DRAFT EAST AFRICAN STANDARD

Crude and semi refined palm oil — Specification

EAST AFRICAN COMMUNITY
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Foreword
Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

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

The committee responsible for this document is Technical Committee EASC/TC 015, *Oil seeds, edible fats and oils.*

This second edition will cancel and replaces the first edition (EAS 887:2018), which has been technically revised.

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.
Crude and semi refined palm oil — Specification

1 Scope
This East African standard specifies the requirements, sampling and test methods for crude and semi refined (neutralized and/or bleached) palm oil derived from the fleshy mesocarp of the fruit of oil palm (Elaeis guineensis) intended for further processing.

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.

AOAC 952.13, Arsenic in food. Silver diethyldithiocarbamate
CXC 36, Code of Practice for the Storage and Transport of Edible Fats and Oils in Bulk
CODEX STAN 192, General Standard for Food Additives
EAS 38, Labelling of pre-packaged foods — Specification
EAS 39, Hygiene in the food and drink manufacturing industry — Code of practice
ISO 660, Animal and vegetable fats and oils — Determination of acid value and acidity
ISO 661, Animal and vegetable fats and oils — Preparation of test sample
ISO 662, Animal and vegetable fats and oils — Determination of moisture and volatile matter content
ISO 3657, Animal and vegetable fats and oils — Determination of saponification value
ISO 3961, Animal and vegetable fats and oils — Determination of iodine value using diethyl ether extraction
ISO 5555, Animal and vegetable fats and oils — Sampling
ISO 6320, Animal and vegetable fats and oils — Determination of refractive index
ISO 6321, Animal and vegetable fats and oils — Determination of melting point in open capillary tubes (slip point)
ISO 6883, Animal and vegetable fats and oils — Determination of conventional mass per volume (litre weight in air)
ISO 12193, Animal and vegetable fats and oils — Determination of lead by direct graphite furnace atomic absorption spectroscopy
ISO 15305, Animal and vegetable fats and oils — Determination of Lovibond colour
ISO 21033 Animal and vegetable fats and oils — Determination of trace elements by inductively coupled plasma optical emission spectroscopy (ICP-OES)
ISO 27608 Animal and vegetable fats and oils — Determination of Lovibond colour — Automatic method
3 Terms and definitions

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

3.1 crude palm oil
Raw vegetable oil composed primarily of glycerides of fatty acids obtained from fleshy mesocarp of the fruit of the oil palm (Elaeis guineensis). It may contain other lipids such as phosphatides, unsaponifiable constituents and free fatty acids naturally present in the oil.

NOTE Edible virgin palm oil is excluded from this definition.

3.2 semi refined (intermediate) palm oil
degummed oil which is presented as either neutralized, bleached or neutralized and bleached palm oils intended for further processing.

3.3 neutralized palm oil
degummed oil treated with an alkali to reduce the level of free fatty acid.

3.4 bleached palm oil
oil which has been treated with food grade bleaching agents for the purpose of removing colouring pigments and impurities.

3.5 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

Crude and semi refined palm oil shall be:

a) free from foreign odours;

b) free from foreign material;

and

c) free from adulterants.

4.2 Specific requirements

Crude and semi refined palm oil shall comply with requirements given in Table 1 when tested in accordance with the methods specified therein.

