



DEAS 944-2: 2019

ICS 61.060

## DRAFT EAST AFRICAN STANDARD

---

Footwear — Specification for children's shoes — Part 2: (2 to 6 years)

EAST AFRICAN COMMUNITY

---



### Copyright notice

This EAC document is copyright-protected by EAC. While the reproduction of this document by participants in the EAC standards development process is permitted without prior permission from EAC, neither this document nor any extract from it may be reproduced, stored or transmitted in any form for any other purpose without prior written permission from EAC.

Requests for permission to reproduce this document for the purpose of selling it should be addressed as shown below or to EAC's member body in the country of the requester:

© East African Community 2019 — All rights reserved  
East African Community  
P.O.Box 1096  
Arusha  
Tanzania  
Tel: 255 27 2504253/8  
Fax: 255 27 2504481/2504255  
E-mail: [eac@eachq.org](mailto:eac@eachq.org)  
Web: [www.eac-quality.net](http://www.eac-quality.net)

Reproduction for sales purposes may be subject to royalty payments or a licensing agreement. Violators may be prosecuted.

# Contents

Page

|  |                              |
|--|------------------------------|
| Introduction.....  | iv                           |
| Foreword .....   | v                            |
| 1 Scope .....  | 1                            |
| 2 Normative references .....                                   | 1                            |
| 3 Terms and definitions .....                                  | 3                            |
| 4 Requirements .....   | 3                            |
| 4.1 General requirements .....                                 | 3                            |
| 4.2 Material requirements .....                                | Error! Bookmark not defined. |
| 4.3 Workmanship and finish .....                               | 3                            |
| 4.4 Burnishing .....   | 3                            |
| 4.5 Defects .....  | 4                            |
| 4.6 Laces .....  | 4                            |
| 5 Marking .....  | 10                           |
| 5.1 Footwear .....   | 10                           |
| 5.2 Carton .....   | 10                           |
| 5.3 Bale .....   | 10                           |
| 6 Individual packing .....                                     | 10                           |
| Annex A (normative) Sampling and criteria for conformity ..... | 11                           |
| A.1 Definitions .....  | Error! Bookmark not defined. |
| A.2 Scale of sampling .....                                    | 11                           |
| A.3 Method of selection .....                                  | 11                           |

## Introduction

This Draft East African Standard intends to give specifications for children's shoes (2 to 6 years). It will be useful for evaluating the quality of footwear products traded across the East Africa Partner states and beyond. It will also assist footwear manufacturers and merchants in getting value for their products. In addition it will give the general consumers of the product bases to choose the products from an informed state.

The main purpose of this standard therefore is to provide a basis for evaluating the quality of children's closed shoes (2 to 6 years)

PUBLIC REVIEW

## Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 064, *Footwear*.



## Footwear — Specification for children's shoes — Part 2: (2 to 6 years)

### 1 Scope

This Draft East African Standard specifies the requirements, sampling and methods of test for children's shoes (above 2 to 6 years).

### 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.

ISO 2585, *Leather — Test measurement of thickness*

ISO 3376, *Leather — Determination of tensile strength and elongation*

ISO 3377, *Leather — Determination of tearing load*

ISO 11640, *Leather — Fastness to rubbing*

ISO 11644, *Leather — Determination of adhesion to finish*

BS 2782, *Method of testing plastics*

ISO 105 B02, *Textiles — Colour fastness test Part B02: Xenon arc fading lamp*

ISO 12947-2, *Textiles — Determination of abrasion resistance by Martindale method Part 2: Determination of specimen breakdown*

ISO 4045, *Leather — Determination of pH*

ISO 11644, *Leather — Determination of adhesion to finish*

ISO 3380, *Leather — Shrinkage temperature*

ISO 20871, *Footwear — Test methods for outsoles — Abrasion resistance*

ISO 2588, *Leather — Sampling — Number of items for a gross sample*

ISO 4044, *Leather — Chemical tests Preparation of chemical test samples*

ISO 17072-1, *Leather — Chemical determination of metal content -- Part 1: Extractable metals*

ISO 17075-1, *Leather — Chemical determination of chromium (VI) content in leather — Part 1: Colorimetric method*

