nominal size of apertures*

EN 1097-3, *Tests for mechanical and physical properties of aggregates — Part 3: Determination of loose bulk density and voids*

EN 12616, *Surfaces for sports areas — Test methods for the determination of vertical water infiltration and horizontal water flow rates*

EN 12229, *Surfaces for sports areas — Procedure for the preparation of synthetic turf and needle-punch test pieces*

EN 12457-4, *Characterisation of Waste Leaching Compliance test for leaching of granular waste materials and sludges — Part 4: One stage batch test at a liquid to solid ratio of 10 l/kg for materials with particle size below 10 mm (without or with size reduction)*

EN 13744, *Surfaces for sports areas — Procedure for accelerated ageing by immersion in hot water*

EN 13817, *Surfaces for sports areas — Procedure for accelerated ageing by exposure to hot air*

EN 14810, *Surfaces for sports areas — Determination of spike resistance*

EN 14836, *Surfaces for sports areas — Synthetic surfaces for outdoor sports areas — Test method for artificial weathering*

EN 14955, *Surfaces for sports areas — Determination of composition and particle shape of unbound mineral surfaces for outdoor sports areas*

EN 15051-2, *Workplace exposure — Measurement of the dustiness of bulk materials— Part 2: Rotating drum method*

EN 17409, *Surfaces for sports areas — Code of practice for the sampling of performance infills used within synthetic turf surfaces*

EN 17467, *Surfaces for sports areas — Test method for the determination of the residual deformation of synthetic or organic infill granules after static load*

EN 20105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour (ISO 105-A02)*

EN ISO 7500-1, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system (ISO 7500-1)*

EN ISO 9239-1, *Reaction to fire tests for floorings — Part 1: Determination of the burning behaviour using a radiant heat source (ISO 9239-1)*

EN ISO 11358-1, *Plastics — Thermogravimetry (TG) of polymers — Part 1: General principles (ISO 11358-1)*

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

ISO 3310-2, *Test sieves — Technical requirements and testing — Part 2: Test sieves of perforated metal plate*

CEN/TS 16384:2012, *Synthetic sport systems — Leaching test*

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/>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

infill

particulate materials installed within or over the pile of a synthetic turf or textile sports surface

3.2

manufacturer's product declaration

statement or datasheet provided by the manufacturer or supplier of the infill that describes the composition and expected performance of the infill

3.3

performance infill

granular infill material that contributes to the sports performance characteristics of the surface

Note 1 to entry: The performance infill can also act as the stabilizing infill.

3.4

reclaimed infill

infill taken from an existing synthetic turf field for reuse after being cleaned and processed for reuse

3.5

reference sample

infill supplied by the manufacturer or supplier, and that has not been subjected to any sample conditioning or testing

3.6

stabilizing infill

granular infill material that is used to provide ballast to the sports carpet, and does not contribute to the sports performance characteristics of the surface

3.7

sports carpet

synthetic turf or textile carpet that comprises the main component of a sports surfacing system

3.8

sports surfacing system

all components that influence the sports performance, bio-mechanical and durability characteristics of the playing surface, including the sports carpet, any infill and any shockpad

3.9

synthetic polymer

material produced by chemical or biochemical synthesis, rather than occurring naturally

4 Sampling and conditioning

Sampling of infill materials to demonstrate compliance with this document shall be undertaken in accordance with EN 17409.

Following normal production processes, test samples shall not be washed prior to test.

To enable blended infills to be tested, samples of the blended materials, plus samples of each of the constituent parts, shall be supplied to the laboratory.

Prior to test, samples shall be prepared and conditioned in accordance with the manufacturer's instructions, which shall be described in the test report.

If samples are supplied in a moist or wet condition and require drying prior to test, they shall be placed in an air circulating oven operating at a temperature of $(50 \pm 2) ^\circ\text{C}$. They shall remain in the oven until they reach a constant weight. Following removal from the oven, tests shall not be performed for at least 30 min, to allow the samples to cool to room temperature

5 Classification

Based on the composition of the infill it shall be classified in accordance with Table 1.

