

**KENYA STANDARD**

**DKS 2974:2023**

ICS ##.###

First Edition

# **Disposable Bamboo Tableware — Specification**



**Kenya Bureau of  
Standards**

Standards for Quality life

## TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

Kenya Forestry Research Institute (KEFRI)

Softmation Africa Limited

Kenya Building research center

Ministry of Transport, Infrastructure Housing, Urban Development and Public Works

Green pot enterprise

Alogo enterprise

Kenya Bureau of Standards — Secretariat

## REVISION OF KENYA STANDARDS

In order to keep abreast of progress in industry, Kenya Standards shall be regularly reviewed. Suggestions for improvements to published standards, addressed to the Managing Director, Kenya Bureau of Standards, are welcome.

© Kenya Bureau of Standards, 2023

*Copyright. Users are reminded that by virtue of Section 25 of the Copyright Act, Cap. 130 of 2001 of the Laws of Kenya, copyright subsists in all Kenya Standards and except as provided under Section 25 of this Act, no Kenya Standard produced by Kenya Bureau of Standards may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from the Managing Director.*

# Disposable Bamboo Tableware — Specification

Kenya Bureau of Standards, Popo Road, Off Mombasa Road,  
P.O. Box 54974 - 00200, Nairobi, Kenya



+254 020 6948000, + 254 722202137, + 254 734600471



info@kebs.org



@KEBS\_ke



kenya bureau of standards (kebs)

## **Foreword**

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

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

SASO 2888/2020 Disposable Bamboo tableware

Public Review Draft



## **Disposable Bamboo Tableware — Specification**

### **1 Scope**

This standard specification is concerned with the specification and methods of testing applied to " Disposable Bamboo tableware " made from bamboo such as plates, cups, spoons, forks, cutlery, etc. which are used only once.

### **2 Normative references**

The following referenced documents 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 4481:1977 "Cutlery and flatware - Nomenclature"

ISO 22000 Food safety management

BS EN 14233:2002 Materials and articles in contact with foodstuffs - Plastics - Determination of temperature of plastics materials and articles at the plastics/food interface during microwave and conventional oven heating in order to select the appropriate temperature for migration testing.

KS 2455:2013 General standard - Food safety

### **3 Terms and definitions**

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

**3.1 Disposable tableware**  
Apparatus used to contain ready-prepared food or for other similar uses, including disposable tableware such as food boxes, plates, dishes, knives, forks, spoons, chopsticks, bowls, cups, pots, jars and straws etc. Disposable tableware with an outer holder is also included, but food packaging used for non-prepared food purposes or other similar uses such as fresh food trays, yoghurt cups and jelly cups etc., are not included.

**3.2 bamboo disposable tableware**  
Disposable tableware made of bamboo and bamboo paper made by the process of cutting, laminating, moulding and sanding of bamboo

## 4 Classification

Classification is done based on materials used for production of products. These include processed bamboo such as paper, molded bamboo and laminated bamboo. It also includes raw bamboo wood and sheath

## 5 Requirements

Technical requirements

### 5.1 Materials

Materials such as resin shall be food-grade.

### 5.2 Additives

Additives and their dosage shall meet the provisions set out in ISO 22000

### 5.3 Sensory

#### 5.3.1 Odour

There must be no odour.

#### 5.3.2 Appearance

The appearance of the tableware shall meet the following requirements:

- a) The colour shall be normal.
- b) There must be no cracks or packaging defects.
- c) There shall be no grease, dirt, dust, mould or other foreign bodies on the surface.
- d) The surface shall be smooth and clean with uniform texture, no scratches, no puckering, no peeling, no ruptures and no perforations.
- e) There must be no clear discolouration, uneven colours (unless required for decoration purposes) or stains, etc., on the coloured tableware.
- f) If there is any painting on the surface of the tableware, the painted surface shall have no sagging, peeling, breaching or blistering, etc.
- g) There must be no clear foreign bodies, blistering, model defects, burrs, expansion or other defects.

#### 5.3.3 Structures

- a) The edges of the tableware shall be smooth, tidy and neat.
- b) For products fitted with a lid, the lid fitting shall be convenient and level, the container and the lid shall match each other.
- c) For products fitted with a hinged lid, the lid shall be able to be fastened.
- d) For disposable tableware that functions as a vessel, the tableware shall be able to be placed steadily.

### 5.4 Service performance

#### 5.4.1 Volume deviation

For tableware such as disposable food boxes, bowls, cups, jars and pots etc. which function as a vessel, the volume deviation thereof shall not be greater than 5%.

The volume deviation only applies to disposable tableware which functions as a vessel; it is not a requirement for disposable tableware such as knives, forks, spoons, chopsticks, plates and dishes, etc.

#### 5.4.2 Load-bearing performance

For any disposable tableware such as food boxes, bowls and cups, changes to the height thereof before and after bearing a load shall not exceed 5%.

