DRAFT EAST AFRICAN STANDARD

Peanut Butter — 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.

In order to achieve this objective, the Community established an East African Standards Committee mandated to develop and issue East African Standards.

The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. 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 procedures of the Community.

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.

DEAS 60 was prepared by Technical Committee EASC/ TC/015, Oil Seeds and Edible Fats. This second edition cancels and replaces the first (60:2000), has been technically revised.
Peanut Butter — Specification

1 Scope

This Draft East African Standard prescribes the requirements and methods of sampling and test for peanut butter derived from seeds of peanuts (groundnuts) (Arachis hypogaea L.).

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.

EAS 35: Edible salt — Specification

EAS 38, General standard for labelling of pre-packaged foods

EAS 39, Code of practice for hygiene for food and drink industries

EAS 57-1: Groundnuts (peanuts) — Specification — Part 1: Raw groundnuts for table use and for oil milling

ISO 16050: Foodstuffs — Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products — High-performance liquid chromatographic method

CODEX STAN 193: Codex general standard for contaminants and toxins in foods.

3 Terms and definitions

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

3.1 peanut butter

cohesive, comminuted food product prepared from clean, sound shelled peanut (groundnuts) by grinding roasted mature kernels from which the seed coats have been removed.

4 Types (Classification) of peanut butter

4.1 Stabilized

shall be peanut butter to which any suitable ingredient(s) has been added to reduce oil-meal separation.
4.2 Non-stabilized

shall be peanut butter to which no ingredient(s) has been added to reduce oil-meal separation.

5 Quality and compositional requirements

5.1 General requirements

Peanut butter shall

5.1.1 be processed from groundnuts and sodium chloride complying to EAS 51 Part 1 and EAS 35 respectively.

5.1.2 be free from skins and shells.

5.1.3 be free from any foreign matter.

5.1.4 have colour characteristic of the variety of peanut used.

5.1.5 have an aroma and flavour typical of fresh roasted peanut.

5.1.6 have a good spreadability (shall spread easily, shall not be thin nor slightly stiff).

5.1.7 Only slight mixing shall be required to redisperse any separated fat in the non-stabilised type.

5.1.8 be no noticeable oil separation in the stabilised type.

5.2 Compositional requirements

Peanut butter shall comply to composition requirements in Table 1 below

Table 1 — Compositional requirements for peanut butter

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Characteristic</th>
<th>Requirement</th>
<th>Method of test</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>Moisture and volatile matter content, max.</td>
<td>3.0 %</td>
<td>Annex B</td>
</tr>
<tr>
<td>ii)</td>
<td>Fat (on dry weight basis)</td>
<td>45 % - 55 %</td>
<td>Annex C</td>
</tr>
<tr>
<td>iii)</td>
<td>Acid value, max.</td>
<td>4.0 mgKOH/g</td>
<td>Annex D</td>
</tr>
<tr>
<td>iv)</td>
<td>Total ash (on dry weight basis), max.</td>
<td>5.0 %</td>
<td>Annex E</td>
</tr>
<tr>
<td>v)</td>
<td>Total Aflatoxin content, max.</td>
<td>15 ppb</td>
<td>ISO 16050</td>
</tr>
<tr>
<td>vi)</td>
<td>Aflatoxin B₁</td>
<td>5 ppb</td>
<td>ISO 16050</td>
</tr>
<tr>
<td>vii)</td>
<td>Peanuts (groundnuts), min.</td>
<td>90 %</td>
<td></td>
</tr>
<tr>
<td>viii)</td>
<td>Salt as NaCl, max.</td>
<td>2 %</td>
<td>Annex A</td>
</tr>
</tbody>
</table>

5.3 Optional ingredients

In addition to the essential peanuts and salt as specified in Table 1, the following ingredients may be added at levels of good manufacturing practice unless otherwise specified:
5.3.1. Sweeteners

a) Dextrose
b) Powdered sugar
c) Glycerine
d) Honey

5.3.2 Stabilizers and emulsifiers

a) Lecithin
b) Glycerol monostearate
c) I-dehydrated vegetable oil — max. 3.0 %

5.3.3 Antioxidants

a) Butylated hydroxy anisole — max. 0.01 % of the fat present.
b) Butylated hydroxy toluene — max. 0.02 %of the fat present.
c) Calcium disodium EDTA (calcium disodium ethylene-diamine tetra-acetate) — 0.01 % of the fat present.
d) Ascorbic acid.

