FINAL DRAFT UGANDA STANDARD

FDUS EAS 60

Second Edition
2013-mm-dd

Peanut butter — Specification

Reference number
FDUS EAS 60: 2013

Compliance with this standard does not, of itself confer immunity from legal obligations

A Uganda Standard does not purport to include all necessary provisions of a contract. Users are responsible for its correct application

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National foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Tourism, Trade and Industry established under Cap 327, of the Laws of Uganda. UNBS is mandated to co-ordinate the elaboration of standards and is

(a) a member of International Organisation for Standardisation (ISO) and

(b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and

(c) the National Enquiry Point on TBT/SPS Agreements of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of representatives of consumers, traders, academicians, manufacturers, government and other stakeholders.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

This Final Draft Uganda Standard, FDUS EAS 60: 2013*, Peanut butter — Specification,* is identical with and has been reproduced from an East African Standard, EAS 60: 2013*, Peanut butter — Specification,* and is being proposed for adoption as a Uganda Standard.

This second edition cancels and replaces the first edition (US EAS 60:2000) which has been technically revised.

Wherever the words, “East African Standard" appear, they should be replaced by "Uganda Standard."

FDEAS 60: 2013

ICS 67.200.10

FINAL DRAFT EAST AFRICAN STANDARD

Peanut butter — Specification

EAST AFRICAN COMMUNITY

Second Edition 2013

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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.

FDEAS 60 was prepared by Technical Committee EASC/ TC/015, *Oil Seeds, Edible Fats and Oils.*

This second edition cancels and replaces the first edition (EAS 60:2000), which has been technically revised.

Peanut butter — Specification

1 Scope

This Final Draft East African Standard specifies the requirements and methods of sampling and test for peanut butter derived from seeds of peanuts (groundnuts) of the species *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

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

EAS 35, *Edible salt — Specification*

EAS 38, *Labelling of pre-packaged foods — Specification*

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

EAS 57-2, *Groundnuts (peanuts) — Specification — Part 2: Roasted groundnuts*

EAS 217-8, *Microbiology of food and animal feeding stuffs — General guidance for enumeration of yeasts and moulds — Part 8: Colony count technique at 25 degrees C*

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

ISO 16050, *Foodstuffs — Determination of aflatoxin B_1, and the total content of aflatoxins B_1, B_2, G_1 and G_2 in cereals, nuts and derived products — High-performance liquid chromatographic method*

ISO 16654, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Escherichia coli*

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 peanuts (groundnuts) by grinding roasted mature kernels from which the seed coats have been removed

3.2
stabilized peanut butter
peanut butter to which any suitable ingredient(s) has been added to reduce oil-meal separation

3.3
non-stabilized peanut butter
peanut butter to which no ingredient(s) has been added to reduce oil-meal separation

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 Types of peanut butter

Peanut butter shall be of two types:

a) stabilized; and

b) non stabilized.

5 Quality and compositional requirements

5.1 Ingredients

5.1.1 Essential ingredients

The peanut butter shall comprise of 90 % of groundnuts complying with EAS 57-2.

5.1.2 Optional ingredients

In addition to the essential ingredients, the following optional ingredients may be added at levels of good manufacturing practice unless otherwise specified:

a) edible salt (Sodium chloride) complying with EAS 35;

b) sweeteners:

i. dextrose;

ii. powdered sugar;

iii. glycerine; and

iv. honey;

c) stabilizers and emulsifiers:

i. Lecithin;

ii. glycerol monostearate; and

iii. i-dehydrated vegetable oil — 3.0 %, max.;

d) antioxidants:

i. butylated hydroxy anisole — 0.01 % max. of the fat present;

ii. butylated hydroxy toluene — 0.02 % max. of the fat present;

iii. calcium disodium (calcium disodium ethylene-diamine tetra-acetate, EDTA) — 0.01 max. % of the fat present; and

iv. ascorbic acid.

5.2 General requirements

Peanut butter shall:

a) be free from skins and shells;

b) be free from any foreign matter;

c) have colour characteristic of the variety of peanut used;

d) have an aroma and flavour typical of fresh roasted peanut;

e) spread easily and shall not be thin nor slightly stiff;

f) require only slight mixing to re-disperse any separated fat in the non-stabilised type; and

g) have no noticeable oil separation in the stabilised type.

