KENYA STANDARD

KS 2404: 2021
ICS 67.140.10

Tea — Raw material for extraction — Specification

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TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

Agriculture, Fisheries and Food Authority (AFA) — Tea Directorate

Kenya Agricultural and Livestock Research Organization (KALRO) — Tea Research Institute

Kenya Tea Development Agency

Karatina University

Egerton University

Ministry of Agriculture, Livestock and Fisheries — State Department of Agriculture

Ministry of Foreign Affairs and International Trade

Ministry of Industry and Enterprise Development

Ministry of Health

Government Chemist's Department

James Finlay (K) Ltd.

Unilever Tea (K) Ltd.

Melvin Marsh International Ltd.

Institute of Packaging of Kenya

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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Foreword

This Kenya Standard has been prepared by the Tea Technical Committee under the guidance of the Standards Project Committee and it is in accordance with the procedures of the Kenya Bureau of Standards.

This standard aims to ensure that only good quality raw materials are used in the manufacture of tea extracts to guarantee safe and good quality tea extract products. It accommodates technological innovations in tea manufacturing and the desire to position Kenya as an exporter of tea extract products in the world market.

The second edition was revised to differentiate tea intended for further processing from that intended for direct use. To reflect quality of a raw material intended for further processing, the maximum limits for total viable counts, yeasts and moulds were increased; and an annex introduced on maximum limits for pesticide residues. Review of contaminants to reflect on the EAC harmonized standards.

During the preparation of this standard, reference was made to the following documents:

Unilever- Good manufacturing Practice, Tea Primary processing — (Part B — Suppliers' Use), 2003.

European Tea Committee, Compendium of Guidelines for Tea, Issue 2, 2014.

Codex standard 193 general standard for food contaminants.

Codex pesticide residues in food on-line database, FAO/WHO 2013.

Acknowledgement is hereby made for the assistance derived from these sources.

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1 Scope

This Kenya Standard specifies the requirements and prescribes methods of sampling and analysis of tea of the species *Camellia sinensis* (Linneaus) O. Kuntze, intended for further processing into tea extracts.

This standard does not apply to tea intended for blending or tea for direct consumption

2 Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

AOAC 986.15, *Arsenic, Cadmium, Lead, Selenium, and zinc in human and pet foods. Multi element method*

AOAC 999.10, *Lead, Cadmium, Zinc, Copper, and iron in foods. Atomic absorption spectrophotometry after microwave digestion*

AOAC 971.21, *Mercury in food. Flameless atomic absorption spectrophotometric method*

ISO 1573, *Tea, — Determination of loss in mass at 103^{o}C*

KS EAS 38, *Labelling of prepackaged foods*

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

KS ISO 1575, *Tea — Determination of total ash*

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

KS ISO 1577, *Tea — Determination of acid-insoluble ash*

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

KS ISO 1839, *Sampling of tea*

KS ISO 4832*, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique*

KS ISO 4833, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of microorganisms — Colony-count technique at 30 ^{o}C*

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

KS ISO 6888:3, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 3: Detection and MPN technique*
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 15598 *Tea —Determination of crude fibre content*

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 1927, *Tea packaging — Specification*

KS 2225, *Genetically modified organisms and derived products — labeling of food and feed*

3 Definitions

For purposes of this standard, the following definitions shall apply:

3.1
tea raw material for extraction
any processed tea produced by acceptable processes, notably enzyme inactivation, withering, leaf maceration and/or rolling , aeration or non-aeration and drying, and direct extraction form green tea from the tender shoots of varieties of the species *Camellia sinensis* (Linnaeus) O. Kuntze known to be suitable for making tea for consumption as a beverage

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 or fragments of tea plant e.g. sand, stones, metallic chips and any organic matter other than extraneous matter

3.4
contaminant
any substance (microbiological, physical or chemical) not intentionally added to tea raw material, which is present as a result of agronomical practices, processing, preparation, treatment, packing, packaging, transport, holding of tea leaf, or as a result of environmental contamination. The term does not include insect fragments, rodent hairs and other extraneous matter

3.5 adulterant
any material intentionally added that changes the original composition and compromises the quality and safety of tea raw material for extraction.

3.6
filth
any objectionable matter contributed by animal contamination or product such as rodent, insect, or bird matter; or any other objectionable matter contributed by insanitary conditions

3.7
enzyme inactivation
any process which is used to stop the biochemical activity of polyphenol oxidase

4 Requirements

4.1 General requirements

Tea raw material for extraction shall comply with the following:

4.1.1 Shall be of uniform colour.

4.1.2 Shall be of typical texture and appearance.

4.1.3 Shall have a typical flavour and taste.

4.1.4 Shall be free from unpleasant or repulsive odours.

4.1.5 Shall be free from all contaminants, filth and adulterants.

4.1.6 Shall be free from extraneous and foreign matter.

4.2 Compositional quality requirements/limits

The tea raw material for extraction shall comply with the requirements/limits specified in Table 1, in which all the figures given are calculated on the basis of the material that is oven-dried to constant mass at 103 °C ± 2 °C.

