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DRAFT EAST AFRICAN STANDARD

Plastic plate — 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 072, *Plastics and related 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.

Plastic plate — Specification

1 Scope

This Draft East African Standard specifies requirements, sampling and test methods for plastic plate used for food contact.

This standard is not applicable to disposable plastic plate.

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.

EAS 1086, *Plastics — Codes for resin identification on plastic products*

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:

— IEC Electropedia: available at http://www.electropedia.org/

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

3.1
plastic plate
flat rigid tableware used for holding and serving food

3.2
brimful capacity
volume of liquid held by the plastic plate when filled to the point of overflowing while standing on a flat horizontal level

3.3
nominal size
size of plate in terms of the diameter

3.4
ovaling
deformation of plate by losing its original round or circular shape and becomes more oval

4 Requirements

4.1 General requirements

4.1.1 Material

All materials used in the manufacture of the plastic plate shall be virgin food grade.

4.1.2 Rim

The rim shall be reinforced to prevent ovaling and shall have smooth, rounded edges to avoid injury to the user

4.1.3 Finishing

4.1.3.1 Plastic plate shall have a smooth clean finish, free from any visible defects such as spots, bubbles, holes, cracks, impurities, moulding flash, colour variations, peeling, raptures and surface scratches.

4.1.3.2 Plastic plate may be decorated. The decoration shall be incorporated in such a manner as to become an integral part of the piece and shall be as durable as the undecorated surface.

4.2 Specific requirements

4.2.1 The plastic plate shall conform to the specific requirements specified in Table 1 when tested in accordance with the test methods prescribed therein

Table 1 — Specific requirements of plastic plate

S.No	Characteristic	Requirement	Test method
i.	Impact resistance	Remain intact	Annex A
ii.	Brimful capacity, l	4% greater than the nominal capacity	Annex B

4.2.2 The dimensions shall not be less than those indicated in Table 2 when tested in accordance with Annex C, tolerance of ± 2 percent shall be permitted.

4.2.3 Thickness — The thickness when determined as prescribed in Annex C shall be not less than that specified in Table 2 for the given nominal capacity and shall be maintained over at least 90 percent of the total area of the plastic plate.

4.2.4 Resistance to wet heat — when tested by the method described in Annex D.

a) the plastic plate shall not develop cracks, nor shall they show signs of surface marking or of any other defect that will impair their serviceability or appearance;

b) the internal volume of the articles shall not be reduced by more than 4 percent of the initial value, and

c) it shall not be possible to insert a 0.375 mm feeler gauge at any point between the feet or base of the articles and a flat surface when the articles are placed as normally used on the flat surface and held firmly in place by exerting light pressure with one finger at the centre of the base.

4.2.5 When tested by the method described in Annex D, the requirements specified in 4.2.4(a) to 4.2.4(c) shall be satisfied.

4.2.6 Ink adhesion ─ The printed plates, when tested by the method described in Annex E, shall show no sign of printed ink or paint removal

5 Packaging

Plastic plates shall be suitably packaged to maintain their integrity during handling, storage and transportation

6 Marking and labelling

6.1 Marking

The plastic plate shall be legibly and indelibly marked in English and/or any other official language with the following information:

a) code of resin identification and symbol for recycling in accordance with EAS 1086;

b) name of the manufacturer and/or trademark;

c) food grade material symbol

d) batch or code number; and

e) country of origin

6.2 Labelling of bulk package

6.2.1 The bulk package shall contain plastic plates of the same size and make

6.2.2 The bulk package shall be legibly and indelibly labelled in English and/or any other official with the following information:

a) name and physical address of manufacturer and/or registered trademark;

b) name of the product as, “Plastic plates”;

c) declaration of the number of plastic plates in the bulk package;

d) country of origin

Annex A
(normative)

Impact resistance test

A.1 Drop test

A.1.1 Procedure ─ At a temperature of 27 ± 2 ˚C, drop a plate freely, bottom-down, from a height of 1.2 m, unto a level cement floor three times.

A.1.2 Result ─ The product shall remain intact.

Annex B
(normative)

Test for brimful capacity

B.1 Apparatus

B.1.1 A rigid transparent plastic disc with a slot (see figure B1) big enough to completely cover the entire circumference of the plate.

B.1.2 Weighing balance to determine the mass of the plate to an accuracy of 1 g.

B.2 Procedure

B.2.1 Weigh the plate and the rigid transparent plastic disc to an accuracy of 1 g.

B.2.2. Fill the plate with water to within approximately 3 mm of brim. The water used should be at ambient temperature or at 27 ºC ± 2 ºC.

B.2.3 Place the rigid transparent plastic disc on the neck face and top up by carefully pouring water through the slot until the water is seen just contacting the underside of the disc.

B.2.4 Weigh the filled plate, together with the rigid transparent plastic disc.

B.2.5 The difference in weighings is the mass of the water recorded in grams. The results shall be expressed to the nearest millilitres.