6 Hygiene

6.3.1 Peanut butter shall be produced, prepared and handled in accordance with the provisions of appropriate sections of EAS 39

6.3.2 Peanut butter shall be free of pathogenic organisms and shall conform to the microbiological requirements in Table 3.

Table 3 — Microbiological requirements for peanut butter

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Characteristic</th>
<th>Requirement</th>
<th>Method of test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moulds max.</td>
<td>10³/g</td>
<td>EAS 217 part 8</td>
<td></td>
</tr>
<tr>
<td>E. Coli</td>
<td>0/g</td>
<td>ISO 7125</td>
<td></td>
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7 Contaminants

7.1 Pesticide residues

Peanut butter shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

NOTE: Where the use of certain pesticides is prohibited by some Partner States, it should be notified to all Partner States accordingly.
7.2 Other contaminants

Peanut butter shall comply with those maximum limits for other contaminants established in CODEX STAN 193.

8 Packaging

8.1 Packaging

Peanut butter shall be packed in food grade containers and sealed in manner to ensure the safety and quality specified in this standard are maintained throughout the shelf life of the product.

6.2 Labelling

The packages shall be labelled according to EAS 38 and in addition the following shall be indicated:

a) ‘Peanut butter’ (if no stabilizer has been added).

b) ‘Peanut butter stabilized’ (if stabilizer/emulsifier has been added).
Annex A
(normative)

Determination of salt (AOAC official method)

A.1 Reagents

A.1.1 Acetone
A.1.2 10 % calcium acetate solution
A.1.3 HNO₃
A.1.4 0.1N AgNO₃
A.1.5 Ferric indicator
A.1.6 0.1N NH₄SCN₃

A.2 Procedure

A.2.1 Weigh 2 g of a thoroughly mixed sample into a platinum or silica dish.
A.2.2 Disperse the sample with 10 ml of acetone.
A.2.3 Remove acetone, at room temperature, with an air current.
A.2.4 Add, and thoroughly mix, 10 ml of 10 % calcium acetate solution.
A.2.5 Carefully dry on a steam bath.
A.2.6 Ash in a muffle furnace at 500°C (1,022°F) (Complete ashing not necessary).
A.2.7 Place the ash in a beaker and dissolve the ash in 25 ml HNO₃ (1:3).
A.2.8 Add at least 2 ml - 4 ml of 0.1N AgNO₃ that is just enough to precipitate all chloride present.
A.2.9 Add at least 5 ml of 0.1N AgNO₃ in excess, to (A.2.8).
A.2.10 Heat to boil, cool, then add 5 ml ferric indicator.
A.2.11 Titrate excess Ag with 0.1N NH₄SCN (which has been standardized to equalize normalities) to a permanent light brown end point.
A.2.12 Subtract the amount of NH₄SCN used (in A.2.11) from the total AgNO₃ used (in A.2.8 and A.2.9). The resulting difference is the ml of 0.1N AgNO₃ used in the calculation of salt (A.2.13).
A.2.13 Calculate as

\[
\text{Per cent NaCl} = \frac{(\text{ml of 0.1 NAgNO₃})(0.05845)(100)}{\text{gram of sample}}
\]
Annex B  
(normative)  

Determination of moisture

B.1 Apparatus

B.1.1 Oven 95°C — 100°C 100 mm Hg (13.3 kPa) or hot air oven at 105°C

B.1.2 Analytical balance

B.1.3 Dishes with lid

Aluminium, nickel or thin stainless steel of diameter 60 mm.

B.1.4 Glass rod

B.1.5 Sand

Washed with 5% hydrochloric acid solution and rinsed free from hydrochloric acid; sieved so that the grains are sizes within the range 100 mm to 400 mm and calcinated.

B.1.6 Desiccator

B.2 Procedure

B.2.1 Preparation of apparatus

Dry in the oven at 95°C — 100°C under a pressure of 100 mm Hg (13.3 kPa) a metal dish and its lid in which has been put 10 g — 20 g of prepared sand and a glass rod. Dry for an hour, weigh the dish to the nearest 0.0002 g after cooling in a desiccator.

B.2.2 Preparation of the sample

Transfer to the predried dish about 2 g to 5 g of the homogenized (blended) sample and weigh. Mix it intimately with the sand by means of the rod taking care to avoid any loss of product or sand to the dish. Dry the prepared sample in the oven for 5 h at 95°C — 100°C.

