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DRAFT EAST AFRICAN STANDARD

Footwear — Sports shoes — Specification

EAST AFRICAN COMMUNITY

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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.

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Footwear — Sports shoes — Specification

1 Scope

This Draft East African Standard specifies requirements, sampling, and test methods for sports shoes. This standard applies to sport shoes used for light physical training, casual use and other non-professional activities.

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 105-B01, Textiles — Tests for colour fastness — Part B01: Colour fastness to light: Daylight

ISO 105-B02, Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test

ISO 105-C10, Textiles — Tests for colour fastness — Part C10: Colour fastness to washing with soap or soap and soda

ISO 105-X12, Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing

ISO 1421, Rubber- or plastics-coated fabrics — Determination of tensile strength and elongation at break

ISO 2286-3, Rubber- or plastics-coated fabrics — Determination of roll characteristics — Part 3: Method for determination of thickness

ISO 2411, Rubber- or plastics-coated fabrics — Determination of coating adhesion

ISO 2420, Leather — Physical and mechanical tests — Determination of apparent density and mass per unit Area

ISO 2589, Leather — Test measurement of thickness

ISO 3071, Textiles — Determination of pH of aqueous extract

ISO 3376, Leather — Determination of tensile strength and elongation

ISO 3377, Leather — Determination of tearing load

ISO 4045, Leather — Determination of pH

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

ISO 4048, Leather — Chemical tests — Determination of matter soluble in dichloromethane and free fatty acid

Content

ISO 4674, Rubber- or plastics-coated fabrics — Determination of tear resistance — Part 1: Constant rate of tear methods

ISO 4684, Leather — Chemical tests — Determination of volatile matter

ISO 7771, Textiles — Determination of dimensional changes of fabrics induced by cold-water immersion

ISO 11640: Leather — Fastness to rubbing

ISO 11644: Leather — Determination of adhesion to finish

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

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

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 17130, Leather — Physical and mechanical tests — Determination of dimensional change

ISO 17233, Leather — Physical and mechanical tests — Determination of cold crack temperature of surface Coatings

ISO 17694, Footwear — Test methods for uppers and lining — Flex resistance

ISO 17697 Footwear — Test methods for uppers, lining and insoles — Seam strength

ISO 17704 Footwear — Test methods for uppers, linings and insoles — Abrasion resistance

ISO 17706, Footwear — Test methods for uppers — Tensile strength and elongation

ISO 17696, Footwear — Test methods for uppers, linings and insoles — Tear strength

ISO 17708, Footwear — Test methods for whole shoe — Upper sole adhesion

ISO 18895 Footwear — Test methods for shanks — Fatigue resistance

ISO 18896 Footwear — Test methods for shanks — Longitudinal stiffness

ISO 19952, Footwear - Vocabulary

ISO 19953 Footwear — Test methods for heels — Resistance to lateral impact

ISO 19956 Footwear — Test methods for heels — Fatigue resistance

ISO 20344, Personal protective equipment — Test methods for footwear

ISO 20865 Footwear – Test method for compression Energy

3 Terms and definitions

For the purposes of this standard, the following definitions shall apply:

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

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 Sport shoes

footwear designed and manufactured as suitable for wear during a variety of non specialist sporting activities eg jogging, court games and light general training.

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 .

4.1.1 Workmanship and Finish

The footwear shall be manufactured in accordance with sound manufacturing practice.

4.1.2 Trimming

Unless the heel seats are of the extended type, heels shall be trimmed smooth to the heel seats. The sole edges (other than pre-moulded outer sole and heel units) shall be trimmed smooth

4.1.3

4.1.3 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.

4.1.4 Defects

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

4.1.5 Laces

Each pair of lace-up shoes shall be provided with one pair of laces. Both ends of the lace shall bear tags (aglet) of metal or plastic materials. The length of tags shall be not less than 13 mm and they shall not have rough joints

4.1.6 Fasteners

For non laced shoes they shall be provided with a suitable fastening mechanism

4.2 Specific Requirements

The physical and chemical properties shall comply with the requirements given in Table 1-7, when tested in accordance with test methods specified therein