ISO 17075-2, *Leather — Chemical determination of chromium (VI) content in leather — Part 2: Chromatographic method*

ISO 17233, *Leather -- Physical and mechanical tests -- Determination of cold crack temperature of surface coatings*



ISO 20344, Personal protective equipment -- Test methods for footwear

ISO 15702, Leather -- Tests for colour fastness -- Colour fastness to machine washing

ISO 16177, Footwear -- Resistance to crack initiation and growth -- Belt flex method

ISO 15703, Leather -- Tests for colour fastness -- Colour fastness to mild washing

ISO 4048 Leather -- Chemical tests -- Determination of matter soluble in dichloromethane and free fatty acid content

ISO 4047 Leather -- Determination of sulphated total ash and sulphated water-insoluble ash

ISO 17130 Leather - Physical and mechanical tests - Determination of dimensional change

ISO 2420 Leather -- Physical and mechanical tests -- Determination of apparent density and mass per unit area

ISO 48-4 Rubber, vulcanized or thermoplastic -- Determination of hardness -- Part 4: Indentation hardness by durometer method (Shore hardness)

ISO 48-3 Rubber, vulcanized or thermoplastic -- Determination of hardness -- Part 3: Dead-load hardness using the very low rubber hardness (VLRH) scale

ISO 48-2 Rubber, vulcanized or thermoplastic -- Determination of hardness -- Part 2: Hardness between 10 IRHD and 100 IRHD

ISO 868 Plastics and ebonite -- Determination of indentation hardness by means of a durometer (Shore hardness)

ISO 4684 Leather -- Chemical tests -- Determination of volatile matter

ISO 17489 Leather -- Chemical tests -- Determination of tan content in synthetic tanning agents

ISO 3378 Leather -- Physical and mechanical tests -- Determination of resistance to grain cracking and grain crack index

ISO 3379 Leather -- Determination of distension and strength of surface (Ball burst method)

ISO 17694 Footwear -- Test methods for uppers and lining -- Flex resistance

ISO 17708 Footwear -- Test methods for whole shoe -- Upper sole adhesion

ISO/TR 20572 Footwear -- Performance requirements for components for footwear -- Accessories

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19952 and the following apply:

#### 3.1

##### **pu coated leather**

leather with a coating of polyurethane

#### 3.2

##### **pvc coated textiles**

textiles with a coating of polyvinylchloride

#### 3.3

##### **synthetic materials**

materials made of PU, PVC and other synthetic materials which are used as natural leather substitute

#### 3.4 Lot

All footwear pairs in a consignment belonging to the same pattern/design and batch of manufactured shoes delivered or imported.

#### 3.5 Defect

A fault or failure of a footwear pair to meet the requirements of this standard.

#### 3.6 Defective footwear

A footwear pair with one or more defects as mentioned in this standard.

### 4 Requirements

#### 4.1 General requirements

The method of construction shall follow the principle applicable for that type. The sizing and fitting shall be in accordance with ISO 9407.

#### 4.2 Workmanship and finish

##### 4.2.1 Workmanship

The footwear shall be manufactured in accordance with Good Manufacturing Practice (GMP).

##### 4.2.2 Trimming

Unless the heel seats are of the extended type, heels shall be trimmed smooth to the heel seats.

##### 4.423 Edge trimming

The sole edges (other than pre-moulded outer sole and heel units) shall be trimmed smooth, stitched down construction, shall be so trimmed that the distance beyond the outside of the stitching on the flanged portion of the upper is not less than 1.5 mm.

#### 4.3 Burnishing

In leather footwear, the leather exposed at the sides of the heels and at the edges of the bottom shall be stained, well waxed, set and polished.

## 4.4 Defects

Inner soles, runners and linings shall be free from protruding grinders, roughness and pleats inside the shoe.

## 4.5 Laces

Each pair of lace-up shoes shall be provided with one pair of laces complying with ISO/TR 20572.

## 4.6 Material requirements

The material characteristics, including the whole shoe assembly characteristics shall comply with the requirements given in the Tables 1 to 7.

### 4.6.1 Uppers

The upper characteristics shall comply with the requirements given in Table 1.