Table 1 — Quality requirements/limits for tea raw material for extraction

Sl no	Parameter	Requirement/Limits	Test method
i)	Water extract, % (m/m), min.	20	KS ISO 9768
ii)	Total ash, % (m/m), on dry matter basis	4.0 - 8.0	KS ISO 1575
iii)	Water-soluble ash, % (m/m), of total ash, min.	45	KS ISO 1576
iv)	Alkalinity of water-soluble ash (as KOH), % (m/m).	1.0-3.0	KS ISO 1578
v)	Acid-insoluble ash, % (m/m), max.	1.0	KS ISO 15787
vi)	Crude fibre, % (m/m), max.	16.5	KS ISO 15598
vii)	Moisture content, % m/m, max.	7.0	KS ISO 1573

4.3 Contaminants

4.3.1 Iron filings

When tested in accordance with Annex B, the amount of iron filings in black tea shall not exceed 150 mg/kg.

4.3.2 Pesticide residues

Raw material for Tea Extraction shall comply with the updated maximum pesticide residue limits established by the Codex Alimentarius Commission according to Annex A.

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4.4 Microbiological limits

Tea raw material for extraction shall comply with the microbiological limits as stipulated in Table 3.

Table 3 — Microbiological limits for tea raw material for extraction

Sl no	Type of micro-organism	Limits	Test method
i)	Total Viable Count (Aerobic colony count),cfu *per* g, max.	2.0×10^5	KS ISO 4833
ii)	Yeasts, cfu per g, max.	5.0×10^3	KS ISO 21527-2
iii)	Moulds, cfu per g, max.	1.0×10^4	
iv)	*Salmonella* spp,cfu per 25 g, max.	Shall be absent	KS ISO 6579
v)	*Coliforms,*cfu per g, max.	1.0×10^4	KS ISO 4832
vi)	*E.coli* cfu, per g, max.	Shall be absent	KS ISO 7251
vii)	*S. aureus* cfu,per g, max.	Shall be absent	KS ISO 6888-3

5 Hygiene

Tea raw material for extraction shall be processed in accordance with KS EAS 39, the Public Health Act, Cap. 242 and the Food, Drugs and Chemical Substances Act, Cap. 254 of the Laws of Kenya and any other international standard.

6 Environment

Tea raw material for extraction shall be produced, processed and handled under conditions complying with the stipulations of the Environmental Management and Co-ordination Act (EMCA), No.8 of 1999 of the Laws of Kenya, on environmental management and complying with cleaner production technological practices.

7 Packaging

7.1 Tea raw material for extraction shall be packaged in food grade material that ensures product safety and integrity, and complying with KS 1927.

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 tea raw material for extraction 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 requirements in KS EAS 38, and KS 1927, each package of the tea raw material for extraction shall be legibly and indelibly marked with the following:

i) product name as "Tea — Raw Material for Extraction '';

ii) name, address and physical location of the manufacturer/ packer/ importer/ exporter;

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iii) date of manufacture;

iv) expiry date;

v) the declaration “FOR EXTRACTION PURPOSES ONLY”;

vi) storage instruction as ‘’Store in a Cool Dry Place, Away from Contaminants’’;

vii) lot/batch/code number;

viii) net weight in metric units;

x) instructions on disposal of used package;

xi) country of origin; and

xii) declaration of genetic status in accordance with KS 2225,if genetically modified.

8.2 A declaration of any inaccurate information in marking/labelling is prohibited and shall be punishable by law under the Standards Act, Cap. 496, of the Laws of Kenya.

9 Sampling

Sampling of tea raw material for extraction for analysis shall be carried out in compliance with KS ISO1839.

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Annex A
(normative)

Maximum pesticide residue limits for tea — raw material for extraction

A.1 Maximum pesticide limits in this annex are based on the Codex database for pesticide residues, 2013.

A.2 The pesticide residue database is regularly reviewed and updated.

A.3 It is therefore recommended that the list of the current pesticide residue be confirmed by accessing the codex database

A.4 Most current limits can be found on CODEX Online Commodity Details for Tea at http://www.fao.org/fao-who-codexalimentarius/codex-texts/dbs/pestres/commodities-detail/en/?c_id=101

A.5 List of pesticides and maximum residue limits

Sl no	Pesticides	Maximum residue limit (mg/kg) green tea/black tea
1.	Bifenthrin	30 mg/kg
2.	Chlorfenapyr	60 mg/kg
3.	Chlorpyrifos	2 mg/kg
4.	Clothianidin	0.7 mg/kg
5.	Cypermethrins (including alpha- and zeta-cypermethrin)	15 mg/kg
6.	Deltamethrin	5 mg/kg
7.	Dicofol	40 mg/kg
8.	Endosulfan	10 mg/kg
9.	Etoxazole	15 mg/kg
10.	Fenpropathrin	3 mg/kg
11.	Fenpyroximate	8 mg/kg
12.	Flubendiamide	50 mg/kg
13.	Flufenoxuron	20 mg/kg
14.	Hexythiazox	15 mg/kg
15.	Imidacloprid	50 mg/kg
16.	Indoxacarb	5 mg/kg
17.	Methidathion	0.5 mg/kg
18.	Paraquat	0.2 mg/kg
19.	Permethrin	20 mg/kg

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20.	Propargite	5 mg/kg
21.	Pyraclostrobin	6 mg/kg
22.	Spiromesifen	70 mg/kg
23.	Thiamethoxam	20 mg/kg

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