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## **DRAFT EAST AFRICAN STANDARD**

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**Leather — Protective leather gloves — Specification**

PUBLIC REVIEW

**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 063, *Leather and leather products*.

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

## Leather — Protective leather gloves — Specification

### 1 Scope

This Draft East African Standard specifies requirements, sampling and test methods for protective leather gloves used for general purpose. It excludes specialised gloves used for protection against medical, chemical and electrical purpose.

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

ISO 2418, *Leather — Chemical, physical and mechanical and fastness tests — Sampling location*

ISO 2419, *Leather — Physical and mechanical tests — Sample preparation and conditioning*

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

ISO 2589, *Leather — Physical and mechanical tests — Determination of thickness*

ISO 3376, *Leather — Physical and mechanical tests — Determination of tensile strength and percentage extension*

ISO 3377-2, *Leather — Physical and mechanical tests — Determination of tear load — Part 2: Double edge tear*

ISO 3380, *Leather — Physical and mechanical tests — Determination of shrinkage temperature up to 100 °C*

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

ISO 4045, *Leather — Chemical tests — Determination of pH*

ISO 11640, *Leather — Tests for colour fastness — Colour fastness to cycles of to-and-fro rubbing*

ISO 11641, *Leather — Tests for colour fastness — Colour fastness to perspiration*

ISO 5398-1, *Leather — Chemical determination of chromic oxide content — Part 1: Quantification by titration*

ISO 5398-2, *Leather — Chemical determination of chromic oxide content — Part 2: Quantification by colorimetric determination*

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

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions 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

#### **Glove**

A personal protective equipment which protects the hand or part of hand against hazards. It can additionally cover part of forearm and arm. (See figure 1)

#### 3.2

#### **Cuff**

Extension of gloves which covers the wrist or arm

#### 3.3

#### **Velcro**

A fabric hook and loop fastener.

#### 3.4

#### **Glove palm**

part of the glove which covers the palm of the hand

#### 3.5

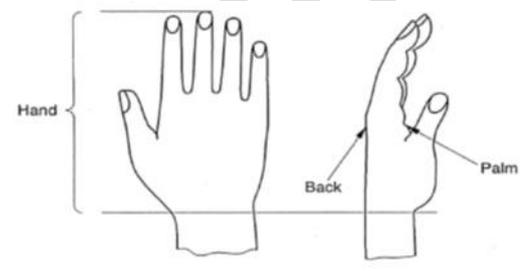
#### **Glove back**

part of the glove which cover the back of the hand.

#### 3.6

#### **Hand guards**

A piece of protective materials of various designs used to protect the hand



**Figure 1.** Definition of hand, palm and back

## **4 Requirements**

### **4.1 General requirements**

**4.1.1** Leather gloves shall be clean, well made and be free from defects that affect their appearance or that may affect their performance (or both)

**4.1.2** The number of stitches shall be 6 to 8 stitches per 25 mm with the end of all stitching securely back stitched.

**4.1.3** All stitches shall be joined together by a double row of stitching. The completed glove shall be of the inseam type with the stitching on the fingers and the thumb on inside as a protection.

**4.1.4** The reinforcement shall be provided between the thumb and the index finger, to cover the whole of the palm side of the thumb extending the whole length of the index finger and be securely sewn down.

**4.1.5** The leather used in making the gloves shall be soft, pliable and not be pippy.

**4.1.6** All metal accessories shall be of an intrinsically corrosion-resistant metal or shall have been so coated as to render them resistant to corrosion. When plastics accessories have been coated, they shall show no sign of cracks or pit marks. All accessories shall be of an acceptable design and of adequate size and strength for their intended function.

**4.1.7** Snap fastener/Press-studs shall be of the male and female type and shall have a tenacious grip.

**4.1.8** Interlocking slide fasteners shall be of the one-way closed-end type with either metal or plastics chains. The colour of the tapes shall be of an acceptable match to that of the surrounding material or an acceptable contrast to it.

**4.1.9** High visibility gloves shall use retro reflective material to cover about 50% of the back surface of the gloves.