B.3 Result

The mass of the water in grams or the volume of water measured is numerically equal to the brimful capacity of the container in millilitres

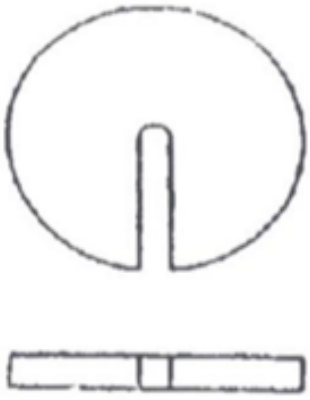

Figure B.1—Transparent plastic disc

Annex C
(normative)

Measurement of dimensions

C.1 Depth

C.1.1 Apparatus – Micrometer gauge

C.1.2 Procedure – Place the plate on a surface plate and measure to the highest point on the plate using a micrometer gauge at two positions as follows:

a) close to but avoiding the part line; and

b) at 90° to the position specified at (a).

C.1.3 Calculation – The depth is recorded as the mean of the two readings. The accuracy or measurement shall be 0.1 mm.

C.2 Diameter

C.2.1 Apparatus – Vernier micrometer or circumference gauge

C.2.2 Procedure – The plate diameter shall be ascertained by either the micrometer or circumference gauge method.

C.2.2.1 By using a vernier or micrometer, measure the diameter of the plate at a specified height as follows:

a) Close to but avoiding the part line; and

b) At 90°to the position specified at (a).

The accuracy of measurement shall be 0.1 mm. The diameter is recorded as the mean of the two diameters at right angles.

C.2.2.2 By using a circumference gauge, measure the circumference at a specified height. Record the diameter as the circumference multiplied by 0.318.

NOTE The circumference gauge normally gives the mean diameter directly.

C.3 Measurement of wall thickness

C.3.1 Apparatus – Micrometer/screw gauge, fitted with ball point tips or dial caliper gauge fitted with spherical anvils giving an accuracy of measurement of 0.02 mm.

C.3.2 Procedure – The container wall thickness shall be ascertained by either of the methods indicated below.

C.3.2.1 Micrometer method – Cut the cup horizontally into three pieces (top, middle and bottom) with a pair of scissors or hacksaw blade. Measure the wall thickness with a micrometer or screw gauge fitted with

ball point tip, at four places in each section. Take the average of four readings and report as wall thickness at top, middle and bottom.

C.3.2.2 Dial caliper gauge method ─ Measure the wall thickness with the help of dial caliper fitted with spherical anvils. Care shall be taken to avoid movement of the cup during measurement as this may affect the reading obtained. The measurement shall be to an accuracy of 0.02 mm. Take the mean of three readings at any location (top, middle and bottom) as wall thickness.

Annex D
(normative)

Wet and dry heat resistance tests

D.1 Wet heat resistance test

The plastic plate shall be immersed in water maintained at boiling point for 30 minutes, and then removed and allowed to stand for 1 hour at room temperature. This cycle shall he repeated three times, making a total of four cycles. The plastic plate shall then be conditioned for 24 hours at ambient temperature. In case of dispute, the article shall be conditioned for 24 hours at 27±1°C at a relative humidity of 65 ± 2 percent. The article shall thereafter be inspected for compliance with 4.2.4.

D.2 Dry heat resistance test

The plastic plate shall be placed in an air-circulating oven at a temperature of 77 ± 2°C for 8 hours, and then removed and allowed to cool. It shall then be conditioned for 24 hours at ambient temperature. In case of dispute, the plastic plate shall be conditioned for 24 hours at 27 ± 1°C at a relative humidity of 65 ± 2 percent. The article shall thereafter be inspected for compliance with 4.2.5

Annex E
(normative)

Ink adhesion test

E.1 Procedure

Apply two strips of 25 mm wide transparent pressure sensitive tape or cellophane tape to the printed area of container; one piece down the height and the other round the circumference of the cup. Press the tape firmly on to the container and leave it for 15 s. Remove the tape by pulling slowly at about 1 cm/s pulling rate from one end at 90° to the container surface.

E.2 Results

There shall be no removal of the print from surface of the container and the print shall be legible to the naked eye after the test

Annex F
(normative)

Sampling

F.1 Scale of sampling

F.1.1 Lot ─ In a single consignment, all the plastic plate of identical description, produced under relatively similar conditions of manufacture, such as the same batch of production and the same batch of raw material, shall constitute a lot.

F.1.2 Samples shall be selected and examined for each lot separately to ascertain conformity of the lot to the requirements of this specification.

F.1.3 Number of Samples ─ From each lot, 17 plastic plates shall be selected for carrying out various tests specified in this standard with a view to ascertaining conformity of the lot to the requirements of this standard.

F.1.4 The plastics plates shall be selected at random from the lot. If the plates in the lot are packed in different boxes, about 10 percent of the boxes, subject to a minimum of 2, shall be chosen at random and from each box so chosen, approximately equal number of articles shall be taken at random so as to make up 17 in all.

F.2 Number of tests and criteria for conformity

F.2.1 All test samples selected in F.1 shall be examined for the requirements specified in 4.1.1 to 4.1.4. The lot shall be considered acceptable in respect of these requirements if each of the 17 test samples individually satisfies each of these requirements.

F.2.2 If the lot has been declared acceptable in F.2.1, then out of the 17 test samples, 2 test samples shall be taken at random. Each of these shall be tested for requirements specified in 4.2.1 to 4.2.6. The lot shall be considered acceptable in respect of these requirements if each of the 2 test samples individually meets all these requirements.

Bibliography

[1] IS 2798:1998, *Methods of test for plastics containers*

[2] IS 9220 (1979), *Tableware Made of Melamine Plastics*

[3] US ISO 13106:2014, *Plastics — Blow-moulded polypropylene containers for packaging of liquid foodstuffs*

