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ICS 67.060

FINAL DRAFT EAST AFRICAN STANDARD

Wheat grains — Specification

EAST AFRICAN COMMUNITY

HS 1001.10.90

Draft for comments only — Not to be cited as East African Standard

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

This standard has been developed to take into account:

- the needs of the market for the product;
- the need to facilitate fair domestic, regional and international trade and prevent technical barriers to trade by establishing a common trading language for buyers and sellers.
- the structure of the CODEX, UNECE, USA, ISO and other internationally significant standards;
- the needs of the producers in gaining knowledge of market standards, conformity assessment, commercial cultivars and crop production process;
- the need to transport the product in a manner that ensures keeping of quality until it reaches the consumer;
- the need for the plant protection authority to certify, through a simplified form, that the product is fit for cross-border and international trade without carrying plant disease vectors;
- the need to promote good agricultural practices that will enhance wider market access, involvement of small-scale traders and hence making farming a viable means of wealth creation; and
- the need to ensure a reliable production base of consistent and safe crops that meet customer requirements.

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Wheat grains — Specification

1 Scope

This East African Standard specifies the requirements and methods of sampling and test for wheat grains of varieties (cultivars) grown from common wheat (*Triticum aestivum* L.), club wheat (*T. compactum* Host.), intended for human consumption.

2 Normative references

The following normative documents contain provisions which, through reference in this text constitute provisions of this East African

ISO 605, *Pulses — Determination of impurities, size, foreign odours, insects, and species and variety — Test methods*

ISO 711, *Cereals and cereal products — Determination of moisture content (Basic reference method)*

ISO 712, *Cereals and cereal products — Determination of moisture content — Routine reference method*

ISO 3093, *Wheat, rye and respective flours, durum wheat and durum wheat semolina — Determination of the Falling Number according to Hagberg-Perten*

ISO 5223, *Test sieves for cereals*

ISO 6639-1, *Cereals and pulses — Determination of hidden insect infestation — Part 1: General principles*

ISO 6639-2, *Cereals and pulses — Determination of hidden insect infestation — Part 2: Sampling*

ISO 6639-3, *Cereals and pulses — Determination of hidden insect infestation — Part 3: Reference method*

ISO 6639-4, *Cereals and pulses — Determination of hidden insect infestation — Part 4: Rapid methods*

ISO 7971-1, *Cereals — Determination of bulk density, called "mass per hectolitre" — Part 1: Reference method*

ISO 7971-2, *Cereals — Determination of bulk density, called "mass per hectolitre" — Part 2: Routine method*

CODEX Stan 193, *Codex general Standards for contaminants and toxins in Food and Feed*

ISO 11050, *Wheat flour and durum wheat semolina — Determination of impurities of animal origin*

ISO 13690, *Cereals, pulses and milled products — Sampling of static batches*

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

ISO 20483, *Cereals and pulses — Determination of the nitrogen content and calculation of the crude protein content — Kjeldahl method*

EAS 39, *Hygiene in the food and drink manufacturing industry- Code of practice*

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

EAS 79, *Cereals and pulses as grain — Methods of sampling*

EAS 217, *Methods for the microbiological examination of foods*

3 Terms and Definitions

For the purpose of this East African Standard, the following definitions shall apply.

3.1

wheat grain

grain that consists of 50 percent or more common wheat (*Triticum aestivum* L.), club wheat (*T. compactum* Host.), and durum wheat (*T. Durum* Desf.).

3.2

broken grain

Grains and pieces of grain of wheat that will pass readily through a sieve perforated with slots measuring 1.6 mm wide and 9.5 mm long.

3.3

noxious injurious weed seeds

Seeds of weeds gazetted as harmful and any other weed, which may be gazetted as harmful in future.
This include:

3.3.1

datura

seed of the plant *Datura stramonium*

3.3.2

Darnel

seeds of the plant *Lolium temulentum*

3.3.3

Wild Oats

Seeds of the plant genus *Avena* other than *Avena sativa* common cultivated oats and *Avena byzantina*

3.4

Foreign matter

all organic and inorganic material other than wheat, broken kernels, other grains and filth.