Load-bearing tests only apply to disposable tableware such as food boxes, bowls and cups which can be held in the hands or may be stacked while containing food; it is not a requirement for disposable

tableware such as knives, forks, spoons, chopsticks, dishes, plates or any disposable tableware having an outer holder.

#### 5.4.3 Drop performance

During the drop test of disposable tableware, there must be no cracks or splits to any of the three samples.

#### 5.4.4 Folding lid fitting performance

For disposable tableware where the container part and its lid are hinged together, there must be no cracks or damage after the folding lid fitting test on all three samples.

The folding lid fitting test only applies to disposable tableware where the container part and its lid are hinged together. For disposable tableware where the container and its lid are separated in two parts or disposable tableware with no lid, such as food boxes, bowls, cups, plates, dishes, knives, forks, spoons or chopsticks etc., the lid-body folding test is not a requirement.

#### 5.4.5 Limits of heavy metals and organic contaminants

Paper and board food contact packaging material shall comply with the limits of heavy metal and organic contaminants specified in Table 1 when tested in accordance with the test methods specified therein.

Table 1 — Limits of heavy metal and organic contaminants for bamboo food contact packaging material

S/N	Contaminant	Paper and board intended to come in contact with food (mg/kg of paper/board)	Paper for filtration (mg/kg of paper/board)	Test method
i.	Cadmium (Cd <sup>2+</sup> ), max.	0.50	0.50	EAS 880
ii.	Chromium (Cr <sup>6+</sup> ), max.	0.05	0.05	
iii.	Lead (Pb <sup>2+</sup> ), max.	3.00	3.00	
iv.	Mercury (Hg <sup>2+</sup> ), max.	0.30	0.30	
v.	Pentachlorophenol (PCP), max.	0.05	0.05	
vi.	Polychlorinated biphenyl, max.	2.00	0.50	
vii.	Formaldehyde	<1		FDEAS 933
viii.	Dioxins	<1 x 10 <sup>-6</sup>		ISO 13914

#### 5.4.6 Moisture content

The moisture content is 8% to 13%.

#### 5.4.7 Preservation of raw material

Only non-chemical preservation is recommended. Heat treatment is preferred

#### 5.4.8 Physical, chemical and hygienic indexes

The use of any additive for disposable tableware shall meet the provisions set out in KS 2455:2013 Disposable tableware made of other materials shall meet the provisions set out in the hygienic standards for products of the corresponding material. Disposable tableware made of multilayer materials with composite processing shall meet the provisions set out in the hygienic standards of products of food contact layer material.

Table 2 Hygienic, physical and chemical indexes for disposable tableware made of bamboo



Item	Index
Evaporation residue, mg/L	
Water, 60 °C, 2 h, •	30
4% Acetic acid, 60 °C, 2 h, •	30
65% Ethanol, 20°C, 2h, •	30
N-hexane, 20°C, 2h, •	30
Potassium permanganate	10

consumption, mg/L, • Water, 60 °C, 2 h	
Heavy metal, mg/L, 4% Ethanol, 60 °C, 2 h	
By Pb, •	1
By As, •	1
Discolouration test	
Ethanol	Negative
Salad dressing oil or leuco grease	Negative
Immersion liquid	Negative

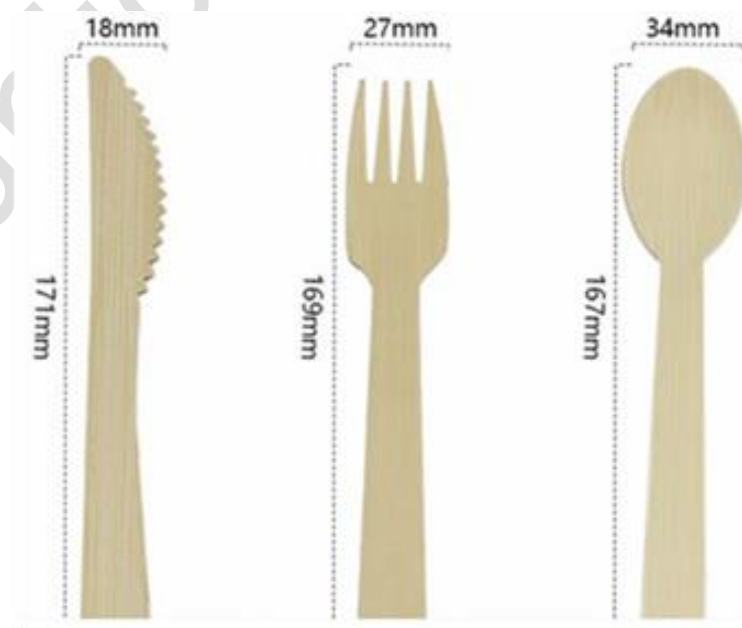


Fig 1 Typical shapes of disposable tableware

Table 1(a) Typical sizes of disposable forks

Dimension	unit	Standard sizes	allowable deviation
length (L)	mm	170	±1.0
Width (w)	mm	27	±0.2
Thickness (t)	mm	2	±0.10