**Table 1 — Upper material characteristics and requirements**

| Characteristic   | Materials and requirements    |                   |          |                    |                     |               |           |               |       |  | Test methods |
|--|-------------------------------|-------------------|----------|--------------------|---------------------|---------------|-----------|---------------|-------|--|--------------|
|  | Leather                       | PU coated leather | Textiles | PU coated textiles | PVC coated textiles | EVA/M CR      | PU        | PVC           | Blown | Others (including composite materials) |              |
| (1)  | (2)                           | (3)               | (4)      | (5)                | (6)                 | (7)           | (8)       | (9)           |       | (10)                                   | (11)         |
| Thickness (mm), min.                                       | 1.0                           | 0.7               | —        | 0.7                | 0.7                 | 0.7           | 0.7       | 0.7           | 0.5   | 0.5                                    | ISO 2589     |
| Tensile strength (MPa), min.                               | 10                            | 10                | —        | 6                  | 7.5                 | 2             | 6         | 6             | 5     | 6                                      | ISO 3376     |
| Elongation at break, (%), Min                              | 30-80                         | 30-80             | 15       | 10                 | 10                  | 80            | 100       | 120           | 100   | 40                                     | ISO 3376     |
| Tear strength (N), min.                                    | 50                            | 50                | —        | 28                 | 25                  | 20            | 20        | 20            | 20    | 20                                     | ISO 3377     |
| Rub fastness (Grey scale), min.<br>a) dry<br>b) wet        | 3<br>3                        | 3<br>3            | 3<br>3   | 3<br>3             | 3<br>3              | 3<br>3        | 3<br>3    | 3<br>3        | 3     | 3<br>3                                 | ISO 11640    |
| Adhesion to finish, N, min.                                | 1                             | 0.8               | —        | —                  | —                   | —             | —         | —             | —     | —                                      | ISO 11644    |
| Break pipeness (BP scale), max.                            | 3                             | —                 | —        | —                  | —                   | —             | —         | —             | —     | —                                      | ISO 17233    |
| Breaking load (N/mm), min.                                 | —                             | —                 | 13       | 10                 | 10                  | —             | —         | —             | —     | —                                      | ISO 3377     |
| Chrome content, %, max.                                    | 3.5-4.0 Hides<br>3.0-3.5 skin | 3                 | —        | —                  | —                   | —             | —         | —             | —     | —                                      | ISO 17075    |
| Water vapour permeability, mg/cm <sup>2</sup> h, min.      | 1                             | 1                 | 2        | 2                  | 1                   | 0.8           | 2         | 1             | 0.6   | 0.8                                    | ISO 20344    |
| Water vapour coefficient (mg/cm <sup>2</sup> ), min.       | 30                            | 30                | 30       | 30                 | 30                  | 30            | 30        | 30            | —     | 30                                     | ISO 20344    |
| Abrasion resistance (revolutions) min.<br>a) dry<br>b) wet | —                             | —                 | 4000     | 25600              | 25600               | 25600<br>2000 | 2560<br>0 | 25600<br>6400 | 25600 | 25600<br>6400                          | ISO 20871    |

|  |         |     |      |      |      |     |      |   |   |               |                               |
|--|---------|-----|------|------|------|-----|------|---|---|---------------|-------------------------------|
|  | —       | —   | 2000 | 6400 | 6400 |     | 6400 |   |   | 25600<br>6400 |                               |
| pH value, min.   | 3.8-4.0 | 4   | —    | —    | —    | —   | —    | — | - | —             | ISO<br>4045                   |
| pH difference, max.  | 0.7     | 0.7 | —    | —    | —    | —   | —    | — | - | —             | ISO<br>4045                   |
| Fat content, (% m/m), min.   | 3       | 3   | —    | —    | —    | —   | —    | — | - | —             | ISO<br>4048                   |
| Total ash, (%), max.   | 5       | 5   | —    | —    | —    | 0.7 | —    | — | - | —             | ISO<br>4047                   |
| Total water soluble, (%), max.   | 6       | 6   | 2    | 2    | 1    | 1   | 1    | 1 | 1 | 1             | 20344                         |
| Shrinkage, (%), max.   | 5       | 5   | 4    | 5    | 5    | —   | 5    | 5 | 5 | 5             | ISO<br>17130                  |
| Light fastness, (blue wool standards), min.  | 4       | 4   | 4    | 4    | 4    | 4   | 4    | 4 | 4 | 4             | ISO<br>11640                  |
| Wash fastness, (grey scale), min.  | —       | —   | 4    | 4    | 4    | 4   | 4    | 4 | 4 | 4             | ISO<br>15702,<br>ISO<br>15703 |
| KEY<br>EVA-Ethyl Vinyl Acetate, MCR-Micro Cellular Rubber, TPR-Thermoplastic Rubber, PU-Polyurethane<br>PVC-Polyvinyl Chloride |         |     |      |      |      |     |      |   |   |               |                               |

