

DRAFT KENYA STANDARD

DKS [2995:2024]

ICS [67.200]

[First]Edition

Virgin avocado oil — Specification



**Kenya Bureau of
Standards**

Standards for Quality life

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Kapa Oil Refineries Ltd.

Bidco Africa Ltd.

Kenya Medical Research Institute (KEMRI)

Kenya Industrial Research and Development Institute (KIRDI)

Government Chemists Department

Agriculture and Food Authority (AFA) — Nuts and Oil Crops Directorate (NOCD) and Horticultural Crops Directorate (HCD)Kenyatta National Hospital (KNH)

Agventure Limited

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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 was prepared by the Edible fats and oils Technical Committee under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards

This standard addresses the quality and safety requirements necessary to produce a safe product for human consumption. The development of this standard aims at promoting local production, consumption and trade of edible virgin and extra virgin avocado oil. The standard also seeks to provide quality and safety aspects that are required to sustain the avocado oil industry in the country and promote production of surplus which can be exported regionally and internationally. Additionally, the standard specifies requirements for both virgin and extra virgin avocado oils giving distinct quality and safety requirements for each,

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

CXS 19: Standard for Edible Fats and Oils not Covered by Individual Standards

Avocado oil-HortResearch, the horticulture and food research institute, oils and fat group

Acknowledgement is hereby made for the assistance derived from these sources

PUBLIC REVIEW DRAFT

Virgin avocado oil — Specification

1 Scope

This draft Kenya standard specifies requirements, sampling and test methods for virgin and extra virgin avocado oil derived from the fruit of the avocado (*Persea americana*) intended for human consumption.

This standard does not apply for crude, refined and blended avocado oils.

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 EAS 38, Labelling of prepackaged foods — Specification

KS EAS 39, Hygiene in the food and drink manufacturing industry — Code of Practice

KS EAS 803, Nutrition Labelling — Requirements

KS EAS 804, Claims — General requirements

KS EAS 805, Use of Nutrition and health claims — Requirements

KS ISO 660, Animal and vegetable fats and oils — Determination of acid value and acidity

KS ISO 661, Animal and vegetable fats and oils — Preparation of test sample

KS ISO 662, Animal and Vegetable fats and oils — Determination of moisture and volatile matter content

KS ISO 663, Animal and vegetable fats and oils — Determination of insoluble impurities content

KS ISO 3657, Animal and vegetable fats and oils — Determination of saponification value

KS ISO 3960, Animal and vegetable fats and oils — Determination of peroxide value

KS ISO 3961, Animal and vegetable fats and oils — Determination of iodine value

KS ISO 5555, Animal and vegetable fats and oils — Sampling

KS ISO 6320, Animal and vegetable fats and oils — Determination of refractive index

KS ISO 6883, Animal and vegetable fats and oils — Determination of conventional mass per volume (litre weight in air)

KS ISO 10539, Animal and vegetable fats and oils — Determination of alkalinity

KS ISO 12193, Animal and vegetable fats and oils — Determination of lead by direct graphite furnace atomic absorption spectroscopy

KS ISO 13547-2, Copper, lead, zinc and nickel sulphide concentrates — Determination of arsenic Part 2 Acid digestion and inductively coupled plasma atomic emission spectrometric method

ISO 21033, Animal and vegetable fats and oils — Determination of trace elements by inductively coupled plasma optical emission spectroscopy (ICP-OES)

3 Terms and definitions

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

3.1

virgin avocado oil

oil obtained from avocado fruit without altering its nature that may be obtained by use of mechanical procedures such as expelling or pressing, with or without the application of heat and without the use of solvents. It may have been purified by washing with water, settling, filtering and centrifuging only.

3.2

extra virgin avocado oil

virgin avocado oil obtained from high quality avocado fruit and with distinct chemical composition characteristics

3.3

foreign matter

any undesirable material visible with naked eye in a packaged virgin avocado oil.

3.4

food grade packaging material

packaging material, made of substances which are safe and suitable for the intended use and which will not impart any toxic substance or undesirable odour or flavour to the product.

4 Requirements

4.1 General requirements

Virgin avocado oil shall:

- a) be free from foreign matter
- b) be free from rancid or undesirable odour and/or taste.
- c) have characteristic colour of virgin avocado oil.

