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DRAFT TANZANIA STANDARD

Plastic cutting board — Specification

TANZANIA BUREAU OF STANDARDS

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Foreword

This Tanzania Standard was published under the authority of the Board of Director of Tanzania Bureau of Standards.

Tanzania Bureau of Standards (TBS) is the statutory national standards body for Tanzania established by the Standards Act Cap. 130.

Tanzania Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. The Technical Committees work under the supervision of Divisional (sectoral) Committees. The Standards are developed in accordance with the Guide and Procedure for Development of Tanzania Standards and TZS 0, *Guide for presentation of Tanzania Standards*.

Tanzania Standards are subject to review, to keep pace with science and technological advances. Users of the Tanzania Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

This Tanzania Standard was developed under the supervision of the Chemicals Divisional Standards Committee [*CDC*]. The Technical Committee responsible for the standard is CDC 11 – Plastics and plastic products.

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Plastic cutting boards- Specification

1. Scope

This Draft Tanzania Standard specifies requirements, sampling and test methods for plastic cutting boards intended for general use in butcheries and household in handling of food products including meat, vegetables and bakery

2 Normative references

The following referenced documents are indispensable for the application 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.

TZS 3174, Determination of overall migration of constituents of plastics materials and articles intended to come in contact with foodstuffs— Method of analysis

TZS 2927-3, Specification for plastic materials for food contact applications — Part 3: Colorants

TZS 4055/EAS 1086, Plastic – Codes for resin identification on plastic products.

ISO 22196, Measurement of antibacterial activity on plastics.

ISO 527-2 — Plastics — Determination of tensile properties — Plastics — Part 2: Test conditions for moulding and extrusion plastics

ISO 178 — Plastics — Determination of flexural properties

ISO 180 — Plastics — Determination of Izod impact strength

3 Terms and definitions

For the purposes of this Draft Tanzania Standard, the following terms and definitions shall apply.

3.1
cutting board

flat board made of plastic used for cutting, chopping and preparing food such as meat, poultry, fish, and vegetables.

3.2
butchery

the work of slaughtering animals and preparing them for sale as meat

3.3
meat
edible flesh of animals, primarily muscle tissue along with associated fat and tissues, used for human consumption. It includes meat from mammals (beef, pork, lamb), poultry (chicken, turkey), and sometimes fish or game.

4 Requirements

4.1 General requirements

4.1.1 Materials used in the manufacture of the plastic cutting boards shall be high-density polyethylene (HDPE) and high-density polypropylene (HDPP) of a virgin food grade.

4.1.2 Colour pigments or masterbatch used shall comply with the list and limits of the pigments and colourants, in accordance to TZS 2927-3.

4.1.3 Plastic materials used shall be of a type and level of purity such that, under normal conditions of use, they do not present toxicological hazard and do not adversely affect the organoleptic properties of food.

4.1.4 An adequate and appropriate grade of ultraviolet stabilizer shall be incorporated, where required for the intended application, as agreed between the manufacturer and the purchaser, in order to minimize, to the extent practicable, the release of microplastic contaminants.

4.1.5 The shape, dimensions and design of the plastic cutting board shall be as agreed to between the manufacturer and customer.

4.2 Specific requirements

4.2.1 Plastic cutting boards shall possess a non-porous, smooth finish resistant to cracking, chipping, or warping when tested in accordance to Annex A.

4.2.2 Plastic cutting boards shall have a minimum thickness of 20mm (butcher block), 12mm (domestic), when tested in accordance to annex B. Plastic cutting boards ≥ 600 mm should include anti-slip features.

4.2.3 Plastic cutting boards shall withstand repeated cutting cycles without excessive degradation when tested in accordance to annex C

4.2.4 The inside and outside surface of the plastic cutting board shall be of a smooth finish enough to clean easily, may include a handle slot.

4.2.5 The plastic cutting boards shall not deform or warp when tested in accordance to Annex D.

Mechanical Properties

Parameter	**Requirements**		**TEST METHOD**
	HDPE	**HDPP**	
Tensile Strength, MPa	26- 33	30-35	ISO 527-2
Elongation, Break, %			ISO 527-2

	500-1350	200-700	
Tensile Modulus at 23 C, MPa	900 – 1550	1200-1800	ISO 527-2
Flexural Strength, Yield, MPa	20-30	35-45	ISO 178
Flexural Modulus, MPa	930-1380	1200-1600	ISO 178
Compressive Strength, MPa	10-20	25-35	ISO 178
Izod unnotched, J/m	37 - 150	20-50	ISO 180

4.3 Migration requirements

4.3.1 The plastic cutting board shall comply with the overall migration limits of 60 mg/l, Max of the simulant and 10 mg/dm², Max of the surface of the material, when tested in accordance to TZS 3174 Migration testing shall use Simulants D1 and D2, appropriate for high-fat foods such as meat.

4.3.2 The plastic cutting boards shall comply with toxic metal limits for Pb, Cd, Cr (VI) and Hg not exceeding their sums of 100 ppm (100 mg/kg) by weight when tested under spectrophotometric technique.