#### 4.6.2 Upper lining

The upper lining characteristics shall comply with the requirements given in Table 2.

**Table 2 — Upper lining material characteristics and requirements**

| Characteristic  | Materials and requirements           |        |         |        | Test method |
|---|--------------------------------------|--------|---------|--------|-------------|
|   | Leather                              | PVC    | Textile | PU     |             |
| (1)   | (2)                                  | (3)    | (4)     | (5)    | (6)         |
| Thickness (mm), min.  | 0.6                                  | 0.5    | —       | 0.5    | ISO 2589    |
| Tensile strength (MPa), min.                                  | 6                                    | 5      | 8       | 5      | ISO 3376    |
| Elongation at break (%), min.                                 | 30                                   | —      | 7       | —      | ISO 3376    |
| Tear strength (N), min.                                       | 20                                   | 8      | 10      | 5      | ISO 3377    |
| Rub fastness (grey scale), min.<br>Cycles<br>a) dry<br>b) wet | 4<br>4                               | 4<br>4 | 4<br>4  | 4<br>4 | ISO 11640   |
| Break pipiness (Bp scale), max.                               | 3                                    | -      | -       | -      | ISO 17233   |
| Breaking load (N), min. N/cm                                  | —                                    | —      | 13      | —      | ISO 3377    |
| Chrome content (%), max.                                      | 3.5-4.0<br>Hides<br>3.0-3.5<br>skins | —      | —       | —      | ISO 17075   |
| Water vapour permeability (mg/cm <sup>2</sup> , h), min.      | 1                                    | 2      | 2       | 1      | ISO 20344   |
| Water vapour coefficient (mg/cm <sup>2</sup> ), min.          | 30                                   | 30     | 30      | 30     | ISO 20344   |

|  |         |   |                        |   |           |
|--|---------|---|------------------------|---|-----------|
| Abrasion resistance (Revolutions), min.    | —       | — | dry 4 000<br>wet 2 000 | — | ISO 20871 |
| PH value, min.                             | 3.8-4.0 | — | —                      | — | ISO 4045  |
| Fat content (% m/m), min.                  | 3       | — | —                      | — | ISO 4048  |
| Total ash (%), max.                        | 5       | — | —                      | — | ISO 4048  |
| Total water soluble (%), max.              | 6       | 1 | 2                      | 1 | ISO 20344 |
| Shrinkage %, max.                          | 5       | — | 5                      | — | ISO 17130 |
| Light fastness (Blue wool standards), min. | 4       | 4 | 4                      | 4 | ISO 11640 |

### 4.6.3 Bottom/sole

The bottom/sole characteristics shall comply with the requirements given in Table 3.

