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Tableware — Melamine tableware — Specification

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Foreword

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

DRS 562 was prepared by Technical Committee RSB/TC 48, *Plastics and plastics products.*

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

IS 9220:1979, *Specification for tableware made of melamine plastics*

The assistance derived from the above source is hereby acknowledged with thanks.

Committee membership

The following organizations were represented on the Technical Committee on *Plastics and plastics products* (RSB/TC 48) in the preparation of this standard.

Entreprise URWIBUTSO

Kigali Water Limited/METITO

MILTEC

Water Sanitation Corporation WASAC

Prowater Ltd

ROTO Ltd

RWACOM industry

Rwanda Plastic Industry

Rwanda Water Board (RWB)

SPOUTS OF WATER

Rwanda Standards Board (RSB) – Secretariat

Tableware — Specification — Melamine tableware

1 Scope

This Draft Rwanda Standard specifies requirements, sampling and test methods for tableware such as cups, saucers, plates, bowls, compartmented trays and similar articles made of melamine plastics.

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.

RS 432, *Handmade ceramic products — Specification*

RS ISO 24153, *Random sampling and randomization procedures*

3 Terms and definitions

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

3.1

melamine plastics

plastics based on aminoresins, melamine being the amine present in the greatest amount by mass of the amines or amides involved in the polymerization

3.2

melamine formaldehyde

synthetic resin derived from the reaction of melamine (2, 4, 6-triamino-1, 3, 5-triazine) with formaldehyde or its polymers

3.3

tableware

articles which are intended to be used in contact with foodstuffs made of melamine plastic

3.4

thermal shock

sudden change in temperature applied to melamine tableware

3.5

warpage

deviation from flatness, out of roundness or shape or deviation from shape or roundness

[adapted from RS 432]

3.6

ovalling

difference between the maximum and minimum diameters

4 Requirements

4.1 Raw materials

4.1.1 Tableware shall be manufactured from alpha-cellulose filled melamine formaldehyde moulding material.

4.1.2 The finished tableware shall shall contain no constituents that are capable of being extracted by foodstuffs under normal conditions of use, in quantities sufficient to be injurious to health and shall not give any smell or impart any colour when subjected to free boiling in water for 10 minutes.

4.1.3 The surface finish of all tableware shall be representative of that produced by good moulding practice and shall be reasonably free from imperfections such as orange peel, pits, flow lines and contamination. The surface shall not be altered by the application of lacquer, polish or other surface coating. Flash and parting lines only shall be buffed.

4.1.4 Decorations 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.

4.1.5 The finished tableware shall have rounded edges and shall be clean, well made and free from any visible defects such as spots, bubbles, holes, cracks, impurities and surface scratches that can affect appearance or serviceability of the tableware.

4.2 Tolerance on capacity

Where the nominal capacity of the tableware is specified, the actual capacity shall not be less than the nominal capacity and shall not exceed it by more than 4%.

4.3 Thickness

The thickness shall not be less than that specified in Table 1 and Table 2 and shall be maintained over at least 70% of the total area of the tableware:

Table 1 — Vessels with or without handles

Nominal capacity ml	Depth, min. mm	Thickness, min. mm
100	40	2.0
150	40	2.5
250	40	3.0
550	40	4.0

NOTE For a tableware having capacity between those specified above, the thickness shall be determined proportionally.

Table 2 — Sucers, plates, dishes, shallow bowls and similar articles

Nominal area cm^2	Depth greater than mm	Thickness, min mm
50	40	2.0
250	40	2.5
600	40	3.0
800	40	4.0

NOTE For tableware having area between those specified above, the thickness shall be determined proportionally.

4.4 Handles

Mould handles shall not constitute extreme changes of section. There shall be no visible weld line in the moulding. The handles shall have a mean thickness not less than 1.5 times the wall thickness, except where they join the cup, and shall have a cross-sectional area not exceeding 10*t*, where *t* is the wall thickness.

NOTE Moulded handles are now allowed to constitute extreme changes of section in order to avoid knit lines and similar flaws.

4.5 Lips and rims

Tableware may have an internal radius at the lip or rim to give the appearance of a thinner section. The outer edge shall have a radius of not less than 0.8 mm.

4.6 Ovalling

In the case of round tableware, ovalling shall not exceed 1 % in the case of diameters over 75 mm and 2 % in the case of diameters less than 75 mm.