4.2 Specific requirements

Virgin avocado oil shall comply with the specific requirements given in Table 1, when tested in accordance with the methods specified therein.

Table 1 — Specific compositional and quality requirements for virgin avocado oil

| S/N | Characteristic | Requirement | Test method |
|-----|----------------|-------------|-------------|
| | | | |

| | | | |
|-------|--|---------------|--------------|
| ii) | Moisture and Volatile matter at 105 °C, %, m/m, max. | 0.2 | KS ISO 662 |
| iii) | Insoluble impurities, %, m/m, max. | 0.05 | KS ISO 663 |
| iv) | Soap Content, %, m/m, max. | 0.005 | KS ISO 10539 |
| v) | Acid value, (mg/KOH/g (max). <ul style="list-style-type: none"> • Virgin • Extra virgin | 4.0 2.0 | KS ISO 660 |
| vi) | Peroxide value, (mEq oxygen/kg (max.)) <ul style="list-style-type: none"> • Virgin • Extra virgin | 15 10 | KS ISO 3960 |
| vii) | Iron (Fe) mg/kg, max. | 5 | ISO 21033 |
| viii) | Copper, mg/kg, max. | 0.4 | |
| ix) | Iodine Value g ₂ per 100g | 70-95 | KS ISO 3961 |
| x) | Saponification value, mg KOH/g oil | 177-199 | KS ISO 3657 |
| xi) | Refractive index, at 20°C | 1.457- 1.472 | KS ISO 6320 |
| xii) | Relative density at 20 °C | 0.910 – 0.925 | KS ISO 6883 |

5 Food additives and flavouring agents

Virgin avocado oil shall not contain food additives and/or flavouring agents.

6 Contaminants

6.1 Pesticide residues

Virgin avocado oil shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

6.2 Heavy metal contaminants

Virgin avocado oil shall comply with the maximum limits of heavy metals as specified in Table 2 when tested in accordance with the test methods therein.

Table 2 Heavy metal contaminants limits in Virgin avocado oil

| S/N | Contaminant (mg/kg) | Max. limit | Test method |
|-----|---------------------|------------|---------------|
| i) | Lead (Pb) | 0.08 | KS ISO 12193 |
| ii) | Arsenic (As) | 0.1 | KS SO 13547-2 |

7 Hygiene

Virgin avocado oil shall be produced, processed, handled and stored in accordance with KS EAS 39.

8 Packaging

8.1 Virgin avocado oil shall be packaged in food grade material and sealed in manner to ensure the safety and quality requirements specified in this standard are maintained throughout the shelf life of the product.

8.2 The packaging material, printing inks used and adhesives (where used) on the labels shall not contain harmful chemicals that may migrate into the virgin avocado oil to present a hazard to human.

9 Labelling

9.1 In addition to the labelling requirements specified in KS EAS 38, the following information shall be legibly and indelibly labelled:

a) Name of the product as Virgin avocado oil or Extra virgin avocado oil

10 Nutritional and health claims

Any health and nutrition claim attached to virgin avocado oil shall be in accordance with KS EAS 803, KS EAS 804 and KS EAS 805.

11 Sampling

Sampling and sample preparation for test shall be done in accordance with KS ISO 5555 and KS ISO 661 respectively.

Annex A
(informative)

Gas Liquid Chromatography (GLC) fatty acid composition

When required the fatty acid profile should be determined by Gas Liquid Chromatography. Ranges of fatty acids are as given in Table A.1

Table A.1 — GLC fatty acid composition for virgin avocado oil

| Carbon configuration | Composition, % |
|----------------------|----------------|
| C14 | < 0.06 |
| C16:0 | 10.0 – 30.0 |
| C16:1 | 8.0 – 15.0 |
| C17:0 | < 0.05 |
| C17:1 | < 0.1. |
| C18:0 | < 0.9 |
| C18:1 | 40.0 – 85.0 |
| C18:2 | 7.0 – 15.0 |
| C18:3 | 0.4 – 0.9 |
| C20:0 | 0.05 – 0.09 |
| C20:1 | < 0.2 |
| C22:0 | < 0.05 |
| C24:0 | < 0.06 |

PUBLIC REVIEW DRAFT