5.3 Compositional requirements

Peanut butter shall comply with the compositional requirements specified in Table 1.

Table 1 — Compositional requirements for peanut butter

S. no	Characteristic	Requirement	Method of test
i	Salt as NaCl, %, max.	2	Annex A
ii	Moisture and volatile matter content, %, max.	3.0	Annex B
iii	Fat (on dry weight basis), %	45 - 55	Annex C
iv	Acid value, mg KOH/g, max.	4.0	Annex D
v	Total ash (on dry weight basis), %, max.	5.0	Annex E

6 Hygiene

6.1 Peanut butter shall be produced, prepared and handled in accordance with EAS 39.

6.2 Peanut butter shall be free of pathogenic organisms and shall comply with the microbiological requirements specified in Table 2.

Table 2 — Microbiological limits for peanut butter

S. No.	Characteristic	Limits	Method of test
i	Yeasts and moulds max.	10^3/g	EAS 217-8
ii	*Escherichia. coli*	shall be absent	ISO 16654

7 Contaminants

7.1 Aflatoxin

Aflatoxin limits for peanut butter shall comply with the limits specified in Table 3.

Table 3 — Aflatoxin limits for peanut butter

S. no	Characteristic	Limit	Method of test
i)	Total aflatoxin content, ppb, max.	15	ISO 16050
ii)	Aflatoxin B_1, ppb	5	

7.2 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.

7.3 Other contaminants

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

8 Packaging and labelling

8.1 Packaging

Peanut butter shall be packaged in food grade containers 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 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).

9 Sampling

Sampling shall be done in accordance with ISO 5555.

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 HNO_3

A.1.4 0.1 N $AgNO_3$

A.1.5 Ferric indicator

A.1.6 0.1 N NH_4SCN_3

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 HNO_3 (1+3).

A.2.8 Add at least 2 mL - 4 mL of 0.1 N $AgNO_3$ that is just enough to precipitate all chloride present.

A.2.9 Add at least 5 mL of 0.1 N $AgNO_3$ 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 0.1 N NH_4SCN (which has been standardized to equalize normalities) to a permanent light brown end point.

A.2.12 Subtract the amount of NH_4SCN used in A.2.11 from the total $AgNO_3$ used in A.2.8 and A.2.9. The resulting difference is the ml of 0.1 N $AgNO_3$ used in the calculation of salt.

A.3 Calculation

The salt content shall be calculated as follows:

$$\% \text{ NaCl} = \frac{(\text{mL of } 0.1\text{N AgNO}_3)(0.05845)(100)}{\text{gram of sample}}$$

Annex B
(normative)

Determination of moisture

B.1 Apparatus

B.1.1 Oven, 95 °C — I00 °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 0.000 2 g after cooling in a desiccator.

B.2.2 Preparation of the sample

Transfer to the pre-dried 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

The moisture percentage by mass shall be calculated as follows:

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

where,

M_0 is the, mass in grams, of the dish and accessories (sand, rod and lid),

M_1 is the, mass in grams, of the dish (and its accessories) and sample before drying, and

M_2 is the, mass in grams, 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, analytical grade

C.2 Procedure

Weigh accurately about 2.5 g of the sample, dried 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

The crude fat content shall be calculated as follows:

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

where,

M_1 is the mass, in grams, of the extraction flask with dried extract,

M_2 is the mass, in grams, of the extraction flask, and

M is the mass, in grams, of the dried sample taken for the test.

Annex D
(normative)

Determination of acid value of extracted fat

D.1 Apparatus

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, 0.1 N (use absolute or alcohol denatured with methanol)

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

D.2.4 Phenolphthalein solution, 1 % in ethanol or ethanol denatured with methanol. 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

The acid value shall be calculated as follows:

$$\text{Acid value (as oleic acid)} = \frac{56.1VN}{M}$$

where,

V is the volume, in millilitres, of standard potassium hydroxide solution used,

N is the normality of standard potassium hydroxide solution, and

M is the mass, in grams, of fat extract taken for the test.

Annex E
(normative)

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

The total ash shall be calculated as follows:

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

where,

M_0 is the mass, in grams, of the dish with its accessories,

M_1 is the mass, in grams, of the dish, its accessories and the dried material after drying as in B.2.1, and

M_2 is the mass, in grams, of the dish, its accessories and ash after ignition (see B.2.2).

