DTZS 3955: 2026

First Edition

# TANZANIA STANDARD

## Textile Floor Covering — artificial grass carpet made of synthetic yarn for landscape — specification

## Foreword

This Draft Tanzania Standard is being developed by the Household Textile Technical Committee under supervision of the Textile and Leather Division Standards Committee and it is in accordance with the procedures of the Bureau.

This Draft Tanzania Standard has been prepared with assistance drawn from:

*IS 18158: 2023 Textile Floor Covering — artificial grass carpet made of synthetic yarn for landscape — specification*

## 1 Scope

**1.1** This Draft Tanzania Standard specifies sampling, the constructional particulars and performance requirements of tufted artificial grass made from polypropylene fibrillated yarn, polyethylene monofilament yarn or combination of both.

**1.2** This Draft Tanzania Standard does not specify the general appearance, design and size of artificial grass carpet.

## 2 Normative References

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

a) *TZS 4 Rounding off numerical values.*
b) *TZS 40 Textiles - Tests for colour fastness – Colour fastness to light: Daylight.*
c) *TZS 4641 - Textile floor coverings - Burning behaviour - Tablet test at ambient temperature*
d) *ISO 105-E01 - Textiles - Tests for colour fastness - Colour fastness to water*
e) *ISO 2551 – Textile floor coverings and Textile floor coverings inn Tukes form – Determination of effects of varied water and heat conditions and distortion out of plane.*
f) *ISO 3018 – Textile floor coverings – Rectangular textile floor coverings – Determination of Dimensions*
g) *ISO 4919 - Carpets – Determination of Tuft withdrawn force*
h) *ISO 8543 – Textile floor covering – Determination of mass*
i) *ISO 18168 – Textile floor coverings — Colour fastness to shampooing*
j) *ISO 23122, Textile floor covering – Production of change in appearance by means of Hexapod tumbler Tester*
k) *ISO 1766 - Textile floor coverings — Determination of thickness of pile above the substrate*
l) *ISO 10834 - Textile floor coverings — Non-destructive measurement of pile thickness above the backing — WRONZ gauge method*

## 3 Terms and Definitions

**3.1 carpet**

a textile floor covering typically consisting of an upper layer of pile attached to a backing.

**3.2 artificial grass carpet**

a surface of synthetic fibers made to look like natural grass. It is most often used in residential lawns, outdoor places and commercial applications.

**3.3 pile/tuft**

a part of a textile floor covering consisting of textile yarns or fibres, cut or looped, projecting from the substrate and acting as a use surface.

**3.4 back-coating**

the application of polymer material, for example high rubber-content latex, or hot-melt resin compound, on the back side of primary backing containing tufts in a single operation to impart strength, tuft bind and dimensional stability to a carpet.

**3.5 primary backing**

a supporting fabric or base fabric material that acts as a carrier for the pile yarn and which is often additionally used as an anchor for other parts of the substrate.

**3.6 tuft withdrawal force**

a tuft force is the measure of force required to withdraw a single tuft or loop of pile from a carpet. It measures the binding force between carpet pile and backing.

## 4 General Requirements

### 4.1 Manufactures

#### 4.1.1 Pile Yarn

The yarn used in the manufacture of pile or tufts of artificial grass shall be made from the polypropylene fibrillated yarn, or polyethylene monofilament yarn or both together (*see* Fig. 1).

#### 4.1.2 Primary Backing

Primary backing cloth used as a medium for tufting the pile yarn shall be synthetic woven or non-woven primary backing or backing woven with fleece or any other suitable backing cloth.

#### 4.1.3 Back coating

The carpet after tufting shall be coated with styrene butadiene latex or polyurethane latex. The minimum application of latex shall be 750 g/m$^2$.

#### 4.1.4 Hole Punch

Perforations or holes shall be punched in horizontal and vertical direction into the backing of artificial grass carpet during manufacturing process to facilitate drainage of rain water or sprinkled water. The maximum distance between two holes shall not exceed 14 cm in both the directions.