**4.1.10** Touch and close fasteners shall be of tape that consists of two polyamide parts, one with tiny hooks and the other with tiny loops. When pressed together, the hooks shall so grip the loops so as to give a tight, secure closure. To open, the two parts shall peel apart easily. The tapes shall be of acceptable width and length, and the colour shall be either an acceptable match to that of the surrounding material or an acceptable contrast to it.

### **4.2 Specific requirements**

Leather gloves shall comply with the specific requirements given in Table 1 when tested in accordance with the test methods specified therein.

**Table 1 — Specific requirements for leather gloves.**

S/N	Characteristic		Requirements	Test method
i.	Tensile strength (MPa), min.		15	ISO 3376
ii.	Elongation at break, (%)		30 – 80	ISO 3376
iii.	Chromic oxide content, calculated on a moisture-free basis, %, min.		3.5	ISO 5398
iv.	Chromium (vi), mg/kg, max.		3.0	ISO 17075-1
v.	Rub fastness (Grey scale), dry /wet, Min		3	ISO 11640
vi.	abrasion (revolution s) min.	Dry	25600	ISO 17076
		Wet	6400	
vii.	pH value		4.5 – 5.5	ISO 4045
viii.	Shrinkage, (%), max.		5	ISO 17130
ix.	Tear strength, N, min		20	ISO 3377
x.	Colour fastness to perspiration, min		3	ISO 11641
xi.	Extension set, %, max.		10	ISO 17236
xii.	Shrinkage temperature, °C, min.		80	ISO 3380
xiii.	Thickness,mm	Normal/light duty	0.8 –1.2	ISO 2589
		Heavy duty	1.3 –2.0	

#### 4.4 Construction of lining and interlining material

4.4.1 leather gloves shall be lined with leather or be interlined with fabric or other acceptable interlining material.

#### **4.5 sizes**

The sizes of leather gloves shall be determined as prescribed in annex B.

### **5 Packaging**

Protective leather gloves shall be packaged in suitable material so as to protect them from damage during transportation, storage and handling.

### **6 Marking and labelling**

#### **6.1 leather gloves**

The following information shall be legibly and indelibly marked/labelled on each leather glove:

- a) manufacturer's name and/or trademark;
- b) colour;
- c) country of origin;
- d) material i.e. leather; and
- e) batch number.
- f) size

#### **6.2 Bulk package**

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

- a) manufacturer's name and/or trademark;
- b) number of gloves; and
- c) country of origin.

## Annex A (normative)

### Sampling methods and acceptance criteria

#### A.1 Scale of sampling

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

**A.1.2** leather gloves shall be considered to be of different lots if they differ in shape, colour, and design.

**A.1.3** The number of leather gloves to be selected from any lot shall depend on the size of the lot and shall be in accordance with Columns 2 and 3 of Table A.1.

#### A.2 Method of selection

**A.2.1** leather gloves to be selected from the lot shall be randomly selected from the lot. To ensure randomness the procedure in A.2.3 shall be used.

**A.2.2** When the leather gloves in a lot are not packed in a number of boxes, the sampling shall be as follows:

- a) starting from any leather gloves in the lot, count the leather gloves as 1,2, etc---up to r and so on in one order; and
- b) every r<sup>th</sup> piece 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 pieces is obtained.

Example 125 leather gloves is to be selected from a lot of 3 000 leather gloves, compute r as equal to integral part of  $3\ 000/125=24$ . Starting from any piece, the leather gloves shall be counted in one order and every 24<sup>th</sup> piece shall be withdrawn.

**A.2.3** When the leather gloves in a lot are packed in different boxes the sampling shall be as follows:

- a) a suitable number of boxes (not less than 30 % of the total boxes in the lot) shall be first chosen at random; and
- b) for each of the boxes so chosen, an approximately equal number of leather gloves shall be picked up from its different parts so as to obtain the required number of leather gloves.

