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EAST AFRICAN STANDARD

Beeswax — Crude and refined — Specification



EAST AFRICAN COMMUNITY

Foreword

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

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. 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.

Article 15(1) of the EAC SQMT Act, 2006 provides that "Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose".

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.

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Introduction

Beeswax is a wax secreted in form of scales by the worker bees through their wax glands. It is extracted from honeycombs of either wild or domesticated bees after the removal of honey. The beeswax as obtained from the comb is called "raw beeswax" and is progressively modified by physical treatment to yield crude and refined beeswax and by chemical treatment to yield bleached beeswax.

Beeswax has many uses in industry, pharmacy and medicine. Some of the documented uses include making of adhesives, candles, cosmetics, electrical insulation, explosives, floor polishes, lubricants, pencils, pharmaceuticals, printing inks, shoe creams, varnishes in leather, moulding, paper and rubber industries.

In the preparation of this East African Standard, the following sources were consulted extensively:

KS 05-1279:1997, *Specification for natural beeswax*

IS 1504:1996(R2004), *Beeswax, Crude and Refined — Specification*

IS 4028:1992(R2006), *Beeswax, Bleached for Cosmetic Industry — Specification*

Codex Alimentarius website: http://www.codexalimentarius.net/mrls/pestdes/jsp/pest_q-e.jsp

USDA Foreign Agricultural Service website: <http://www.mrldatabase.com>

USDA Agricultural Marketing Service website: <http://www.ams.usda.gov/AMSV1.0/Standards>

USDA Plant Inspectorate Service website: http://www.aphis.usda.gov/import_export/plants

European Union: http://ec.europa.eu/sanco_pesticides/public

Assistance derived from these sources is hereby acknowledged.

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Beeswax — Crude and refined — Specification

1 Scope

This East African Standard specifies the minimum requirements and methods of test for beeswax.

This standard applies to all beeswax produced from honey combs (after removal of honey) and cappings that cover cells of honey combs derived from honey bee species *Apis* spp. It includes the various forms offered for direct use whether in crude, refined or bleached forms.

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.

CAC/GL 21, *Principles for the establishment and application of microbiological criteria for foods*

CAC/RCP 1, *Recommended international code of practice — General principles of food hygiene*

CAC/GL 30, *Principles and guidelines for the conduct of microbiological risk assessment*

EAS 38, *Labelling of prepackaged foods — Specification*

EAS 123, *Distilled water — Specification*

3 Definitions

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

3.1

beeswax

a natural animal wax produced by *Apis* spp. species of the honey bee. The wax is secreted by four pairs of glands located on the ventral side of the abdomen of worker bees. Bees use it to make cells and cappings for the purpose of storing honey pollen and rearing brood.

3.2

crude beeswax

The wax obtained from the honey combs after the removal of honey and after being subjected to a preliminary treatment, such as melting, scumming decantation and moulding.

3.3

refined beeswax

The wax obtained after subjecting crude beeswax to further purification by melting (usually in hot water or steam) and finer filtration.

3.4

bleached beeswax

Refined beeswax which has been naturally bleached (solar) and finally filtered.

4 Types and grades

4.1 The beeswax shall be of the following two types:

- a) **Crude beeswax** — The material obtained from the honeycombs after the removal of honey and after subjecting the material to a preliminary treatment, such as melting, scumming,

decantation and moulding. It shall not contain any other added material, such as paraffin wax and starch.

- b) **Refined wax** — The material obtained after subjecting crude beeswax to further purification by melting and finer filtration.

4.2 The refined beeswax shall be of two grades, namely, Grade A and Grade B. Grade A beeswax shall be derived from *Apis cerana indica*, *A mellifera* bees, whereas Grade B may be derived from other species of *Apis* or a mixture thereof.

5 Presentation

The material shall be in the form as agreed between the purchaser and the supplier. In the absence of such an agreement, it shall be in the form of slabs.