Table 1(b) Typical sizes of disposable spoon

Dimension	unit	Standard sizes	allowable deviation
length (L)	mm	170	±1.0
Width (w)	mm	34	±0.2
Thickness (t)	mm	2	±0.10

Table 1(c) Typical sizes of disposable knife

Dimension	unit	Standard sizes	allowable deviation
length (L)	mm	170	±1.0
Width (w)	mm	18	±0.2
Thickness (t)	mm	2	±0.10
Serration	20% minimum and 50% maximum		

Table 1 (d) Typical sizes of disposable stirrers

Dimension	unit	Standard sizes	allowable deviation
length (L)	mm	110 ,140 ,180	±1.0
Width (w)	mm	6 - 6.35	-
Thickness (t)	mm	1 – 1.5	-

Table 1 (e) Typical sizes of adult tongue depressors

Dimension	unit	Standard sizes	allowable deviation
length (L)	mm	152.4	±0.25

Width (w)	mm	19.05	±0.25
Thickness (t)	mm	3	±0.12

Table 1 (f) Typical sizes of junior tongue depressors

Dimension	unit	Standard sizes	allowable deviation
length (L)	mm	139.7	±0.25
Width (w)	mm	15.875	±0.25
Thickness (t)	mm	3	±0.12

Table 1 (g) Typical sizes of infant tongue depressors

Dimension	unit	Standard sizes	allowable deviation
length (L)	mm	114.3	±0.25
Width (w)	mm	9.53	±0.25
Thickness (t)	mm	3	±0.12

## 6 Suitability for use

The products must be food grade and suitable for the purpose of their manufacture, functional requirements and design, and samples shall be free from bulges and air pockets and free from manufacturing defects such as (color mismatch, irregular thickness of walls and edges, acceptable hardness, leakage).

## 7 Temperature Impact

The sample should have no distortion or change in the shape or sizes at the appropriate temperature of the product. When tested as follows:

The sample is attached through a hole on the top and put in the cup with suitable size for sample containing distilled water, At 83 to 86 ° C for 15 minutes. The sample must be completely immersed in the distilled water, and no part of the sample touches the cup. After the 15 minutes, it is removed from the water. Any change or deformation in the sample shape is considered a failure of the test.

## 8 Printing Inks and Coloring Materials

The inks used for printing or plastics coloring materials shall be from the allowed nutritionally homogeneous and identical for their standard specifications.

## 9 Odour and taste

The sample shall be free from any unacceptable odor and taste during carrying out the test as follows:

Submerge the sample, in distilled water at 83 to 86 ° C for 15 minutes. After the end of that time, they must be removed and tested for the odor. Re-immersed in distilled water at 27 to 32 ° C for 15 minutes. After the end of that time, as appropriate, it should be removed and tasted for evaluation by placing it in the mouth in a simulation of the actual eating process. The presence of any unacceptable odor or taste is considered a test failure.

## 10 Stack ability

Samples should be capable of stacking on top of one another and can be easily removed by simple hand-pulling.

## **11 Bottom level (only for dishes and cups)**

The bottom of the cup or dish should be flat and not crooked so that they can easily be placed on the table during carrying out the test on them as follows:

The sample shall be placed in its normal position when used on a flat surface and shall be fixed with a slight pressure on the middle of the bottom by one of the hand fingers. It is noted that it is not possible to put a 0.4 mm thickness probe at any point between the sample base and the flat surface it is put on.

## **12 Test for Serration (for knife only)**

serrated knife must be minimum 20% of length and a maximum of 50%

## **13 Contact in a microwave oven**

Bamboo table ware is not microwave friendly the packaging, this should be stated in the packaging

## **14 Leakage Test**

The surface of the sample must be solid without any pores that allow the leakage of the inside, when tested as follows:

The product shall be filled with an ink solution at a temperature of 80° C with a color contrasting to that color of the product and be left for 8 hours. Any presence of the ink color on the outside surface of the product is considered a failure of the sample

## **15 Test methods:**

The tests shall be carried out in accordance with the Kenyan Standards specifications mentioned in Clause 2.

16.2 Temperature Impact

16.3 Odor and taste

16.4 Stack ability

16.5 Bottom level (only for dishes and cups)

16.6 Serration (for knife only)

16.8 Leakage

## **17 Packing, transportation and storage**

The following shall be met during transportation, storage and handling of packages:

17.1 They shall remain tightly closed to avoid exposure to any contamination till they are used.

17.2 They shall be transported in suitable means of transportation so as to protect them from mechanical damage and contamination.

17.3 They shall be stored in suitable places so as to protect them from mechanical damage and contamination.

## **18 MARKING**

Each piece must be written on (in a readable and indelible manner, with the following information English and in case of the small pieces, writing shall be on the container.

- The type of the bamboo material and product name
- The manufacturer's name or brand.
- The country of origin.
- Production date and validity period
- Number of units or pieces inside container and nominal capacity of cups.
- storage conditions.
- Determine the temperature suitable for use on the product.

Public Review Draft