4.7 Cure test

4.7.1 Tableware shall show not more than slight staining of the surface except at flash lines when tested in accordance with the dye test given in Annex A.

4.7.2 Tableware shall show no chalking (defined as a dry, chalk like appearance or deposit on the surface) when tested in accordance with the sulphuric acid test given in A2.

NOTE A separate tableware shall be used for each test.

4.8 Resistance to wet heat

When tested by the method described in Annex B:

a) the tableware 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% of the initial value; and
c) it shall not be possible to insert a 0.375mm 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.

4.9 Resistance to dry heat

When tested by the method described in Annex C, the tableware shall not develop cracks, nor shall they show signs of surface marking or of any other defect that will impair their serviceability or appearance.

4.10 Warping

4.10.1 When tableware is tested by the method described in Annex D after having been subjected successively to the tests specified in clause 4.8 and 4.9, it shall not be possible to insert a 0.375mm feeler gauge at any point between the feet or base of the tableware and a flat surface by applying the method in 4.10.2.

4.10.2 Place the article as normally used on a flat surface and hold firmly in place by exerting light pressure with one finger at the centre of the base. introduce q 0.375mm feeler gauge at different points between the feet or base of the article and the surface.

4.11 Resistance to low temperature

When tested by the method described in Annex E, the tableware shall not break or develop cracks.

4.12 Thermal shock

Tableware shall show no cracking, chalking, change of colour or other defects that impair serviceability and appearance when subjected to three cycles of the thermal shock test specified in Annex F.

4.13 Resistance to staining

Tableware shall pass the test for staining as specified in Annex D.

5 Packing and marking

5.1 Packaging

5.1.1 The tableware shall be packaged in well-closed containers or as agreed to between the supplier and the purchaser.

5.1.2 The manufacturer of the tableware shall also supply a leaflet containing recommendations to the user regarding safe use and cleaning of the tableware such as avoidance of use of abrasive scouring powders.

5.2 Marking

5.2.1 The container shall be securely closed and legibly marked with the following information:

a) manufacturer's name and/or recognized trademark;
b) name of the tableware;
c) colour of the tableware;
d) batch number;
e) country of origin;
f) the words 'FOR FOOD CONTACT', or the Food safety symbol as shown in Annex G; and
g) the words 'Not microwave safe'' or/and "not microwave safe symbol" as shown in Annex H.

5.2.2 The container may be legibly marked with a certification mark issued by a competent authority.

6 Sampling

For the purpose of ascertaining conformity of a lot to this specification, the scale of sampling and criteria for conformity shall be as given in Annex I.

7 Test methods

Test methods shall be conducted in accordance with the test methods specified in 4.7 to 4.13 of this Standard. The tests may be carried out in any order, except that the test for warping shall be carried out last.

Annex A
(normative)

Cure test

A.1 Dye test

A.1.1 Procedure

The tableware shall be immersed for 10 minutes in boiling 0.01 percent aqueous solution of Rhodamine

Where the colour of the tableware masks the colour of the dye, boiling 0.01 percent aqueous solution of methylene blue shall be used. The tableware shall then be removed from the solution, washed with hot water, wiped with a cloth soaked in denatured spirit, rinsed and dried. Its surface shall then be inspected for staining.

A.1.2 Sulphuric acid test

A.1.2.1 Apparatus and reagents

The following apparatus and reagents shall be used:

a) Sulphuric acid solution containing 4.45 ml of concentrated sulphuric acid in 1000 ml of water.
b) Porcelain enamelled or stainless-steel pail - with cover, of about 2000 to 3000 ml capacity. Enamelled ware shall not be used if the inside surface is chipped exposing bare metal.
c) Heater, preferably a gas burner of about 100 to 125 mm diameter. In any event, it should have sufficient capacity to keep the acid solution boiling fairly vigorously.

A.1.2.2 Procedure

The entire tableware shall be tested except that where this is impracticable a total area of not less than 130 cm^2 may be used. A fresh portion of sulphuric acid solution shall be heated to boiling in a covered container. The test samples should be kept separated during boiling so that the acid bath has free access to all surfaces. The test samples shall be removed after 10 minutes ±5 seconds, rinsed in cold water, dried in air for 15 to 20 minutes and then inspected for compliance with 4.7.2 of this Rwanda Standard.