**Table 3 — Bottom/sole material characteristics and requirements**

| Characteristic  | Materials and requirements |               |               |               |               |         |              |               |               |                                       | Test method                |
|---|----------------------------|---------------|---------------|---------------|---------------|---------|--------------|---------------|---------------|---------------------------------------|----------------------------|
|   | Vulcanized Rubber          | PVC           | PU            | TPR           | EVA/MC R      | Leather | Resin rubber | Blown PU      | Blown PVC     | Other materials (including composite) |                            |
| (1)   | (2)                        | (3)           | (4)           | (5)           | (6)           | (7)     | (8)          | (9)           | (10)          | (11)                                  | (12)                       |
| Hardness (IRHD)   | 60 – 85                    | 50 – 85       | 45 – 90       | 45 – 80       | 30 – 55       | —       | 85 – 98      | 30 – 55       | 50-60         | 40-90                                 | ISO 868, ISO 48, ISO 18517 |
| Specific gravity, max.  | 1.35                       | 1.4           | 0.45–0.65     | 1.15          | 0.65          | 0.9     | 1.55         | 0.25-0.55     | 0.6-0.9       | 1.7                                   | ISO 2420                   |
| Tensile strength (MPa)  | 7                          | 6             | 6             | 5             | 2             | —       | 5.5          | 2             | 6             | 1.5                                   | ISO 3376                   |
| Elongation at break (%), min.<br>a) Before ageing<br>b) After ageing                            | 300<br>110                 | 250           | 200<br>500    | 400           | 80            | —       | 120<br>110   | 80            | 100           | 60-120                                | ISO 3376                   |
| Flex resistance<br>a) Initial crack (cycles), max.<br>b) Cut growth at 150 000 cycles (%), max. | 50 000<br>600              | 30 000<br>600 | 50 000<br>600 | 30 000<br>600 | 25 000<br>800 | 50 000  | 5 000<br>500 | 25 000<br>800 | 25 000<br>800 | 25 000<br>800                         | ISO 16177                  |
| Compression set %, max.   | 25                         | 25            | 25            | 25            | 35            | 25      | 25           | 35            | 35            | 35                                    | ISO 20344                  |
| Split tear strength (N), min.   | 10                         | 7.5           | 7.0           | 10            | 6.0           | 30      | 7.5          | 6.0           | 6.0           | 6.0                                   | ISO 3377                   |
| Stitch tear strength (N/mm), min.   | 70                         | 40            | 35            | 25            | 55            | 100     | 50           | 25            | 25            | 25                                    | ISO 3377                   |

|   |     |     |     |     |     |          |     |     |     |     |             |
|---|-----|-----|-----|-----|-----|----------|-----|-----|-----|-----|-------------|
| Slip resistance (coefficient of friction), min. | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | —        | 0.5 | 0.5 | 0.5 | 0.5 | ISO 20344   |
| Abrasion loss (mm <sup>3</sup> ), max.          | 350 | 300 | 400 | 250 | 900 | 300      | 300 | 600 | 450 | 600 | ISO 20871   |
| Volatility (%), max.                            | —   | 2   | —   | —   | —   | —        | —   | —   | 2   | —   | ISO 4684    |
| Lead Pb (ppm), max.                             | —   | 1   | —   | —   | —   | —        | —   | —   | —   | —   | ISO 17072-1 |
| Total ash (%), max.                             | —   | —   | —   | —   | —   | 5        | —   | —   | —   | —   | ISO 4047    |
| Total water soluble (%), max.                   | —   | —   | —   | —   | —   | 21       | —   | —   | —   | —   | ISO 20344   |
| pH value, min.                                  | —   | —   | —   | —   | —   | 3.8-4.0  | —   | —   | —   | —   | ISO 4045    |
| pH difference, max.                             | —   | —   | —   | —   | —   | 0.7      | —   | —   | —   | —   | ISO 4045    |
| Heat shrinkage (%), max.                        | 4   | 4   | 4   | 4   | 4   | 4        | 4   | 4   | 4   | 4   | ISO 3380    |
| Degree of tannage, min.                         | —   | —   | —   | —   | —   | 60       | —   | —   | —   | —   | ISO 17489   |
| Grain cracking on mandrel 3                     | —   | —   | —   | —   | —   | No crack | —   | —   | —   | —   | ISO 3379    |

KEY:  
EVA-Ethyl Vinyl Acetate, MCR-Micro Cellular Rubber, TPR-Thermoplastic Rubber, PU-Polyurethane  
PVC-Polyvinyl Chloride

#### 5.6.4 Heel and top piece

The heel and top piece characteristics shall comply with the requirements given in Table 4.