3.5

Other groups

Groups of wheat varieties having baking characteristics, which differ from those of the dominant group.

3.6

Group

Wheat varieties having similar baking characteristics as determined from time to time by the national plant breeding station at Njoro.

3.7

Defective grains

Shall mean any of the following;

3.7.1

Discolored grain

wheat grain discoloured by heat, fermentation, moulds, weather damage or disease but does not include black point which is brown, dark brown or almost black discoloration at the embryo end of the grain.

3.7.2

Germinated wheat

wheat in which the pericarp covering the embryo has been ruptured.

3.7.3

Insect-damaged wheat

wheat grain, which has been damaged by any insect or any other pest.

3.7.4**Infected wheat-**

wheat grain containing in or amongst the grain any form of living and/ or other organism known to be capable of causing damage or spoilage to the grain.

3.7.5**Immature wheat**

Wheat grains which are distinctly green in colour

3.7.6**Heat damaged wheat**

Wheat damaged by external heat or as a result of heating caused by fermentation.

3.7.7**Diseased weather-damaged wheat**

wheat, which has about one third or more of its surface, discoloured physically damaged or mouldy due to weather conditions.

3.8**Earth sand and stones**

Concreted earthy mineral or any other matter derived from the soil and any other matter of similar hardness.

3.9**Reject wheat**

Wheat which is mouldy, musty or otherwise commercially objectionable or unfit for human consumption.

4 Quality requirements**4.1 General requirements**

4.1.1 Wheat grains shall meet the following general requirements/limits as determined using the relevant standards listed in Clause 2. Wheat grains:

- a) shall be the dried mature grains of *Triticum aestivum* (bread wheat), *Triticum compactum* Host. (club wheat), *Triticum tauschii* (soft wheat) and *Triticum durum* (durum);
- b) shall be clean, wholesome, uniform in size and shape;
- c) shall be safe and suitable for human consumption;
- d) shall be free from abnormal flavours, musty, sour or other undesirable odour, obnoxious smell and discolouration;
- e) shall be free from micro-organisms and substances originating from micro-organisms, fungi or other poisonous or deleterious substances in amounts that may constitute a hazard to human health.

4.2 Specific requirements**4.2.1 Grading**

Wheat grains shall be graded into four grades on the basis of the tolerable limits established in Table 1 which shall be additional to the general requirements set out in this standard.

4.2.2 Ungraded wheat grains

Shall be wheat grains which do not fall within the requirements of Grades 1, 2, 3 and 4 of this standard but are not rejected wheat grains.

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Note: For Tanzania and Burundi this requirement shall not apply

4.4.2 Reject grade wheat

- (a) Does not meet the requirements for the Grades 1, 2, 3, or 4.
- (b) Has a musty, sour, or commercially objectionable foreign odour except smut or garlic odour; or
- (c) Is heating or otherwise of distinctly low quality.