TABLE 1 — Upper Material Characteristics and Requirements

S/N	Characteristic		Materials and requirements					Test method	
			Leather	PU coated leather	Textiles	PU coated textiles	PVC coated textiles		Others (including composite materials)
i.	Thickness (mm), min.		1.2	0.7	NA	0.7	0.7	0.5	ISO 2589
ii.	Tensile strength (MPa), min.		10	10	NA	6	7.5	1.5	ISO 3376 ISO 17706
iii.	Elongation at break, (%)		30-80	30-80	NA	10-50	10-50	40 min	ISO 3376 ISO 17706
iv.	Tear strength (N), min.		55	55	NA	28	25	20	ISO 17696
v.	Rub fastness (Grey scale), dry /wet, Min		3	3	3	3	3	3	ISO 11640 ISO 105-X12
vi.	Adhesion to finish, N, min.		1	0.8	NA	NA	NA	NA	ISO 11644
vii.	Breaking load (N/mm), min.		NA	NA	15	10	10	NA	ISO 17706
viii.	Chromium content, %	Hide	3.5 - 4.0	3.5 - 4.0	NA	NA	NA	NA	ISO 17075-1 ISO 17075-2
		Skin	3.3 - 3.5	3.3 - 3.5	—	—	—	—	
ix.	Chromium (vi) oxide content, ppm, max		3	3	NA	NA	NA	NA	

S/N	Characteristic	Materials and requirements						Test method
		Leather	PU coated leather	Textiles	PU coated textiles	PVC coated textiles	Others (including composite materials)	
x.	pH value	4.5 - 5.5	4.5 - 5.5	NA	NA	NA	NA	ISO 4045
xi.	Light fastness, (blue wool standards), min.	4	4	4	4	4	4	ISO 11640 ISO 105-B01 ISO 105-B02
xii.	Wash fastness, (grey scale), min.	NA	NA	4	4	4	4	ISO 15702 ISO 15703 ISO 105-C10
xiii.	Flex endurance, Number cycles, min	10 000	NA	NA	NA	NA	NA	ISO 20344 ISO 16177

TABLE 2 — Upper Lining Material characteristics and Requirements

Characteristics	Materials and Requirements				Methods Test
	Leather	PVC	Textile	PU	
(1)	(2)	(3)	(4)	(5)	(6)
Thickness (mm), min.	0.8	0.7	–	0.7	ISO 2589 ISO 2286-3
Tensile strength (MPa), min.	10	5	NA	5	ISO 3376 ISO 1421
Elongation at break (%), min.	30	140		140	ISO 3376 ISO 1421
Tear strength (N), min.	30	15	NA	15	ISO 3377-1 ISO 4674
Rub fastness (gray scale), min. <ul style="list-style-type: none"> • Dry • Wet 	4 4	4 4	4 4	4 4	ISO 11640 ISO 105-X12

Breaking load (N), min.	–	–		–	ISO 13934-1
Chrome content(%), max.	3.0	NA	–	–	ISO 17075-1 ISO 17075-2
Water vapour permeability (mg/cm ² , h), min.	1	1	2	0.8	ISO 20344
Abrasion (Revolutions), min.	–	–	Dry 4 000 Wet 2 000	–	ISO 17704
PH value	4.5-5.5				ISO 4045
Fat content (% m/m), min.	3	–	–	–	ISO 4048
Total ash (%), max.	9	–	–	–	ISO 4047
Total water solubles (%), max.	6	1	2	1	ISO 20344
Colour fastness to perspiration, min.	4	4	4	4	ISO 11641-1 ISO105-E04

TABLE 3 — Bottom/sole Material Characteristics and Requirements

S/N	Characteristic		Requirement					Test method	
			Rubber	TPU/TPR	PU	PVC	EVA /MCR		Other materials(including composite materials)
i.	Flex resistance,	Initial crack, cycles,min	50000	30000	50000	30000	25000	25000	ISO 16177
		Cut growth ,% at 150,000 cycles	600	600	600	600	800	800	
ii.	Tensile strength, (MPa)		6	5	5	8	2.5	1.5	ISO 3376 ISO17706

iii.	Elongation at break, (%), <i>min.</i>	300	400	300	250	250	60	ISO 17706
iv.	Heat Shrinkage (%), <i>max</i>	-	-	-	-	3	4	ISO 294-4 ISO2577
v.	Abrasion loss, mm ³ , <i>max.</i>	300	300	300	250	400	600	ISO 20871
vi.	Hardness , IRHD	60-85	45-80	45-90	50-85	30-55	40-90	ISO48-(1-5)
vii.	Specific gravity, <i>max</i>	1.35	1.15	0.45-0.65	1.4	0.65	1.7	ISO868