**Table 4 — Heel and top piece characteristics and requirements**

| Characteristic                                  | Material requirement |          |         |         |         |         | Test method                |
|---|----------------------|----------|---------|---------|---------|---------|----------------------------|
|   | Top piece            |          |         | Heel    |         |         |                            |
|   | Rubber               | Leather  | PVC     | Rubber  | PVC     | TPR     |                            |
| Hardness (IRHD)                                 | 88 - 98              | -        | 88 - 98 | 65 -75  | 70 - 80 | 60 min  | ISO 868, ISO 48, ISO 18517 |
| Specific gravity, max.                          | 1.55                 | 0.9      | 1.3     | 1.4     | 1.3     | 1.1     | ISO 2420                   |
| Tensile strength (MPa), min.                    | 6                    | 20       | 17      | 15      | 10      | 7       | ISO 3376                   |
| Elongation at break (%), min.                   |                      |          |         |         |         |         | ISO 3376                   |
| a) Before ageing                                | 120                  |          | 250     | 120     |         | 120     |                            |
| b) After ageing                                 | 70 -110              | -        | -       | 70 -120 | 250     | 70 -110 |                            |
| Flex resistance, initial crack (cycles), max.   | 50 000               | 10 000   | 10 000  | 15 000  | 10 000  | 15 000  | ISO 16177                  |
| Compression set (%), max.                       | 20                   | 20       | 20      | 20      | 20      | 30      | ISO 20344                  |
| Slip resistance (coefficient of friction), min. | 0.5                  | 0.5      | 0.5     | 0.5     | 0.5     | 0.5     | ISO 20344                  |
| Abrasion loss (mm <sup>3</sup> ), max.          | 300                  | 300      | 250     | 300     | 250     | 300     | ISO 20871                  |
| Volatility (%), max.                            | -                    | -        | 1       | -       | 1       | -       | ISO 4684                   |
| Grain cracking on mandrel 3                     | -                    | No crack | -       | -       | -       | -       | ISO 3379                   |
| Total ash (%), max.                             | -                    | 5        | -       | -       | -       | -       | ISO 4047                   |
| Total water soluble (%), max.                   | -                    | 21       | -       | -       | -       | -       | ISO 20344                  |
| Degree of tannage (%), min.                     | -                    | 60       | -       | -       | -       | -       | ISO 17489                  |
| Top piece -heel attachment (N), min.            | 100                  | 100      | 100     | 100     | 100     | 100     | ISO 19958                  |

### 5.6.5 Stiffener and toe puff

The stiffener and toe puff characteristics shall comply with the requirements given in Table 5.

**Table 5 — Stiffener and toe puff characteristics and requirements**

| Characteristic             | Requirement |          | Test method                |
|----------------------------|-------------|----------|----------------------------|
|                            | Stiffener   | Toe puff |                            |
| Hardness (IRHD), min.      | 70          | 50       | ISO 868, ISO 48, ISO 18517 |
| Flexibility (cycles), min. | 50 000      | 50 000   | ISO 17694                  |
| Water absorption (%), min. | 25          | 25       | ISO 20344                  |
| Resilience (%), min.       | 35          | 35       | ISO 20344                  |
| Thickness (mm)             | 1.0         | 0.6      | ISO 2589                   |

### 4.6.6 Insole and sock

The insole and sock characteristics shall comply with the requirements given in Table 6.

**Table 6 — Insoles and sock characteristics and requirements**

| Characteristic                                 | Requirement   |             |         |        | Test method  |
|--|---------------|-------------|---------|--------|--------------|
|  | Insole        |             | Sock    |        |              |
|  | Leather board | Paper board | Leather | PVC/PU |              |
| Thickness (mm), min.                           | 1.5           | 1.5         | 1.0     | 0.8    | ISO 2589     |
| Water  |               |             |         |        | ISO 20344    |
| a) Absorption (%), max.                        | 35            | 35          | -       | -      |              |
| b) Desorption, (%), max                        | 40            | 40          |         |        |              |
| Warp flexibility (cycles), max.                | 15 000        | 15 000      | -       | -      | ISO 17694    |
| Shrinkage (%), max.                            | 4             | 4           | 4       | 4      | ISO 22651    |
| Split tear strength, (N/mm,) min.              | 5             | 5           | -       | -      | ISO 3377     |
| Insole/sock adhesion, (N), min.                | 1.5           | 1.5         | 1.5     | 1.5    | KS ISO 20344 |
| Rub Fastness (Grey scale), min.                |               |             |         |        |              |
| a) wet   | 4             | 4           | 4       | 4      | KS ISO 11640 |
| b) dry   | 4             | 4           | 4       | 4      |              |
| pH value, min.                                 | 4             | 4           | 4       | -      | ISO 4045     |
| pH difference, max.                            | 0.7           | 0.7         | 0.7     | -      | ISO 4045     |
| Water vapour permeability (mg/cm²h), min.      | 0.8           | 0.8         | 1       | 0.8    | KS ISO 20344 |
| Coefficient of water permeability, g/cm², min. | 30            | 30          | 30      | 30     | KS ISO 20344 |

### 4.6.7 Whole shoe assembly

The whole shoe assembly characteristics shall comply with the requirements given in Table 7.