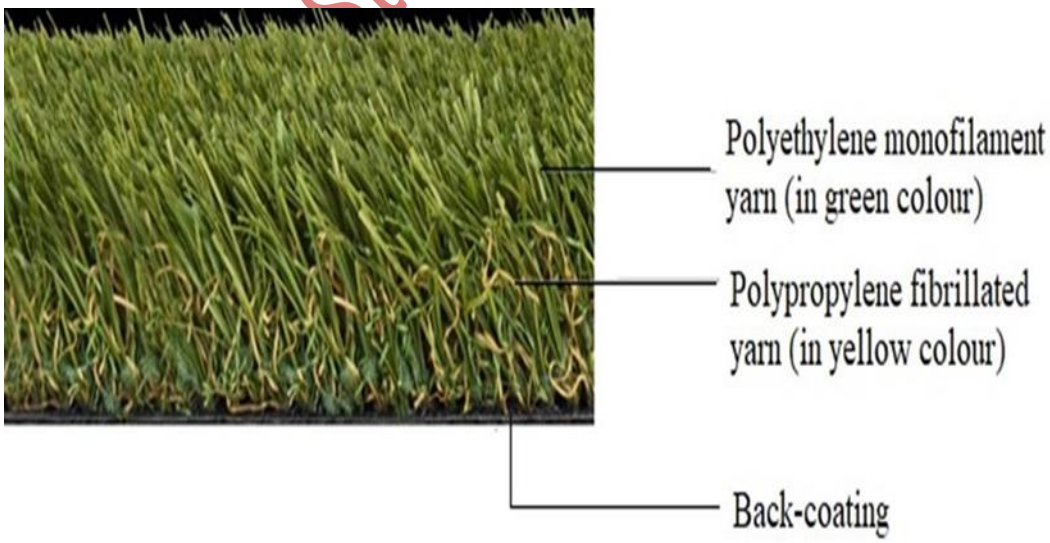


**Figure 1 : Illustration of Artificial grass carpet**

### 4.2 Specific Requirements

The artificial grass carpet shall conform to the requirements as specifiable in Table 1.

**Table 1 Requirements for Artificial Grass Carpet**

| SN | Parameter | Requirement | Test Method |
|---|---|---|---|
| i) | Length and width, m | As agreed with a tolerance of ± 1% | ISO 3018 |
| ii) | Pile thickness, mm, *Min* | 25 | ISO 10834 / ISO 1766 (incase of dispute for more accuracy) |
| iii) | Pile weight, g/m$^2$, *Min* | 800 | ISO 8543 |
| iv) | Total mass per unit area, g/m$^2$, *Min* | 1 650 | ISO 8543 |
| v) | Water infiltration rate, mm/hr, *Min* | 1 524 | Annex A |
| vi) | Tuft withdrawal force, N, *Min* | 45 | ISO 4919 |
| vii) | Colour fastness to light, change in colour | 4 or better | TZS 40 |
| viii) | Colour fastness to shampooing, change in colour | 4 or better | ISO 18168 |
| ix) | Colour fastness to water:<br>a) Change in colour<br>b) Staining | <br>4 or better<br>4 or better | ISO 105-E01 |
| x) | Changes in appearance (Hexapod method), colour change after 4 000 cycles | 3 or better | ISO 23122 |
| xi) | Dimensional change due to effect of varied water and heat, percent, *Max* | ± 0.5 | ISO 2551 |
| xii) | Flammability | Melt portion < 2.54 cm for 7 specimens out of 8 | TZS 4641 |



## 5 Packing and Marking

### 5.1 Packing

The artificial grass carpet shall be packed securely so as to allow normal handling and transport without tearing and exposing the contents. The artificial grass carpet shall be packed in roll form with pile side rolled

inside and coating on back side which is visible from outside. Details of packing shall be as agreed to between the buyer and seller.