Annex B
(normative)

Wet heat resistance test

Procedure

The tableware shall be immersed in a tank of 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 tableware shall then be conditioned for 24 h at ambient temperature. In case of dispute, the tableware shall be conditioned for 24 h at 27 °C ± 1 °C at a relative humidity of 65 % ± 2 %. The tableware shall, thereafter, be inspected for compliance with clause 4.8.

Annex C
(normative)

Dry heat resistance test

Procedure

The tableware shall be placed in an air-circulating oven at a temperature of 77 °C ± 2°C for 8 h, and then removed and allowed to cool. It shall, then, be conditioned for 24 h at ambient temperature. In case of dispute, the tableware shall be conditioned for 24 hours at 27 ± 1°C at a relative humidity of 65 % ± 2 %. The tableware shall, thereafter, be inspected for compliance with 4.9.

Annex D
(normative)

Methods of test for staining

D.1 General

Depending upon the specific application of the tableware, a selection from the list of the staining agents given below shall be made. The number of staining materials as well as their concentration shall be agreed to between the purchaser and the supplier.

D.2 Reagents

The following reagents shall be used:

a) citric acid solution – 2 %
b) coffee: make a brew by pouring boiling water on to the ground coffee (80 g coffee per litre of water) in a hot vessel, stirring occasionally and decanting from the coffee settled at the bottom after infusion for 5 min.
c) cooking fat: any cooking oil or hydrogenated fat with ground turmeric powder, 1 % (*m/v*)
d) milk or butter milk; and
e) tea: infusion made by pouring boiling water on to tea (9 g of tea/litre of water) in a hot vessel, stirring occasionally and decanting from the leaves after infusion for 5 min.

D.3 Procedure

Apply the test solution on the test surface by pouring and expose the surface to the test solution for 30 minutes. The test solution shall be at 30 °C for citric acid and at 60°C in all other cases. Wipe the surface with a clean bleached cloth and observe the surface for any stain. The material shall be deemed to have failed in the test if any visible stain is left on the surface.

Annex E
(normative)

Resistance to low temperature

The tableware shall be subjected to a temperature between 0 °C and -7 °C for 24 h by being put in a regulated refrigerator set at between those temperatures. The tableware shall then be examined for breakage or development of any cracks.

Annex F
(normative)

Thermal shock

Immerse a fresh uncut specimen in a circulating oil bath at 120 °C ± 3 °C for 5 min, remove and immediately place in water at 22 °C ± 3 °C. After cooling, remove the specimen, wipe off, examine and repeat the cycle twice.

Annex G
(normative)

Food safety symbol

The international symbol for "food safe" material is a wine glass and a fork symbol. The symbol indicates that the material used in the product is considered safe for food contact. This includes food and water containers, packaging materials, cutlery etc. These can be made from a variety of materials including plastics, rubber, paper and metal.

Figure 1 — The international symbol for food safe material

Annex H
(normative)

Not microwave symbol

Figure H.1 and Figure H.2 illustrate a typical example of a “not microwave safe” symbol.

Figure H.1 — a “not safe microwave” symbol, example 2

Figure H2 — a “not safe microwave” symbol, example 2

Annex I
(normative)

Sampling

I.1 Scale of sampling

I.1.1 Lot

In a single consignment, all the tableware 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.

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

I.1.2 Number of Samples

From each lot, 17 tableware 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.

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

In order to ensure the randomness of selection, use shall be made of random number tables in accordance with RS ISO 24153.

I.2 Number of tests and criteria for conformity

E.2.1 All test samples selected in Annex D (D1) shall be examined for the requirements in 4.1.3 to 4.5.

The lot shall be considered acceptable in respect of these requirements if each of the 17 test samples individually satisfies each of these requirements.

E.2.2 If the lot has been declared acceptable in E.2.1, then out of the 17 test samples, 5 test samples shall be taken at random. Each of these 5 test samples shall be tested for requirements specified in 4.7, 4.8 and 4.13.

The lot shall be considered acceptable in respect of these requirements if each of the 5 test samples individually meets all these requirements.

E.2.3 If the lot has been found acceptable in E.2.2, the remaining two test samples shall be subjected to cure test specified in 4.7.

The lot shall be declared to conform to the requirements of this standard if both test samples pass the cure test.

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