



DRAFT TANZANIA STANDARD

GDC 4 (169) DTZS Tableware –Melamine plastic ware– Specification

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TANZANIA BUREAU OF STANDARDS

1. Scope

This draft Tanzania standard specifies requirements, method of sampling and test for melamine plastics tableware suitable for use in homes, mess halls, hospitals, and for other similar service.

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.

IS 9220:1979 Specification for tableware made of melamine plastics.

3. Terms and definitions

For the purpose of this document, the following terms and definitions shall apply:

3.1 melamine plastic

plastic based on amino resins, melamine being the amine present in the greatest amount by mass of the amines or amides involved in the polymerization

3.2 melamine formaldehyde

a 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

4. Requirements

4.1 General Requirements

4.1.1 The tableware shall be manufactured from alpha cellulose filled melamine formaldehyde moulding material. It shall have a uniform composition with resin and filler intimately mixed, and shall be free from foreign matter such as dirt, metal particles, etc. No scrap material previously cured and reground shall be used in the compound.

4.1.2 The finished tableware 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 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 blunt edges and shall be clean, well made and free from any visible defects such as spots, bubbles, holes, cracks, impurities and surface scratches that may affect its appearance or service-ability. There shall be no readily visible spots on the normally visible surfaces of the tableware.

4.1.6 The tableware shall be uniform in texture, finish and color and in all respects be in accordance with good molding practice.

4.1.7 The surface of all items of tableware shall possess a uniformly high luster, but no protective lacquer coating, polish or other finish shall be applied to the items. The flash shall be removed so that there will be no evidence of tool marks, scratches or other roughness.

4.2 Specific Requirements

4.2.1 Cure Test

The tableware shall be tested for curing by either of the tests given in Annex A.

4.2.1.1 When tested in accordance with the dye test given in Annex A-1, the tableware shall show not more than slight staining of the surface except at flash lines.

4.2.1.2 When tested in accordance with the sulphuric acid test given in A-2, the tableware shall show no chalking (defined as a dry, chalk like appearance or deposit on the surface).

NOTE - A separate tableware shall be used for each test.

4.2.2 Resistance to Wet Heat

When tested by the method described in Annex B, 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.

4.2.3 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.

4.2.4 Warping

When the tableware is tested by the method described in Annex D after having been subjected successively to the tests specified in clause 4.2.2 and 4.2.3 it shall not be possible to insert a 0.375-mm feeler gauge at any point between the feet or base of the tableware and a flat surface.

4.2.6 Resistance to low temperature

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

4.2.7 Thermal shock

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

5. Packing and marking

5.1 Packing

The tableware shall be packed as agreed between the supplier and the purchaser.

5.2 Marking

Each tableware of the tableware shall be indelibly and legibly marked with the following information;

- a) Manufacturer's name and/or recognized trade mark.
- b) country of origin
- c) The words 'FOR FOOD CONTACT', or the Food safety symbol as shown in Annex G.
- d) The words 'Not microwave safe' or/and "not microwave safe symbol" as shown in Annex H.

6. Sampling

6.1 Lot

6.1.1 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.

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

6.1.3 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.

6.1.4 The sample tableware shall be selected at random from the lot. If the tableware 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 tableware shall be taken at random so as to make up 17 in all.

6.2 Number of tests and Criteria for conformity

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

6.2.2 If the lot has been declared acceptable in 6.2.1.1, 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 clause 4.2.2, 4.2.3 and 4.2.4.

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

6.2.3 If the lot has been found acceptable in clause 6.2.2.1, the remaining two test samples shall be subjected to cure test specified in 4.2.1.

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

ANNEX A
(normative)
(Clause 4.2.1)
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 B. 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-2. SULPHURIC ACID TEST

A-2.1 Apparatus and Reagents

A-2.1.1 Sulphuric Acid Solution - containing 4.45 ml of concentrated sulphuric acid in 1000 ml of water.

A-2.1.2 Porcelain Enameled or Stainless Steel Pail - with cover, of about 2000 to 3000 ml capacity. Enameled ware shall not be used if the inside surface is chipped exposing bare metal.

A-2.1.3 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-2.2 Procedure

The entire tableware shall be tested except that where this is impracticable a total area of not less than 130 cm² 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 4.2.1.2.

ANNEX B

(normative)

(Clause 4.2.2)

WET HEAT RESISTANCE TEST

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 be repeated three times, making a total of four cycles. The tableware shall then be conditioned for 24 hours at ambient temperature. In case of dispute, the tableware shall be conditioned for 24 hours at $27 \pm 1^{\circ}\text{C}$ at a relative humidity of 65 ± 2 percent. The tableware shall thereafter be inspected for compliance with clause 4.2.2.

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ANNEX C

(normative)

(Clause 4.2.3)

DRY HEAT RESISTANCE TEST

The tableware shall be placed in an air-circulating oven at a temperature of $77 \pm 2^{\circ}\text{C}$ 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 tableware shall be conditioned for 24 hours at $27 \pm 1^{\circ}\text{C}$ at a relative humidity of 65 ± 2 percent. The tableware shall thereafter be inspected for compliance with 3.7.

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ANNEX D

(normative)

(Clause 4.2.5)

METHODS OF TEST FOR WARPING

Place the tableware 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 a 0.375 mm feeler gauge at different points between the feet or base of the tableware and the surface.

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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.

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Annex F

(normative)

Thermal shock

Immerse a fresh uncut specimen in a circulating-oil bath at $120\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$ for 5 min, remove and immediately place in water at $22\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$. After cooling remove the specimen, wipe off, examine and repeat the cycle twice.

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Annex G

(Informative)

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. They also include materials used in processing equipment, such as coffee makers or production machinery as well as containers used for transport.



Figure 1: International Food safety symbol

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Annex H

(Informative)

NOT MICROWAVE SYMBOL



Figure 2: Not microwave symbol

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