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

TABLE 4. — Insoles/Sock Characteristics and Requirements

Characteristics	Requirements		Test Methods
	In sole	Sock	
Thickness (mm), <i>min.</i>	1.5	1.0	ISO 2589
Water absorption (%), <i>max.</i>	35	-	ISO 20344
Water Desorption(water loss)(%), <i>max</i>	40	-	
flexibility (cycles) (%), <i>min.</i>	40 000	-	ISO 17694
Shrinkage (%), <i>max.</i>	4.0	4.0	ISO 17130
pH value(if leather)	4.5-5.5	4.5-5.5	ISO 4045
Tear Strength (N/mm), <i>min</i>	10	20	ISO 3377-1
Colour fastness to Rubbing (grey scale), <i>min.</i>	4	4	ISO 11640
<ul style="list-style-type: none"> • Wet • Dry 	4	4	
Water vapour permeability (mg/cm ² h), <i>min.</i>	1	1	ISO 20344

Coefficient of water vapour permeability g/cm ² , min	30	30	ISO 20344
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TABLE 5. — Stiffener and Toe Puff Characteristics and Requirements

Characteristics	Requirements		Test Methods
	Stiffener	Toe puff	
Hardness (IRHD), min.	70	50	ISO 48-2
Flexibility (cycles), min.	50 000	50 000	ISO 16177
Water absorption (%), min.	25	25	ISO 20344
Resilience (%), min.	35	35	ISO 20344
Thickness (mm)	1.0	0.6	ISO 2589

TABLE 6 — Physical Requirements for the Whole Shoe Assembly

Characteristics	Requirements		Test Methods	
Sole adhesion strength, (n),minimum	Sole	Heel	ISO 17708	
	• Leather	140		250
	• PVC/PU	270		360
	• Rubber	140		230
	• EVA/MCR	110		200
Seam strength (N/mm), min.	20		ISO 17697	
<ul style="list-style-type: none"> Water penetration(where applicable) after 5 hrs, max. Mass change(where applicable) (%), max. 	None		ISO 20344	
	5			
Sole bond strength (N/mm), min.	4		ISO 20344	
Finishes			ISO/TR 20572	
	• Buttons and trims attachment strength (N), min.	100		
	• Buckle fastening strength (N), min.	220		
	• Buckle/eyelets/buttons rusting, max (presence of rust)	None		

Shank(if present)		ISO 18895 and ISO 18896
• Accumulated impact strength (J), min.	40	
• Bending modulus (N), min.	700	
• Resilience (%), min.	80	

5 Packaging

Each pair shall be packed in a suitable manner so as to protect it from damage during normal transportation, storage and handling

6 Marking/Labeling

6.1 Shoes

The following information shall be legibly and indelibly marked on the sock or any other suitable visible place:

- a) manufacturer's name and/or registered trade mark;
- b) size fitting number of footwear;
- c) country of manufacture/origin;
- d) batch number; and
- e) type of material (upper and bottom).

6.2 Primary packaging

The primary packaging material shall be legibly and indelibly labelled with the following information:

- a) size of footwear;
- b) colour of footwear;
- c) batch number;
- d) manufacturer's name or registered trade mark; and
- e) country of manufacture/origin.

6.3 Bulk Packaging

Each bale shall be legibly and indelibly labelled with the following information:

- a) name of product as "Sports shoes";
- b) quantity;
- c) name of manufacturer or local supplier's name and/or registered trade mark; and
- d) country of manufacture/origin.

7. Sampling and criteria for compliance

For the purpose of ascertaining the compliance of sports shoes in a consignment to this specification, the scale of sampling and criteria for compliance shall be as prescribed in Annex A.

Annex A

(normative)

Methods of sampling and criteria for acceptance

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, colour, size 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 A.1.

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 A.2.3 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 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 24th 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 % 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 A.1 — Scale of sampling and permissible number of defects

Number of footwear pairs in a lot	Samples for visually observed defects (Pairs)	Permissible number of defectives (Pairs)	Sample size for laboratory testing (Pairs)	Permissible number of defects (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 Defects

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

- a) difference in shape, design and colour;
- b) odd pairing and incorrect size;
- c) distorted shapes;
- d) faulty jointing and adhesion of sole, heel, toe guard, toe cap and insole;
- e) insole cut short;
- f) broken stitches and incorrect stitching;
- g) missing or defective eyelets/speed hooks or eyeleting/hooksing;
- h) variations in positioning of eyelets/speed hooks;
- i) stiffener not centrally placed;
- j) unfit lace;
- k) finish not even and unpolished; and
- l) missing or defective buckles/buckling assembly.

A.4 Acceptance criteria

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

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.

PUBLIC REVIEW DRAFT

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