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

**Table A.1 — Scale of sampling and permissible number of defects**

S/No.	Number of leather gloves in a lot	Samples for visually observed defects Pieces	Permissible number of defectives Pieces	Sample size for laboratory testing Pieces	Permissible number of defects Pieces
i)	Up to 50	13	0	2	0
ii)	51 to 100	20	1	3	0
iii)	101 to 300	32	1	3	0
iv)	301 to 500	50	2	5	1
v)	501 to 1 000	80	3	6	1
vi)	1 001 to 3 000	125	5	7	2
vii)	3 001 and above	200	7	8	3

### A.3 Defects

All randomly selected leather gloves (Table A.1, Column 3) shall be inspected for visually observed defects that is:

- a) difference in shape, design and colour;
- b) distorted shapes;
- c) cracking defects;
- d) faulty jointing and adhesion;
- e) broken stitches and incorrect stitching;
- f) fasteners defect in buckles and studs;
- g) grain damage;
- h) broken threads; and
- i) finish not even.
- j) Skipped stitches

### A.4 Acceptance criteria

**A.4.1** The number of defective leather gloves shall not exceed the permissible number given in Table A.1, Column 4. If the number of defective pieces exceeds the permissible number of defectives, the lot shall be rejected.

**A.4.2** In case the lot has been found satisfactory for visually observed defects, sample pieces for laboratory testing (Table A.1, Column 5) shall be taken from among those drawn (Table A.1, Column 3).

**A.4.3** The pieces shall be chosen at random and tested for dimensional, physical and chemical characteristics. If the number of defective leather gloves is less than or equal to the corresponding permissible number of defectives given in Table A.1, Column 6, the lot shall be declared to have met the requirements of this standard. Otherwise, if the defective leather glovepieces are more than the corresponding permissible numbers of defectives, the lot shall be rejected.

**Annex B**  
(informative)

**determination of circumference and length of leather gloves**

**B.1 Sizes and measurement of hands**

Primary measurements shall be taken from hand circumference and length (distance between the wrist and the tip of the middle finger), see figure 2

**B.2 Sizes and measurement of gloves**

The size of the gloves shall be tested as indicated on a glove. The circumference of the fingers and the thumb shall be proportional to the circumference of the palm subject to normal allowance between the fingers. For the sizes other than the minimum defined in Table 2 of annex B, agreement should be reached between purchaser and supplier.

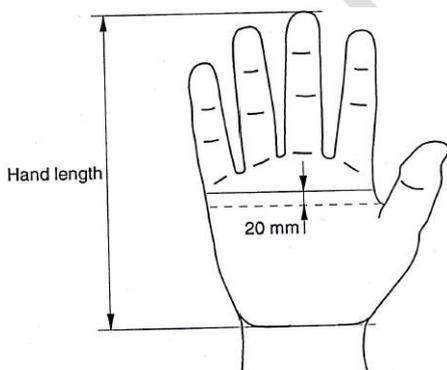
**B.3 Hand and glove measurement and dimensions**

**B.3.1** The circumference of the hand is measured with a calibrated tape, 20mm from the crotch between thumb and index finger (see figure 2)

**B.3.2** The length of hand is as shown on fig. 2

**B.3.3** The length of the glove is measured from the top of the middle finger to the end of the glove on the back of the glove using a calibrated meter rule.

**B.3.4** If the glove have a knitted elastic wrist sewn on or are made of elastic material, the dimension are measured with the sample in the unstretched state.



**Figure 2. Measurement of hand circumference and hand length**

**Table 2. Sizes of gloves**

Glove size	Fits hand size	Hand Circumference(mm),min.	Hand Length (mm),min.	Minimum length of glove in mm
4	4	108	145	200
5	5	135	157	210
6	6	152	162	220
7	7	178	171	230
8	8	203	182	240
9	9	229	192	250
10	10	254	204	260
11	11	279	215	270

**Note:**

1. The conventional specification of hand size corresponding to the hand circumference expressed in mm.
2. Actual measurement of gloves shall be determined by the manufacturer taking into account the behavior of the glove material and the intended use.
3. The hand and glove dimensions shall be as indicated in the table

## Bibliography

- [1] TZS 1732 :2015, *Protective leather gloves – specification*

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