B.3 Calculation

\[
\text{Moisture percentage by mass} = \frac{M_1 - M_2 \times 100}{M_1 - M_0}
\]

Where,

\[M_0 = \text{Mass in g of the dish and accessories (sand, rod and lid)},\]
$M_1 = \text{Mass in g of the dish (and its accessories) and sample before drying, and}$

$M_2 = \text{Mass in g of the dish (and its accessories) and sample after drying}$
Annex C
(normative)

Determination of fat

C.1 Reagents

C.1.1 Petroleum ether, of boiling range 40 °C to 60 °C.

C.1.2 Hexane, food grade.

C.2 Procedure

Weigh accurately about 2.5 g of the sample, dried as in (B.1.1), and extract with petroleum ether or hexane, food grade, in a Soxhlet or other suitable extractor. The extraction period may vary from 4 h at a condensation rate of 5 - 6 drops per second. Dry the extract on a steam bath for 30 min, cool in a desiccator and weigh. Continue at 30 min intervals this alternative drying and weighings until the difference between two successive weighings is less than one milligram.

Note the lowest mass.

C.3 Calculation and expression of results

Crude fat (on moisture-free basis), per cent by mass = \( \frac{100(M_1 - M_2)}{M} \)

where,

\( M_1 \) = mass in g of the extraction flask with dried extract,

\( M_2 \) = mass in g of the extraction flask, and

\( M \) = mass in g of the dried sample taken for the test.
Annex D
(normative)

Determination of acid value of extracted fat

D.1 Apparatus

D.1.1 Soxhlet fat extraction apparatus

D.2 Reagents

D.2.1 Petroleum ether, distilling below 65 °C, or ethyl ether.

D.2.2 Alcohol potassium hydroxide, 0.1N (use absolute or alcohol denatured with MeOH).

D.2.3 Alcohol ether solution, equal volumes of 96 % alcohol and ethyl ether.

D.2.4 Phenolphthalein Solution, 1 % in alcohol or alcohol denatured with MeOH.

Add 0.3 ml per 100 ml mixture of alcohol-ether and add alcoholic KOH solution to a faint pink colour.

D.3 Procedure

D.3.1 Extract 10.00 g ± 0.01 g of the sample taken in a thimble with petroleum ether for about 16 h in a Soxhlet extraction apparatus. Completely evaporate the solvent from the extraction flask (weighed previously) on a steam bath, for 30 min, cool in a desiccator and weigh. Continue at 30 min intervals this alternative drying and weighing until the difference between two successive weighings is less than one milligram. Dissolve the residue in the extraction flask with 50 ml of the alcohol-ether phenolphthalein solution. Titrate the dissolved extract, with standard potassium hydroxide solution, to a faint pink colour, which persists for 10 s. If emulsion is formed during titration, dispel by adding a second 50 ml portion of the alcohol-ether phenolphthalein solution.

D.3.2 Make a blank titration on 50 ml of the alcohol-ether phenolphthalein solution and subtract this value from the titration value of the sample. If the additional 50 ml portion of the alcohol-ether phenolphthalein solution is added, double the blank titration.

D.4 Calculation

D.4.1 Calculate the acid value from the following formula:

\[
\text{Acid value (as oleic acid)} = \frac{56.1 \times V \times N}{M}
\]

where,

\[ V = \text{volume in ml of standard potassium hydroxide solution used,} \]

\[ N = \text{normality of standard potassium hydroxide solution, and} \]

\[ M = \text{mass in g of fat extract taken for the test.} \]
Annex E
(informative)

Determination of total ash

E.1 Procedure

Ignite the dried material in the dish (see B.2.1) with flame of a suitable burner for about one hour. Complete the ignition by keeping in a muffle furnace at 550 °C to 600 °C until grey ash results, cooling and weighing at half-hour intervals until the difference in mass between two successive weighings is less than one milligram. Note the lowest mass.

E.2 Calculation

E.2.1 Calculate total ash as follows:

Total ash (on dry basis) percent by mass = \frac{100(M_2 - M_0)}{M_1 - M_0}

where,

$M_0$ = mass in g of the dish with its accessories,

$M_1$ = mass in g of the dish, its accessories and the dried material after drying as in (B.2.1), and

$M_2$ = mass in g of the dish, its accessories and ash after ignition ($M_2$ see (B.2.2)).