**Table 7 — Physical requirements for the whole shoe assembly**

| Characteristic  | Requirement  | Test method          |
|---|--|----------------------|
| Sole adhesion strength, (N ),min.<br>a) Leather<br>b) PVC/PU<br>c) Rubber<br>d) EVA/MCR   | Sole      Heel<br>90        225<br>90        225<br>90        225<br>70        110 | ISO 17708            |
| Seam strength (N/mm), min.  | 20   | ISO 23910            |
| a) Water penetration after 5 h, max.<br>b) Mass change (%), max.  | None<br>5  | KS ISO 20344         |
| Sole bond strength (N/mm), min.   | 4  | KS ISO 20344         |
| Finishes<br>a) Buttons and trims attachment strength (N), min.<br>c) Buckle fastening strength (N), min.<br>d) Buckle/eyelets/buttons rusting, max (presence of rust) | 100<br><br>220<br>none   | ISO 20572            |
| Shank<br>a) Accumulated impact strength (J), min.<br>b) Bending modulus (N), min.<br>c) Resilience (%), min.  | 40<br>700<br>80  | ISO 18895, ISO 18896 |

**4.6.8 Limits of Heavy metals and chemicals of concern**

The limits of heavy metals and chemicals of concern shall comply with the requirements given in Table 8

**Table 8 — Limits of Heavy metals and chemicals of concern**

| Heavy metal/chemical, (max)              | Requirement    | Test method                                 |
|--|----------------|---|
| Cadmium, Cd, %, w/w                      | 0.01           | EN 1122 (to be adopted into Kenya Standard) |
| Organotin, ppm<br>(i) TBT<br>(ii) Others | 0.025<br>0.050 | ISO 16179                                   |
| Phthalates, % w/w<br>(DEHP, BBP, DBP)    | 0.1            | ISO 16181                                   |
| Dimethyl Fumarate (DMFU), ppm            | 0.1            | ISO 16186                                   |



## 5 Marking

### 5.1 Footwear

- a) At the waist of the sole, the size fitting number of footwear shall be legibly and indelibly marked.
- b) On the sock or any other suitable visible place, the following shall be legibly and indelibly marked
  - i) Manufacturer's name and/or registered trade mark.
  - ii) Size fitting number of footwear.
  - iii) Country of manufacture/origin.
  - iv) Batch number.
  - v) Type of material (Upper and bottom).

### 5.2 Carton

Each box shall bear the following information, legibly and indelibly marked.

- i) Size of footwear.
- ii) Colour of footwear and/or batch number.
- iii) Manufacturer's name or registered trade mark.
- iv) Country of manufacture/ origin.

### 5.3 Bale

Each bale shall be legibly and indelibly marked with the following information

- i) Name of product;
- ii) Quantity;
- iii) Name of manufacturer or local supplier's name and/or registered trade mark; and
- iv) Country of manufacture/origin.

## 6 Packaging

### 6.1 Individual packing

Each pair of footwear shall be packed in a bag or any other suitable material that will protect the product from damage during normal transportation and storage.

## Annex A (normative)

### Sampling and criteria for conformity

#### A.1 Scale of sampling

**A.1.1** Samples shall be selected and examined for each lot separately for ascertaining the conformity of the footwear to the requirements of this standard.

**A.1.2** Footwear shall be considered to be of different lots if they differ in shape and design.

**A.1.3** The number of footwear pairs to be selected from any lot shall depend on the size of the lot and shall be in accordance with Columns 1 and 2 of Table A1.

#### A.2 Method of selection

**A.2.1** Footwear to be selected from the lot shall be chosen at random. To ensure randomness the procedure in A3.2 shall be used.