Table 1 — Specific requirements for crude and semi refined palm oil

<table>
<thead>
<tr>
<th>S/N</th>
<th>Parameter</th>
<th>Requirement</th>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Crude palm oil</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Semi refined palm oil</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neutralized &amp; Bleached</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neutralized</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bleached</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Crude palm oil with higher content of oleic acid</td>
<td>ISO 6883</td>
</tr>
<tr>
<td>i)</td>
<td>Relative density (50 °C/ water at 20 °C)</td>
<td>0.891 – 0.899</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>0.891 – 0.899</td>
<td>0.891 – 0.899</td>
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<td></td>
<td>0.891 – 0.899</td>
<td>0.891 – 0.899</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.896 – 0.910</td>
<td></td>
</tr>
<tr>
<td>ii)</td>
<td>Refractive index, (ND 50 °C)</td>
<td>1.454 – 1.456</td>
<td></td>
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<td></td>
<td></td>
<td>1.454 – 1.456</td>
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<td></td>
<td></td>
<td>1.459 – 1.462</td>
<td></td>
</tr>
<tr>
<td>iii)</td>
<td>Saponification value, mg KOH/g, oil</td>
<td>190 – 209</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>190 – 209</td>
<td></td>
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<td></td>
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<td>190 – 209</td>
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<td>190 – 209</td>
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<td></td>
<td></td>
<td>189-199</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>ISO 3657</td>
<td></td>
</tr>
</tbody>
</table>
iv) Iodine value (Wijs), g/100  
<table>
<thead>
<tr>
<th></th>
<th>48 - 55</th>
<th>48 - 55</th>
<th>48 - 55</th>
<th>48 - 55</th>
<th>58-75</th>
<th>ISO 3961</th>
</tr>
</thead>
</table>
| v)  | Slip point, °C  
|     | 33.0 - 39.0 | 33.0 - 39.0 | 33.0 - 39.0 | 33.0 - 39.0 | 33.0-39.0 | ISO 6321 |
| vi) | Moisture and volatile matter at 105 °C, % m/m max.  
|     | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | ISO 662 |
| vii) | Copper (Cu), mg/kg  
|     | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | ISO 21033 |
| viii | Iron(Fe), mg/kg  
|     | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| ix)  | Free Fatty Acid (FFA) (as palmitic), %, m/m  
|     | ≥ 2.5a | 0.3 < 2.5b | 0.3 < 2.5b | ≥ 2.5a | ≥ 2.5a | ISO 660 |
| x)   | Colour, 133.35 mm (5¼ in.) Lovibond  
|     | ≥ 20 Rc | 6 < 20 Rd | ≥ 20 Rc | 6 < 20 Rd | ≥20R | ISO 15305 or ISO 27608 |

*a FFA shall be greater than or equal to 2.5.
*b FFA shall be greater than 0.3 but less than 2.5.
*c Colour shall be greater than or equal to 20R.
*d Colour shall be greater than 6 but less than 20R.

5 Food additives

5.1 Food Additives shall not be used in crude palm oil.

5.2 Semi refined palm oil products may contain food additives. When used they shall conform to the specified levels stated in CODEX STAN 192.

5.3 Food colour shall not be used.

6 Contaminants

6.1 Pesticide residues

Crude palm oil and semi refined palm oil shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

6.2 Heavy metal contaminants

Crude palm oil and semi refined palm oil shall comply with those maximum limits specified in Table 2 when tested in accordance with the methods specified therein.

Table 2 — Heavy metal contaminant limits in crude and semi refined palm oil

<table>
<thead>
<tr>
<th>S/ N</th>
<th>Contaminant</th>
<th>Maximum Limit mg/kg</th>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>Lead (Pb)</td>
<td>0.08</td>
<td>ISO 12193</td>
</tr>
<tr>
<td>ii)</td>
<td>Arsenic (As)</td>
<td>0.1</td>
<td>AOAC 952.13</td>
</tr>
</tbody>
</table>
DEAS 887:2023

7 Hygiene

Crude and semi refined palm oil shall be produced, prepared and handled in accordance with EAS 39.

8 Packaging, storage and transportation

8.1 Packaging

Crude and semi refined palm oil shall be packaged in containers made from food grade packaging material and sealed in a manner that will safeguard the hygienic, nutritional and organoleptic properties of the product throughout the shelf life of the product.

8.2 Storage and transportation

Storage and transportation of edible fats and oils in bulk shall be in accordance with CXC 36.

9 Labelling

9.1 Labelling of crude and semi refined palm oils shall be done in accordance with EAS 38.

9.2 For the case of the “semi refined palm oil” the product shall be further described as either:

a) ‘neutralised’,
b) ‘bleached’, or
c) ‘bleached and neutralised’.

9.3 Where the product claims high oleic acid content, it shall be declared

10 Sampling

Sampling and sample preparation for testing shall be carried out in accordance with ISO 5555 and ISO 661 respectively.