4.4 Microbiological and hygiene requirements

Plastic cutting boards, shall not harbour pathogens such as Salmonella spp., E. coli, or Listeria monocytogenes. Aerobic plate counts on surfaces shall generally be below 10^3 cfu/cm² when tested in accordance to ISO 22196.

4.5 Cleaning and sanitization instructions

Manufacturers shall provide clear written instructions for cleaning and sanitization, including recommended detergents, temperature ranges, and compatibility with dishwashing or chemical disinfectants. For commercial boards, sanitization cycles and frequency shall be specified.

4.6 Colour coding

Plastic cutting board shall have a colour as recommended by Hazard analysis critical control point (HACCP) colour coding:
Red — Raw meat
Yellow — Raw poultry/cooked meat
Blue — Raw fish
Green — Salad and fruits
Black — Vegetables
White — Dairy/bakery
Purple — Allergen-free

5 Packaging

The plastic cutting boards shall be packed in a suitable manner to protect them from contamination and surface scratches. Instructions for use and colour code, safety and disposal shall be included.

6 Marking and labelling

6.1 Marking on plastic cutting board

Each plastic cutting board shall be legibly and permanently marked with the following information:

a) Code of resin identification and symbol for recycling in accordance with TZS 4055/EAS 1086: 2021 (Code of resin identification);

b) Name of the manufacturer and/or trademark;

c) Month and year of manufacturing

d) Batch or code number; and

e) Country of origin

6.2 Labelling of package

6.2.1 The package shall contain plastic cutting board of the same size.

6.2.2 The package shall be legibly and indelibly labelled in English and/or Kiswahili

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

b) Name of the product as, “Plastic cutting boards”;

c) Size of the plastic cutting boards;

d) Number of plastics cutting boards in the package;

e) Batch or code number;

f) Instruction for storage and disposal of the packaging material; and

g) Country of origin.

7 Sampling

Sampling shall be done in accordance with annex E.

Annex A
(Normative)

Visual inspection

A.1 Inspect the board surface under normal lighting.

Check for:
- Smoothness, no cracks, chips, or pores.
- Uniform colour without contamination or foreign particles.

A.2 Acceptance: Boards must be free from visible defects.

Annex B
(Normative)

Thickness measurement

B.1 Use a vernier calliper (accuracy ±0.1 mm). Measure thickness at 5 evenly distributed points.

B.2 Acceptance: Minimum thickness must meet 12 mm (domestic) or 20 mm (butcher block). Variance shall not exceed ±5% of nominal thickness.

Annex C
(Normative)

Knife resistance test

C.1 Principle

This test assesses how well a plastic cutting board resists being cut or scored by a knife after repeated, controlled cutting motions.

C.2 Apparatus

A standard, uniformly sharpened stainless steel butcher knife, a mechanical cutting apparatus or manual cutting jig (optional), a Vernier calliper or other measuring gauge accurate to ±0.01 mm and flat, stable test table

C.3 Procedure

1. Place the cutting board on a stable, non-slip surface.
2. Apply 200 cutting strokes along the exact same line on the board.
3. Maintain a consistent downward pressure of 10–12 N for each stroke.
4. Keep the cutting angle consistent at approximately 60°.
5. After all 200 strokes, clean the surface of the board and dry it.
6. Use a Vernier calliper to measure the maximum depth of the groove created by the knife.

C.4 Acceptance criteria

The maximum depth of the knife groove must not exceed 0.5 mm.

There should be no evidence of chipping, shredding, or any detachment of particles from the surface.

Annex D
(Normative)

Heat resistance (thermal stability) test

D.1 Principle

To assess a cutting board's resistance to heat by simulating washing with hot water. It checks for changes in physical properties like warpage, or other damage like blistering or surface softening.

D.2 Procedure:

1. **Baseline Measurement:** Record the initial warpage of the cutting board at room temperature.
2. **Heating:** Submerge the entire cutting board in a hot water bath at $80°C(\pm 2°C)$ for 30 minutes.
3. **Cooling:** Remove the board from the water and let it cool at room temperature for 20 minutes.
4. **Final Measurement:** Use a straight edge to measure the new warpage of the board.

D.3 Acceptance Criteria:

- The additional warpage (final measurement minus baseline) must not exceed $1mm$.
- The board must not show any visible signs of deformation, blistering, or surface softening.

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Annex E
(normative)

Criteria for sampling

E. Scale of sampling

E.1 In any consignment, all boards of the same size and same type and belonging to the same batch of manufacture shall be grouped together to constitute a lot.

E.2 For ascertaining conformity of the material to the requirements of this standard, samples shall be tested from each lot separately.

E.3 The number of plastic cutting boards to be sampled from a lot shall depend upon the size of the lot and shall be in accordance with Table E.1.

Table E.1 — Scale of sampling and permissible number of defectives

Lot size	Number of plastic cutting boards to be selected	Permissible number of defectives
≤ 50	5	0
51 t0 100	8	0
101 to 150	13	1
151 to 300	20	2
301 to 500	32	3
501 to 1 000	50	5
≥ 1 001	80	7

Bibliography

European communities (2009) Guidelines on testing conditions for articles in contact with foodstuffs, JRC scientific and technical reports, first edition.

https://www.gteek.com/cutting-board-hdpe-sheets