**A.2.2** When the footwear pairs in a lot are not packed in a number of cases (boxes), the sampling shall be as follows:

Starting from any footwear pair in the lot, count the pairs as 1,2, etc---up to  $r$  and so on in one order. Every  $r^{\text{th}}$  pair thus counted shall be withdrawn to constitute a sample ( $r$  is the integral part of  $N/n$  where  $N$  is the lot size and  $n$  is the sample size). This procedure shall be stopped as soon as the required number of pairs is obtained.

For example if a sample of 125 pairs is to be selected from a lot of 3,000 pairs, compute  $r$  as equal to integral part of  $3,000/125=24$ . Starting from any pair, the footwear shall be counted in one order and every 24<sup>th</sup> pair shall be withdrawn.

**A.2.3** When the footwear pairs in a lot are packed in different cases (boxes), a suitable number of boxes (not less than 30 per cent of the total boxes in the lot) shall be first chosen at random. For each of the boxes so chosen, an approximately equal number of pairs shall be picked up from its different parts so as to obtain the required number of pairs.

For example, if a lot consists of 1,000 pairs of footwear packed in 50 boxes, each containing 20 pairs, choose more than 15 boxes at random. If it is decided to open 20 boxes, then 4 pairs shall be picked up from different parts of each of the 20 boxes to give a total of 80 pairs as specified in Table A.1.

**Table A1 — Scale of sampling and permissible number of defects**

DEAS 944-2: 2019

ICS 61.060

| No. of footwear pairs in a lot | Samples for visually observed defects<br>(Pairs) | Permissible no. of defectives<br>(Pairs) | Sample size for laboratory testing<br>(Pairs) | Permissible no. of defectives<br>(Pairs) |
|--------------------------------|--|--|---|--|
| (1)                            | (2)  | (3)                                      | (4)   | (5)                                      |
| Up to 50                       | 13   | 0  | 2   | 0  |
| 51 to 100                      | 20   | 1  | 3   | 0  |
| 101 to 300                     | 32   | 1  | 3   | 0  |
| 301 to 500                     | 50   | 2  | 5   | 1  |
| 501 to 1 000                   | 80   | 3  | 6   | 1  |
| 1 001 to 3 000                 | 125  | 5  | 7   | 2  |
| 3 001 and above                | 200  | 7  | 8   | 3  |

**A.3** All randomly selected footwear pairs (Table A.1, Column 2) shall be inspected for visually observed defects, i.e.

- (i) Difference in shape, design and colour.
- (ii) Odd pairing and incorrect size.
- (iii) Distorted shapes.
- (iv) Faulty jointing and adhesion of sole, heel, toe guard, toe cap and insole.
- (v) Insole cut short.
- (vi) Broken stitches and incorrect stitching.
- (vii) Missing or defective eyelets/speed hooks or eyeleting/hooking.
- (viii) Variations in positioning of eyelets/speed hooks.
- (ix) Stiffener not centrally placed.
- (x) Unfit lace.
- (xi) Finish not even and unpolished.
- (xii) Missing or defective buckles/buckling assembly.

**A.4** The number of defective footwear pairs shall not exceed the permissible number given in Table A.1, Column 3. If, however, the number of defective pairs exceeds the permissible number of defectives, the lot shall be rejected.

**A.5** In case the lot has been found satisfactory for visually observed defects, sample pairs for laboratory testing (Table A.1, Column 4) shall be taken from among those drawn (Table A.1, Column 2). The pairs shall be chosen at random and tested for dimensional, physical and chemical characteristics. If the number of defective footwear is less than or equal to the corresponding permissible number of defectives given in Table A.1, Column 5, the lot shall be declared to have met the requirements of this standard. Otherwise if the defective footwear pairs are more than the corresponding permissible numbers of defectives the lot shall be rejected.

#### Bibliography

ISO 2585, Leather — Test measurement of thickness

BS 2782, Method of testing plastics

ISO 105 B02, Textiles — Colour fastness test Part B02: Xenon arc fading lamp

ISO 12947-2, Textiles — Determination of abrasion resistance by Martindale method Part 2: Determination of specimen breakdown

ISO 2588, Leather— Sampling — Number of items for a gross sample

ISO 4044, Leather — Chemical tests Preparation of chemical test samples

PUBLIC REVIEW



PUBLIC REVIEW