**Paper Plates, Cups with lids for food packaging —Specification**

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East African Packaging Industries

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**Foreword**

This Kenya Standard was prepared by the Technical Committee on Packaging under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

Development of this standard was necessitated by the need to have paper plates, Cups with lids that do not contain contaminants that are harmful to the consumers. The limits of heavy metals namely, arsenic, copper, iron, lead and others has been prescribed since their presence in high levels is toxic to humans.

Paper plates, cups with lids are largely used in food packaging. The basic factors taken into consideration while laying down the requirements of these products are the quality of the paperboard, Coating wax, printing inks, adhesives that shall not exceed prescribed limits among others. The packaging material shall be free from micro-organisms and any other disease causing pathogens.

This standard shall be useful to manufacturers, consumers, importers, exporters, standards enforcement agencies and other stakeholders in checking quality of Paper based packaging material for locally manufactured or imported food products.

Parameters covered in the standard include heavy metal contents, organic pollutants and microbial contamination among others.

During the preparation of this standard, reference was made to the following document:

IS 3263,Specification for Ice cream Cups and lids.

Acknowledgement is hereby made for the assistance derived from this source.

**Paper Plates, Cups with lids for food packaging —Specification**

**1 Scope**

This Kenya Standard specifies the requirements and prescribes test methods for paper plates, cups with lids used for food packaging.

**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.

*KS EAS 880 Waxed paper for packaging of confectionery — Specification*

*KS ISO 287, Paper and board — Determination of moisture content of a lot — Oven-drying method*

*KS ISO 536, Paper and board — Determination of grammage*

*ISO 5628,Paper and board -- Determination of bending stiffness -- General principles for two-point, three-point and four-point methods*

*ISO 13302,Sensory analysis -- Methods for assessing modifications to the flavour of foodstuffs due to packaging*

*ISO 216,Writing paper and certain classes of printed matter — Trimmed sizes — A and B series, and indication of machine direction*

KS ISO 8784-1, *Pulp, paper and board — Microbiological examination — Part 1: Total count of bacteria, yeast, mould based on disintegration*

ISO 13914, *Soil quality — Determination of dioxins and furans and dioxin-like polychlorinated biphenyls by gas chromatography with high-resolution mass selective detection (GC/HRMS)*

**3 Requirements**

**3.1 Material**

**3.1.1 Paper**

The paper used for the manufacture of plates, cups with lids shall be made from virgin chemical wood pulp, blended or recycled.

**3.1.2** The paper used for the manufacture of plates, cups with lids shall be free from contaminants listed in Tables 1 and 2.

Table 1 — Chemical and physical requirements of paper plates, cups with lids used for food packaging

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Characteristic** | | | **Requirement** | **Test method** |
|  | Grammage, gsm, %,,min | | | 133 | ISO 536 |
|  | Stiffness of the paper,min | | MD | 110 g cm | *ISO 5628:2012* |
| CD | 40 g cm |
|  | For waxed plate, cups with lids, Paraffin wax and its blends, °C, min. | | | 60 | KS 2621 |
|  | For waxed plate, cups with lids, Wax content, %, mass, min. | Grade 1 | | 20 | KS EAS 880 |
| Grade 2 | | 40 |
|  | Burst factor,kPa min. | | | 20 | KS ISO 2758 |
|  | Water vapour permeability, when tested for 24 h at 38 °C ± 1 °C and 90 % ± 2 % RH, g/m3, max. | | | 140 | KS ISO 16532-1 |
|  | Odour | | | Shall not Impart off flavour | KS ISO 13302 |
|  | Dimension, mm | | | As per the declaration with a tolerance of ±1 | KS ISO 216 |
|  | Volume of the cups | | | As per the declaration | Within the tolerance of dimension declared in accordance to KS ISO 216 |

**3.1.3** The heavy metal contaminants and organic pollutants if present shall not exceed the limits stated in table 2

**Table 2 — Limits of heavy metal contaminants and organic pollutants paper plates,cups with lids paper for Ice cream Cups and Lids used for food packaging**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Contaminant** | **mg/kg of paper** | **Test method** |
| i) | Cadmium (Cd2+),max. | 0.5 | KS EAS 880 |
| ii) | Chromium Cr6+ | 0.1 |
| iii) | Lead (Pb2+),max. | 3.0 |
| iv) | Mercury (Hg2+),max. | 0.3 |
| v) | Pentachlorophenol (PCP), max. | 0.05 |
| vi) | Polychlorinated biphenyl | 2.0 |

**3.2 Resistance to deep freezing for paper plates,cups with lids**

When tested in accordance with annex A the the products shall withstand the deep freeze conditions for 30 days.

**3.3 Microbiological examination**

Paper plates, cups with lid**s** shall comply with microbiological requirements given in Table 3.

**Table 2 — Microbiological limits for paper plates,cups with lids**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Characteristic** | **Limit** | **Test method** |
| i) | Total plate count,cfu/g,max. | 300 | KS ISO 8784-1 |
| ii) | *Pseudomonas aeruginosa*, cfu/g | Not detected in 1 g of the product |
| iii) | *Staphylococcus aureus*, cfu/g |
| iv) | *Candida albicans*, cfu/g |
| v) | *Escherichia coli*, cfu/g |

**3.3 Leak proofness**

When tested in accordance with annex B, the paper plates, cups with lids shall be leak proof. There shall be no cracks on the outer curling of the paper plates, cups with lids and the base curling shall be uniform. Glue spots shall be absent where the paper plates, cups with lids are seamed.

**4 Packaging and marking**

**4.1 Packaging**

Paper plates, cups with lids shall be packed in suitable materials that prevents them from contamination and damage during normal handling, storage and transportation.

**4.2 Marking on bulk package for paper plates and cups with lids**

Paper plates, cups with lids shall be legibly and indelibly marked with the following information.

1. manufactures/suppliers name or trade mark or both;
2. words, “made from virgin pulp, blended and recycled”;
3. month and year of manufacture;
4. the volume of the cups with lids;
5. number of pieces
6. dimension in milimetres
7. country of origin/manufacture.

**4.3 Marking on paper plates and cups with lids**

1. Batch number
2. manufactures/suppliers name or trade mark or both at the bottom;

**Annex A**

(normative)

**Resistance to deep freezing**

**A.1 Apparatus**

**A.1.1 A freezing compartment that can be operated up -40 oC**

**A.1.2 paper plates, cups with lids**

**A.2 Procedure**

**A.4.1** Sample **paper plates, cups with lids** are placed in a freezing compartment that operates up to -35 oC for a period of 30 days.

**A.4.2** At the end of this period the samples are removed from the compartment and observed for any defects such separation of the seam, fading of the prints, deformation etc.

**A.3 Conclusion**

The sample is shall comply if no defects mentioned in clause A.2 are observed.

**Annex B**

(normative)

**Leak proofness**

**B.1 Apparatus**

**B.1.1 paper plates,cups with lids**

**B.3 Reagents**

**B.3.1 Water**

**B.4 Procedure**

The sample **paper plates,cups with lids** shall be filled with water and checked after 5 minutes for any leakage. The **paper plates,cups with lids** shall have complied with requirement if no leakage is observed.