Table 1 — Infill type classification

Infill type	Characteristics
Polymeric infill	An infill that is either: — a homogenous synthetic polymer, — a blend or mix of materials containing at least one synthetic polymer.
Vegetal infill	An infill produced entirely from naturally occurring vegetal materials.
Mineral infills	An infill produced entirely from naturally occurring in-organic materials.
Coated mineral infills	A mineral infill with an outer manmade coating
Blended infills	An infill formed from a mixture of different infill types, from any of the classifications detailed above.
NOTE 1 Attention is drawn the European Commission's Regulation (EU) 2023/2055 which can affect the use of types of synthetic polymer microparticles used as synthetic turf infill materials. NOTE 2 Vegetal infills are also known as organic infills. NOTE 3 Examples of polymeric infills include those made from rubbers and plastics. NOTE 4 Examples of vegetal infills include cork, coconut fibre, woodchip, nut husks, etc. NOTE 5 Sand is an examples of a mineral infill. NOTE 6 Examples of coated mineral infills include ceramic coated sand, polyurethane coated sand and polylactide coated sand. NOTE 7 Examples of blended infills include mixtures of polymeric and vegetal materials and mixtures of vegetal and mineral materials.	

6 Physical properties

6.1 General

The physical properties of the infill material shall be measured and reported in accordance with 6.2 to 6.8.

Blended infills shall be tested in accordance with the requirements of the majority constituent part (by mass), e.g. if a blended infill comprises 70 % vegetal infill and 30 % polymeric infill, it shall be tested as a vegetal infill. If the weight of each constituent part is equal the manufacturer shall define which is the principal constituent part.

6.2 Infill composition

A description and photographic record of the infill shall be included in the test report.

If an infill comprises a blend of different materials, the percentage mass of each constituent shall be determined and reported. For blends where it is not possible to separate the materials, the reported value shall be taken from the manufacturer's product declaration.

6.3 Particle size distribution

The particle size distribution of the infill material shall be determined in general accordance with EN 933-1, using the specific conditions detailed below. For blended materials the particle size distribution of the blend and each constituent component shall be determined.

A minimum of eight sieves shall be used, from the range detailed in Table 2. The 0,00 mm, 0,063 mm and 0,200 mm sieves shall always be used. The remaining sieves shall be spaced across the aperture sizes d and D of the product declaration or designated product size, with the largest sieve allowing 100 % of the infill to pass.

The sieve apertures shall be as specified in EN 933-2 and conform to the requirements of ISO 3310-1 and ISO 3310-2.

Table 2 — Sieve mesh sizes (mm)

0,00	0,063	0,200	0,315	0,500	0,630
0,800	1,00	1,25	1,60	2,00	2,50
3,15	4,00	5,00	6,30	6,70	7,10
8,00					

The sieves shall be mounted in a mechanical device that applies a 3-dimensional vibrating movement.

The equipment shall have a timer and amplitude settings. The amplitude shall be set at $(1,5 \pm 0,1)$ mm.

The duration of the sieving operation shall be (20 ± 1) min.

The results of the test shall be reported using the procedure described in Annex A.

Tests may also be undertaken using dynamic image analysis methods in accordance with ISO 13322-2 providing the results are reported in a format compatible with that specified in EN 933-1 and Annex A.

6.4 Particle shape

The particle shape of the infill material shall be determined in accordance with EN 14955.

For blended materials the particle shape of the blend and each constituent component shall be determined.

6.5 Bulk density

The bulk density of the infill material shall be determined in accordance with EN 1097-3, but the material shall be dried at (50 ± 2) °C until a constant mass is achieved, prior to test.

For blended materials the bulk density of the blend and each constituent component shall be determined.

6.6 Polymer characterization

The characterization of any polymers (rubbers or plastics, etc) forming part of the infill (including coatings) shall be determined using the procedure described in Annex B.

6.7 Buoyancy

The buoyancy properties of the infill material shall be measured and reported using the procedure described in Annex C.

The buoyancy properties of an infill should be considered when selecting an infill for use in a synthetic turf or textile sports surface that will be laid in locations that are likely to receive prolonged or heavy rain.

6.8 Water absorption

The water absorption properties of performance infills shall be measured and reported using the procedure described in Annex C.

The water absorption properties of an infill should be considered when selecting an infill for use in a synthetic turf or textile sports surface that will be laid in locations that are likely to be subjected to temperatures below zero degrees Celsius (i.e. 0 °C).

7 Performance and material requirements

7.1 Introduction

The performance and material properties of the infill material shall be measured and comply with 7.2 to 7.11 as specified for the type of infill being assessed.

7.2 Elastic properties

The elastic properties of performance infills shall be measured using the procedure described in Annex D and reported as returned energy and the result classified in accordance with Table 3.

Table 3 — Classification of elastic properties

Classification	Returned energy (J)
Non-elastic	<0,5
Low elasticity	$\geq 0,5$ and $\leq 1,5$
Medium elasticity	$> 1,5$ and $\leq 3,0$
High elasticity	$> 3,0$

7.3 Resistance to residual deformation after static load

When tested in accordance with EN 17467 polymeric infills shall satisfy the following requirements:

- the residual deformation shall not exceed 50 %;
- the granules shall not be agglomerated; and
- there shall be no visible signs of oil secretion.

