

KENYA STANDARD

KS 2744: 2025

ICS **67.140.10**

Second Edition

Orthodox tea — Specification

TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

Egerton University
Tea Board of Kenya
Ministry of Health — Food safety Unit
Government Chemist's Department
East African Tea Traders Association (EATTA).
Unilever Tea Kenya Ltd.
Kenya Tea Growers Association (KTGA)
James Finlays (K) Ltd.
Kenya Agricultural and Livestock Organization — Tea Research Institute
Kenya Tea Development Agency Ltd.
Kenya Tea Packers Ltd.
Consumer Information Network |
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.

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Orthodox tea — Specification

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Foreword

This Kenya Standard was prepared by the Tea Technical Committee under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards. Kenya Bureau of Standards (KEBS) has established Technical Committees (TCs) mandated to develop Kenya Standards (KS). The Committees are composed of representatives from the public and private sector organizations in Kenya.

Kenya Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft Kenya Standards are circulated to stakeholders through the KEBS website and notifications to World Trade Organization (WTO). The comments received are discussed and incorporated before finalization of the standards, in accordance with the Procedures for Development of Kenya Standards.

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

This second edition cancels and replaces the first edition (KS 2744:2017), which has been technically revised. The value-added tea sub-sector is the youngest of all the tea industry sub-sectors, having been established by the repeal of Section 25 sub-section 2b of the Tea Act, 2020 of the Laws of Kenya in the year 2000.

For many years, the tea trade has used some various unsuitable packaging materials for packing tea. Tea is a hygroscopic and light sensitive product that needs airtight and coloured packaging material to protect its quality.

Several Kenya tea stakeholders are diversifying to production of teas, which hitherto were not traditional Kenya products; these include for example production of green teas, liquid teas, cutting tea and curling tea and orthodox teas. It is important for the industry to take particular interest in the quality of tea packaging material that will protect tea and to promote trade.

The amended Tea Act, 2020, Section 25, sub-section 2b mandates the Tea Board of Kenya to regulate and control the method of tea blending and packing of manufactured tea for sale with a view to achieving the total safety and quality of the final product presented to the consumer.

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

ISO 3720, Black tea — Definitions and basic requirements.

KS ISO 11287, Green tea — Definitions and basic requirements.

Acknowledgement is hereby made for the assistance derived from this (these) source (s).

Orthodox tea — Specification

1 Scope

This Kenya Standard specifies requirements, sampling and test methods for orthodox teas (non-aerated, aerated, semi aerated) processed from green leaf or purple leaf of the species *Camellia sinensis* (Linneaus)O. Kuntze.

This standard does not apply to flavoured teas and decaffeinated orthodox teas

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.

KS 2160, Tea — Test methods

KS EAS 38, Labelling of pre-packaged foods

KS EAS 39, Code of practice for food hygiene in the food and drink manufacturing industry

KS CODEX STAN 193, Codex general standard for contaminants and toxins in foods

KS ISO 1573, Tea — Determination of loss in mass at 103 °C

KS ISO 1575, Tea — Determination of total ash

KS ISO 1576, Tea — Determination of water-soluble ash and water-insoluble ash

K ISO 1577, Tea — Determination of acid-insoluble ash

KS ISO 1578, Tea — Determination of alkalinity of water-soluble ash

KS ISO 1839, Tea — Sampling

KS ISO 5498, Agricultural food products— Determination of crude fibre content — General method

*KS ISO 6579, Microbiology of food and animal feeding stuffs — Horizontal method for the detection of *Salmonella* spp*

*KS ISO 7251, Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive *Escherichia coli* —Most probable number technique*

KS ISO 9768, Tea — Determination of water extract

KS ISO 14502-1, Determination of substances characteristic of green and black tea — Part 1: Content of total polyphenols in tea — Colorimetric method using Folin-Ciocalteu reagent

KS ISO 21527-2, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 2: Colony count technique in products with water activity less than or equal to 0,95

KS EAS 39, Code of practice for hygiene in the food and drink manufacturing industry

KS ISO 14502-2, Tea — Methods for determination of substances characteristic of green and black tea — Part 2: Determination of catechins in green tea — Method using high performance liquid chromatography)

KS ISO 21527-1, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds Part 1: Colony count technique in products with water activity greater than 0.95

KS ISO 6888-1, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 1: Technique using Baird-Parker agar medium

ISO 3103, Tea — Preparation of liquor for use in sensory tests

ISO 6078, Black tea — Vocabulary

ISO 15598, Tea — Determination of crude fibre content

AOAC 942.17, Arsenic in foods Molybdenum blue method

AOAC 999.10, Lead, Cadmium, Copper, Iron, and Zinc in foods, Atomic Absorption Spectrophotometry after dry ashing

AOAC 2005.02, Method for the determination of anthocyanins

KS EAS 38, Labelling of prepackaged foods

3 Terms and definitions

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

3.1 orthodox tea

tea derived from the tender leaves, buds, and shoots of varieties of the species *Camellia sinensis*(L.) O. Kuntze, known to be suitable for making tea for consumption as a beverage. Orthodox tea is derived from tea varieties and produced by acceptable processes including withering, rolling, oxidation and/or enzyme inactivation, aeration or semi aeration or non-aeration.