Table 2 — Specific requirements

Characteristic		Specification				Method of test
		Grade 1	Grade 2	Grade 3	Grade 4	
Varietal restriction		Approved varieties only				
Moisture , max (%)		13	13	13	13	ISO 711/712
Standard of quality	Minimum test weight kg/hl (g/0.5 L)	79(395)	75(375)	70(350)	65(325)	
Protein , min (%) m/m NX5.7@11 % Moisture basis	Hard/strong white	13.0	12.0	11.5	10.0	EAS 82
	Soft white	10.0	10.0	10.0	10.0	
Foreign Mater Max(%)m/m)	Total	0.40	0.70	1.30	2.40	ISO 605
Unmillable Material Above the Screen (% by wt)		0.60	0.60	0.60	0.60	
Screenings, Max (% by wt)		5.0	5.0	5.0	0.60	ISO 5223
Falling Number, Min (sec)		350	300	300	300	
Edible grains other than wheat (whole or identifiably broken), (% by wt)		0.50	1.50	2.0	3.0	ISO 7970
Wheat of other classes or varieties (% by wt)	Contrasting classes	1.0	2.0	3.0	5.0	
	Total	3.0	3.0	5.0	5.0	
Defective grains , max (% by count, 300 grain sample, unless otherwise stated)	Total Defective	3.0	5.0	10.0	15.0	ISO 605
Bulk density kg/hl, min		70				ISO 7971-1 & 2
Other contaminants, Max	Total Aflatoxin (AFB1+AFB2+AFG1 +AFG2), ppb	10				ISO16050
	Aflatoxin B1 only, ppb	5				
	Fumonisin – Total ppm(FB1 + FB2 + FB3)	2				

Note: Grade 4 to be for only partner states' domestic use.

5 Contaminants

5.1 Heavy metals

Wheat grains shall comply with those maximum limits for heavy metals established by the Codex Alimentarius Commission for this commodity.

5.2 Pesticide residues

Wheat grains 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, then it shall be notified to all Partner States accordingly.

5.3 Mycotoxin limits

Wheat grains shall comply with those maximum mycotoxin limits established by the Codex Alimentarius Commission for this commodity. In particular, total aflatoxin levels in pearl millet grains for human consumption shall not exceed 10 µg/kg (ppb) with B₁ not exceeding 5 µg/kg (ppb) when tested according to ISO 16050.

6 Hygiene

6.1 Wheat grains shall be produced, prepared and handled in accordance with the provisions of appropriate sections of EAS 39

6.2 When tested by appropriate standards of sampling and examination listed in Clause 2, the products:

- shall be free from microorganisms in amounts which may represent a hazard to health and shall not exceed the limits stipulated in Table 2;
- shall be free from parasites which may represent a hazard to health; and
- shall not contain any substance originating from microorganisms including fungi, in amounts which may represent a hazard to health.

Table 2 — Microbiological limits

	Type of micro-organism	Limits	Test method
i)	Yeasts and moulds, max. per g	10 ⁴	EAS 217
ii)	<i>S.aureus</i> per 25 g	Not detectable	
iii)	<i>E. Coli</i> , max. per 1 g	Not detectable	
iv)	<i>Salmonella</i> , max. per 25 g	Not detectable	

7 Packaging

7.1 Wheat grains shall be packed in suitable packages which shall be clean, sound, free from insect, fungal infestation and the packing material shall be of food grade quality.

7.2 Wheat grains shall be packed in containers which will safeguard the hygienic, nutritional, technological and organoleptic qualities of the products.

7.3 The containers, including packaging material, shall be made of substances which are safe and suitable for their intended use. They shall not impart any toxic substance or undesirable odour or flavour to the product.

7.4 Each package shall contain wheat grains of the same type and of the same grade designation.

7.5 If wheat grains are presented in bags, the bags shall also be free of pests and contaminants.

7.6 Each package shall be securely closed and sealed.

8 Marking or labelling

In addition to the requirements in EAS 38, each package shall be legibly and indelibly marked with the following:

- i) product name as "Wheat grains"
- ii) variety;
- iii) grade;

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- iv) name, address and physical location of the producer/ packer/importer;
- v) lot/batch/code number;
- vi) net weight, in kg;

NOTE EAC Partner States are signatories to the International Labour Organizations (ILO) for maximum package weight of 50kg where human loading and offloading is involved.

- vii) the declaration “Food for Human Consumption”;
- viii) storage instruction as “Store in a cool dry place away from any contaminants”;
- ix) crop year;
- x) packing date;
- xi) instructions on disposal of used package;
- xii) country of origin;
- xiii) a declaration on whether the wheat grain was genetically modified or not.

9 Sampling

Sampling shall be done in accordance with the EAS 79/ISO 13690.

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