7.4 Durability

7.4.1 Polymeric infills

7.4.1.1 The infill durability shall be assessed using the procedure described in Annex E. Tests shall be undertaken on dry samples. After 15 000 cycles, the infills shall comply with the requirements of 7.4.1.2 to 7.4.1.4.

7.4.1.2 When tested in accordance with 6.3, the worn infill sample shall have a particle size distribution that has at least 60 % of the infill within the $d - D$ range of the reference sample, and no more than 5 % of the worn sample shall pass the 0,063 mm sieve.

NOTE The 5 % limit is applied to ensure that infills do not breakdown and create significant levels of dust that could impede the water infiltration of the sports surface.

7.4.1.3 When tested in accordance with 6.4, the worn infill sample shall have the same particle shape classification as the reference sample.

7.4.1.4 When assessed using the procedure described in EN 20105-A02, the worn infill sample shall have a colour fastness of at least grey scale 3 when compared to the reference sample.

7.4.2 Vegetal, mineral, coated mineral and blended infills

7.4.2.1 The infill durability shall be assessed using the procedure described in Annex E. Tests shall be undertaken on dry samples, unless the infill is designed to be used under moist conditions, in which case the test specimens shall be prepared in accordance with the manufacturer's instructions.

7.4.2.2 Working in 500 cycle increments (500, 1 000, 1 500, 2 000, etc.) the infill shall be tested to determine the number of cycles it can withstand and comply with the requirements of 7.4.1.3 and 7.4.1.4.

7.4.2.3 When tested in accordance with 6.3, the worn infill shall have a particle size distribution that has at least 60 % of the infill within the d – D range of the reference sample, and no more than 5 % of the sample shall pass the 0,063 mm sieve.

7.5 Surfaces temperature during exposure to infrared energy

When tested using the procedure detailed in Annex F, the result obtained shall be classified in accordance with Table 4.

Table 4 — Classification of surface temperature after prolonged exposure to infrared energy

Class	Temperature range °C
1	< 50
2	50 to 65
3	> 65

7.6 Resistance to melting / permanent agglomeration

Polymeric infills shall be tested using the procedure described in Annex G. The temperature at which melting or permanent agglomeration occurs shall be classified in accordance with Table 5.

Table 5 — Classification of melting /permanent agglomeration temperatures

Class	Temperature range °C
1	> 120
2	80 to 120
3	< 80

NOTE The temperature of many of the sports surfacing systems will increase when they are exposed to thermal energy from the sun. The magnitude of any increase will depend on a number of factors including the intensity of the solar radiation, the duration of exposure, the colour of the sports surfacing system (including the infill) and application of any cooling treatments (e.g. wetting). The temperature ranges detailed in Table 5 refer to the temperature at which melting/permanent agglomeration of the infill material occurred during the test. When deciding on the suitability of an infill the potential temperature that the sports surfacing system might reach needs to be considered.

7.7 Inhalable dust content

When tested in accordance with EN 15051-2, the inhalable dust content of the infill shall be classified as either very low or low.

7.8 Water infiltration

When tested in accordance with EN 12616 using an infiltration ring having an internal diameter of (300 ± 2) mm and a 0,063 mm gauge support mesh to retain the infill material, the measured water infiltration rate of the infill shall be greater than 500 mm/h.

The infill material shall be placed into the infiltration ring to a depth of (10 ± 1) mm, before being compressed by placing a round disc having a diameter of (295 ± 2) mm and a mass of $(5,00 \pm 0,25)$ kg onto the test specimen. The disc shall be rotated and contra-rotated on the surface a minimum of five full rotations to ensure compaction and of the infill, ensuring no additional pressure is applied to the disc.

7.9 Resistance to artificial weathering of polymeric and coated mineral infills

7.9.1 General

Polymeric and coated mineral infills shall be subjected to artificial weathering in accordance with EN 14836 Method 2. The depth of the test sample within the artificial weathering cabinet shall be approximately 10 mm. After every (336 ± 8) hours (14 days) of conditioning the sample shall be thoroughly agitated using a small hand rake or comb for at least 60 s, to ensure different portions of the sample are exposed to the UV light during the test.

If a sample dish containing the test specimen is placed on the base panel of an artificial weathering cabinet designed for test specimens to normally be side mounted, the level of UV radiation the test sample is receiving shall be monitored to ensure compliance with the requirements of EN 14836 Method 2.

Following the artificial weathering, samples of polymeric infills shall be tested in accordance with 7.9.2, 7.9.3, 7.9.4 and 7.9.5, and samples of coated mineral infills shall be tested in accordance with 7.9.3 and 7.9.4.