3.2 extraneous matter

any material of tea origin such as twigs, bark and stems

3.3 foreign matter

any material which is not tea leaf, flavour used or fragments of tea plant e.g. sand, stones, metallic chips and any organic matter other than extraneous matter

3.4 contaminants

any physical or chemical or biological agent, foreign matter, or any other substances not intentionally added to food which may compromise food safety or suitability

3.5**adulterant**

any material intentionally added that changes the original composition and compromises the quality and safety of orthodox tea

3.6**filth**

any material such as, but not limited to dead insects, rodents and their derivatives

3.7**taint**

taste and odour foreign to tea

4 Requirements

4.1 General requirements

Orthodox teas shall comply with the following:

4.1.1 The tea shall be clean and reasonably free from extraneous matter when inspected visually.

4.1.2 The tea shall be free from taint, and shall have the characteristics, appearance, colour and taste of orthodox tea, when examined by sensory analysis.

4.1.3 The tea shall be free from any additives such as colouring agents and flavourings.

4.2 Chemical requirements

4.2.1 The tea shall comply with the requirements specified in Table 1 using the methods quoted, in which all the figures given are expressed on the basis of material oven dried to constant mass at $(103 \pm 2)^\circ\text{C}$ by the method specified in ISO 1573.

4.2.2 If no limit is specified for the moisture content of the tea, the actual loss in mass at 103°C of the sample may be determined and the result recorded in the test report. In such cases, the determination shall be carried out by the method described in ISO 1573.

4.2.3 Liquor for sensory assessment can be prepared by the method specified in ISO 3103. The assessment shall be described in the test report using terms defined in ISO 6078.

4.3 Compositional quality requirements

The orthodox teas shall comply with the requirements/limits specified in Table 1.

Table 1 — Chemical requirement for orthodox tea

S/N	Characteristic	Requirement						Test method
		Orthodox tea			Orthodox Purple tea			
		Aerated black	Non aerated green	Semi aerated oolong	Aerated	Non aerated	Semi aerated	
i)	Moisture content %, m/m, max.	7.0 max	7.0 max	7.0 max	7.0 max	7.0 max	7.0 max	KS ISO 1573
ii)	Water extract, percent (m/m) min.	32 min	32 min.	32 min	32 min.	32 min.	32 min	KS ISO 9768
iii)	Total ash, % (m/m)	4 min 8 max	8 max 4 min	4 min 8 max	8 max. 4 min.	8 max. 4 min.	4 min 8 max	KS ISO 1575
iv)	Water soluble ash, as percentage of total ash, min.	45 min	45 min	45 min	45 min	45 min	45 min	KS ISO 1576
v)	Alkalinity of water-soluble ash (as KOH), % (m/m)	1.0 ^a - 3.0 ^a	1.0 min. ^a 3.0 max ^a	1.0 min. ^a 3.0 max ^a	1,0 min ^a 3,0 max ^a	1.0 min ^a 3.0 max ^a	1.0 min. ^a 3.0 max ^a	KS ISO 1578
vi)	Acid-insoluble ash, % (m/m)	1.0 max	1.0 max.	1.0 max	1.0 max.	1.0 max.	1.0 max	KS ISO 1577
vii)	Crude fibres, % (m/m), max	16.5 max	16.5 max	16.5 max	16.5 max	16.5 max	16.5 max	KS ISO 5498 or ISO 15598 ^b
viii)	Total polyphenols (m/m), min.	9.0 min	7 min	10.5 min 26.0 max	19 min	22 min	10.5 min 26.0 max	KS ISO 14502-1
ix)	Total Catechins content, % (m/m), min	7 min	11 min	2.5-16.0	3 min.	7 min.	2.5-16.0	KS ISO 14502-2
x)	Total monomeric anthocyaninns, mg/L	-	-0.5 min	-	14 min	75 min		AOAC 2005.02
^a When the alkalinity of water-soluble ash is expressed in terms of millimoles of KOH per 100 g of ground sample, the limits shall be: 17.8 min.; 53.6 max. ^b The specific method for the determination of crude fibre in tea is specified in ISO 15598, however for the purpose of routine estimation, the general method specified in ISO 5498 is adequate. In cases of dispute, the method of determination should always be that specified in ISO 15598. The requirement of 16.5 % mass fraction remains unchanged regardless of the method used.								