**5.2 Marking**

A white paper sticker of appropriate size with the following information shall be securely attached or fixed on to sides of the carpet roll:

a) Name of the product;
b) Manufacturer's name address, and trademark;
c) Pile yarn type for example PP fibrillated or PE monofilament;
d) Pile thickness;
e) Pile weight;
f) Total mass per unit area;
g) Length and width of roll (m);
h) Batch No. or Lot No.;
i) Recyclability
j) Month and year of manufacture; and
k) Any other statutory requirement as required by the law in force or as agreed between buyer and seller

**6 Sampling and Criteria for Conformity**

**6.1 Lot**

All the carpet having same dimensions, composition, pile gsm and pile thickness delivered to a buyer against a dispatch note shall constitute a lot.

**6.2** The conformity of the lot to the various requirements specified in the standard shall be determined on the basis of tests carried out on the sample selected from the lot.

6.3 Unless otherwise agreed to between the buyer and the seller, the carpets to be selected at random shall be as given in Table 2.

6.3.1 For selection of samples at random from the lot conformity for determining conformity of the lot requirements specified in this Draft Tanzania Standard shall be as per table 2 and permissible number of non – conforming carpets shall be as per Table 3.



**Table 2 Sample Size and Permissible Number of Non-conforming Carpets**

| Sl No. | Lot Size | Sample Size | Permissible Number of Non-Conforming Carpets | Sub-Sample Size |
|---|---|---|---|---|
| i) | Up to 90 | 5 | 0 | 3 |
| ii) | 91 to 150 | 8 | 0 | 3 |
| iii) | 151 to 500 | 13 | 1 | 5 |

| | | | | |
|---|---|---|---|---|
| iv) | 501 to 1200 | 20 | 1 | 5 |
| v) | 1 201 to 10 000 | 32 | 2 | 8 |
| vi) | 10 001 to 35 000 | 50 | 3 | 8 |
| vii) | 35 001 to 500 000 | 80 | 5 | 13 |
| viii) | 500 001 and above | 125 | 7 | 13 |

**Table 3 - Number of Samples and Criteria for Conformity**

| **Sl No.** | **Characteristic** | **Number of samples** | **Criteria for Conformity** |
|---|---|---|---|
| a | Length, width, pile thickness | According to col 2 of Table 2 | Number of non-conforming pieces shall not exceed the corresponding number given in column 3 of Table 2 |
| ii) | Pile weight, total mass per unit area, color fastness, tuft withdrawal force, change in appearance, dimensional change due to effect of varied water and heat, water permeability | According to col 4 of Table 2 | All the test pieces shall meet the requirement. |
| iii) | Flammability, exposure to fluorescent UV lamp | | The test shall be carried out once in a year for the product. |

# ANNEX A

## (Normative)

## WATER PERMEABILITY TEST

**A-1 OBJECTIVE**

To determine the water permeability of artificial grass carpet for landscape.

**A-2 APPARATUS**

Large cylinder, double ring infiltrometer, scale, clock, sealing material (silicon rubber), water supply, heavy weights for sealing (if necessary).

**A-3 CONDITIONING**

Sample received for testing shall be conditioned at standard atmospheric condition i.e at relative humidity (65 ± 2) percent and temperature (27 ± 2) °C.

**A-4 PROCEDURE**

**A-4.1** Cut the specimen of size 1 000 mm × 1 000 mm.

**A**-4.2 Select specimen from a region so that infiltrometer is positioned with the minimum number of drainage holes possible within the two rings.

**A-4.3** Seal the cylinders onto the surface with silicone rubber taking care to ensure that it does not restrict water infiltration from any of the area enclosed by the inner cylinder. Apply weights (if necessary).

**A-4.4** Pond water in both cylinders until the flow of water into the inner cylinder is constant and the water level approaches a steady-state value. Ensure that the water level in the outer cylinder is within ± 2 mm of the level in the inner cylinder.

**A-4.5** Measure the time (tA) for the water to fall by 20 mm from an initial ponding depth of (30 ± 1) mm to a final ponding depth of (10 ± 1) mm, or the fall in the water level (FWA) after a minimum of 30 min, whichever is quicker.

**A-4.6** Calculate the water infiltration rate IA, in mm/h, from the following formula:

$$IA = FWA / tA$$

were

FWA = the fall of water level (mm);

tA = time taken for the water level to fall in hour (h).

A-5 REPORT

A-5.1 Compare the results against standard specifications.