6 Requirements

6.1 Colour and aroma

The colour of crude and refined beeswax shall be whitish yellow to yellowish brown and it shall have a characteristic aroma.

The aqueous extract of Grade A refined beeswax shall not be acidic.

6.2 Freedom from foreign matter

Beeswax shall be free from inorganic or organic matter such as bees, brood, debris, sand or any other extraneous matter.

6.3 Purity

Beeswax shall be pure and unadulterated. It shall not be blended or contain any other waxes such as paraffin, microcrystalline or synthetic waxes nor shall it be mixed with any oil, fat or any other contaminant.

6.4 Composition of natural beeswax

Generally, beeswax consists of hydrocarbons (14 per cent), mono-esters (35 per cent), diesters (14 per cent), triesters (3 per cent), hydroxymonoester (4 per cent), hydroxy polyesters (8 per cent), free acids (12 per cent), acid esters (1 per cent) acid polyesters (2 per cent), free alcohols (1 per cent) and unidentified substances including pigments and propolis (6 per cent).

6.5 Specific requirements

Beeswax shall also comply with the requirements given in Table 1.

Table 1 — Requirements for beeswax, crude and refined

Characteristic	Crude	Refined		Method of test
		Grade A	Grade B	
Specific gravity	0.950 to 0.995	0.955 to 0.980	0.945 to 0.980	
Refractive index an 75 °C	—	1.4405 to 1.4455	1.4405 to 1.4455	
Melting point, °C	58 to 64	63 to 66	59 to 63	
Acid value, <i>Max</i>	5 to 24	5 to 24	5 to 24	
Saponification value	Not less than 80	90 to 105	90 to 105	
Iodine value, <i>Max</i>	5.5	5.5 to 10.0	5.5 to 10.0	
Ash, % by mass, max	0.6	0.2	0.5	
¹⁾ Sulphated ash, % by mass, max	0.006	0.002	0.005	
Total volatile matter, % by mass, max	1.0	0.75	0.75	
Matter insoluble in benzene, % by mass, max	—	1.0	—	
Matter soluble in water, % by mass, max	—	0.5	—	

¹⁾ Shall not contain any particles of gritty nature which are retained on a 425 µm sieve

7 Sampling

The method of preparing representative test samples of the material and the criteria for conformity shall be as prescribed in Annex M.

8 Packaging and labelling

8.1 Packaging

Beeswax shall be packed in greaseproof paper or any suitable material like polythene, jute or sisal bags.

8.2 Labelling

Each container of beeswax shall be suitably labelled to give the following information:

- (i) name and address of manufacturer (or dealer);
- (ii) name or type of wax;
- (iii) net contents in appropriate SI units;
- (iv) country of origin.



Crude beeswax — Yellow



Beeswax — pastiles

Draft for comments
American Standard



Refined white beeswax



Beeswax presentations — Hexagonal



Beeswax presentations — Hexagonal chunk

Draft for comments only — MPI

Standard



Beeswax presentations



Beeswax presentations

Draft for comment

European Standard

Annex A
(normative)

Determination of melting point

A.1 Quality of reagents

Unless specified otherwise, pure chemicals and distilled water shall be used in tests.

A.2 Apparatus

A.2.1 Thermometer — With an accuracy of 0.1 °C and graduated at every 0.1 °C.

A.2.2 Test tube — With centrally bored cork to take thermometer and with a slit to permit air circulation.

A.2.3 Water bath — With a thermometer.

A.3 Procedure

A.3.1 Melt the wax by warming it in water bath at a temperature just sufficient to melt it.

A.3.2 Dip the thermometer and withdraw, so as to get the bulb thinly coated with wax.

A.3.3 Insert the thermometer into the test tube through the bored cork and then place the test tube in the water bath.

A.3.4 Rise the temperature gradually, at the rate of 1 °C in 3 minutes. Note the temperature, accurately to 0.1 °C, at which a transparent drop forms on the end of the thermometer bulb.

A.3.5 Record this temperature as the melting point of the wax.