4.4 Preparation of tea liquor for sensory analysis

Tea liquor for sensory analysis shall be prepared in accordance to ISO 3103.

5 Contaminants

Orthodox teas shall comply with maximum levels of contaminants given in CODEX STAN 193.

5.1 Pesticides residues

Orthodox teas shall comply with maximum residue limits for pesticides established by the Codex Alimentarius Commission.

5.2 Heavy metals

Heavy metal contaminants, if present, shall comply with the limits specified in Table 2 when tested in accordance with the test methods specified therein.

Table 2—Heavy metal contaminant limits in orthodox tea

S/N	Parameter	Limit	Test method
i)	Arsenic (As), ppm, max.	0.1	AOAC 999.10
ii)	Cadmium (Cd), ppm, max.	0.1	AOAC 942.17
iii)	Lead (Pb), ppm, max.	0.1	AOAC 942.17

Figures in table above set as minimum default values subject to endorsement by CODEX Alimentarius Commission.

5.3 Iron fillings

Iron fillings, if present, shall comply with the limits specified in Table 3 when tested in accordance with the test methods specified therein

Table 3 — Iron fillings limits in orthodox tea

S/N	Parameter	Limit	Test method
i)	Iron fillings, ppm max.	50	KS 2160

6 Hygiene

6.1 It is recommended that the products covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of KS EAS 39, and other relevant Kenya standards and regulations..

6.2 Orthodox teas shall comply with microbiological requirements in Table 4 when tested in accordance with the test methods specified therein.

Table 4 — Microbiological limits for orthodox tea

S/N	Type of micro-organism, g, max.	Limit	Test method
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i)	Yeast and moulds, cfu	100	KS ISO 21527
ii)	<i>Staphylococcus aureus</i> , cfu	Absent	KS ISO 6888-1
iii)	<i>E. Coli</i> , cfu	Absent	KS ISO 7251
iv)	<i>Salmonella</i> spp, cfu/ 25 g	Absent	KS ISO 6579

7 Packaging

7.1 The tea shall be packed in suitable, clean and dry containers, made of material, which does not change the tea quality (preserves tea quality).

7.2 The fill of the package shall comply with the Weights and Measures Act, Cap. 513 of the Laws of Kenya.

7.3 The disposal of used package and condemned orthodox tea shall be carried out in compliance with the Environmental Management and Coordination Act (EMCA), Waste Regulations, 2006 of the Laws of Kenya on disposal of solid and liquid wastes.

8 Labelling

8.1 In addition to the provisions of KS EAS 38, the following specific provisions apply:

- i) product name as “Orthodox Tea”;
- ii) name, address and physical location of the manufacturer/ packer/ importer/ exporter;
- iii) date of manufacture;
- iv) expiry date;
- v) method of manufacturing;
- vi) the declaration “Food for Human Consumption”;
- vii) storage instructions as “Store in a Cool Dry Place, Away from Contaminants and direct sunlight”;
- viii) lot/batch/code number;
- ix) net weight in g or kg;
- x) instructions on disposal of used package; and
- xi) country of origin

9 Sampling

Sampling of orthodox tea for analysis shall be carried out in compliance with KS ISO1839.

Annex A

(normative):

Grades in orthodox teas

	FP	Flowery Pekoe
Whole leaf	FTGFOP	Fine Tippy Golden Orange Pekoe
	TGFOP1	Tippy Golden Orange Pekoe
	GFOP	Golden Flowery Orange Pekoe
	FOP	Flowery Orange Pekoe
	OP	Orange Pekoe
	BOP	Broken Orange Pekoe one
	GFBOP	Golden Flowery Broken Orange Pekoe
Broken	BPS	Broken Pekoe Souchong
	GBOP	Golden Broken Orange Pekoe
	FBOP	Flowery Broken Orange Pekoe
	BOP	Broken Orange Pekoe
	GOF	Golden Orange Fannings
Fannings	FOF	Flowery Orange Fannings
	BOPF	Broken Orange Pekoe Fannings
	OPD	Orange Pekoe Dust
	OCD	Orange Churamani Dust
	BOPD	Broken Orange Pekoe Dust
	BOPFD	Broken Orange Pekoe Fine Dust
Dust	FD	Fine Dust

	D – A	Dust – A
	Spl.Dust	Special Dust
	G. Dust	Golden Dust