If requested, the procedures described in 7.8 below may also be used to assess the resistance to artificial weathering properties of vegetal, mineral, and blended infills.

7.9.2 Elastic properties

When assessed using the procedure described in Annex D the classification of the infill's elastic properties shall be the same as that measured on the reference sample.

7.9.3 Durability

Following the artificial weathering the test specimen shall be subjected to simulated wear conditioning in accordance with Annex E. Polymeric infills shall be subjected to 15 000 cycles. Coated mineral infills shall be subject to the number of cycles determined in 7.4.2.2.

Following the simulated wear conditioning the sample shall:

- when tested in accordance with 6.3, have a particle size distribution with at least 60 % of the infill within the $d - D$ range of the reference sample;
- when tested in accordance with 6.3 no more than 5 % of the sample shall pass the 0,063 mm sieve.
- when tested in accordance with 6.4, have the same particle shape classification as the reference sample; and
- show no visible signs of melting or agglomeration.

Photographs showing the appearance and colour of the infill sample before and after the simulated wear conditioning shall be included in the test report.

7.9.4 Colour fastness

When assessed using the procedure described in EN 20105-A02 the colour fastness of polymeric and coated mineral infill materials, when compared to the reference sample, shall be Grey Scale 3 or greater.

7.9.5 Resistance to permanent agglomeration

When assessed using the procedure described in Annex G the temperature classification at which permanent agglomeration or meting occurs shall be the same as that recorded on the reference sample.

7.10 Resistance to ageing of vegetal and blended infills

7.10.1 General

Vegetal and blended infills shall be subjected to accelerated ageing by exposure to hot air in accordance with EN 13817, followed by immersion in hot water in accordance with EN 13744.

Following the accelerated ageing the infill shall be assessed in accordance with 7.9.2 and 7.9.3.

7.10.2 Elastic properties

When assessed using the procedure described in Annex D the classification of the infill's elastic properties shall be the same as that measured on the reference sample.

7.10.3 Durability

Aged infill shall be tested in accordance with Annex E using the same number of cycles in 7.4.2.2. Following the simulated wear conditioning the sample shall:

- when tested in accordance with 6.3, have a particle size distribution with at least 60 % of the infill within the $d - D$ range of the reference sample;
- when tested in accordance with 6.3 the worn infill shall have no more than 5 % of the sample passing the 0,063 mm sieve.
- when tested in accordance with 6.4, have the same particle shape classification as the reference sample;
- show no visible signs of agglomeration.

Photographs showing the appearance and colour of the infill sample before and after the simulated wear conditioning shall be included in the test report.

If requested, the procedures described in 7.9.1 may also be used to assess the resistance to ageing of polymeric infills.

7.11 Resistance to freeze-thaw cycles

Following freeze-thaw conditioning in accordance with Annex H the sample shall:

- when tested in accordance with 6.3, have a particle size distribution with at least 60 % of the infill within the $d - D$ range of the reference sample;
- when tested in accordance with 6.4, have the same particle shape classification as the reference sample; or
- when tested in accordance with 6.5, have a bulk density ± 15 % of the reference sample.

8 Reaction to fire

Infills intended for use in synthetic turf or textile sports systems that will be installed indoors, or are intended for fire sensitive locations, shall have their reaction to fire properties determined in accordance with the procedure described in Annex I.

9 Toxicology

9.1 Polycyclic organic hydrocarbons (PAH) content

Infills having unacceptable levels of PAH content can expose users of sports facilities fields to unacceptable health risks. Guidance on the levels of PAH considered acceptable are given in Annex J.

9.2 Migration of chemical elements through accidental human digestion

The infill shall satisfy the requirements of Category 3, Table 1 of EN 71-3:2019+A2:2024, when assessed using the procedure described in EN 71-3:2019+A2:2024 for synthetic textile materials.

9.3 Leaching of chemical elements through immersion in water

When tested in accordance with CEN/TS 16384:2012, Annex A, using the procedure described in EN 12457-4, infills shall satisfy the requirements of Tables 6 and 7.

Table 6 — Leaching of chemical elements through immersion in water

Chemical	Symbol	Unit	Requirement
Requirements for all infills types			
Cadmium	Cd	mg/l	≤ 0,005
Chromium VI	CrVI	mg/l	≤ 0,008
Total chromium content	Cr	mg/l	≤ 0,05
Lead	Pb	mg/l	≤ 0,025
Mercury	Hg	mg/l	≤ 0,001
Tin	Sn	mg/l	≤ 0,04
Extractible organic halides	EOX	mg/l	≤ 100