



## **DRAFT EAST AFRICAN STANDARD**

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### **Fishmeal — 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 001, *Animal feeds and feeding stuffs*.

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.

This second edition cancels and replaces the first edition (EAS 97:2000), which has been technically revised.

## Introduction

Fishmeal is a rich source of high quality protein and contains besides calcium and phosphorus, unidentified growth factors which are necessary for maximum growth rate and reproduction in livestock. The incorporation of fishmeal in animal feeds, especially poultry feeds and pig feeds has become a regular practice in the animal feed industry.

The development of this standard will not only serve as an important and useful reference document for any envisaged large scale fishmeal production but will go a long way to assist present manufacturers produce quality fishmeal.

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# Fishmeal — Specification

## 1 Scope

This Draft East African Standard specifies requirements, sampling and test methods for fishmeal for use in compounding animal feeds.

## 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.

ISO 5510, *Animal feeding stuffs — Determination of available lysine*

ISO 5983-1, *Animal feeding stuffs — Determination of nitrogen content and calculation of crude protein content — Part 1: Kjeldahl method*

ISO 5984, *Animal feeding stuffs — Determination of crude ash*

ISO 5985, *Animal feeding stuffs — Determination of ash insoluble in hydrochloric acid*

ISO 6490-1, *Animal feeding stuffs — Determination of calcium content — Part 1: Titrimetric method*

ISO 6491, *Animal feeding stuffs — Determination of phosphorus content — Spectrometric method*

ISO 6492, *Animal feeding stuffs — Determination of fat content*

ISO 6495, *Animal feeding stuffs — Determination of water-soluble chlorides content*

ISO 6496, *Animal feeding stuffs — Determination of moisture and other volatile matter content*

ISO 6497, *Animal feeding stuffs — Sampling*

ISO 6865, *Animal feeding stuffs — Determination of crude fibre content — Method with intermediate filtration*

ISO 9831, *Animal feeding stuffs, animal products, and faeces or urine — Determination of gross calorific value — Bomb calorimeter method*

ISO 13903, *Animal feeding stuffs — Determination of amino acids content*

ISO 14718, *Animal feeding stuffs — Determination of aflatoxin B1 content of mixed feeding stuffs — Method using high-performance liquid chromatography*

ISO 17375, *Animal feeding stuffs — Determination of aflatoxin B1*

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*

EAS 38, *Labelling of pre-packaged foods — General requirements*

ISO 27085, *Animal feeding stuff — Determination of calcium, sodium, phosphorous, magnesium, potassium, iron, zinc, copper, manganese, cobalt, molybdenum, arsenic, lead and cadmium by ICP-AES*

ISO 6579-1, *Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella — Part 1: Detection of Salmonella spp*

ISO 16654, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Escherichia coli O157*

ISO 11133, *Microbiology of food, animal feed and water — Preparation, production, storage and performance testing of culture media*

### 3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 3.1

##### **fishmeal**

product obtained by drying and grinding, or otherwise treating fish or fish waste and to which no addition has been made

#### 3.2

##### **extraneous matter**

organic or inorganic materials other than bone meal such as sand, stones, chaff, dead insects and others

### 4 Requirements

#### 4.1 General requirements

Fishmeal shall be:

- a) free from extraneous matter;
- b) free from foul smell; and
- c) free from harmful constituents, metallic objects, adulterants, insect infestation and from visible fungal growth.

#### 4.2 Specific requirements

Fishmeal shall conform to the requirements specified in Table 1 when tested in accordance with the test methods specified therein.

**Table 1 — Requirements for fishmeal**

| S/No. | Characteristic                                     | Requirement | Test method |
|-------|--|-------------|-------------|
| i     | Moisture, per cent by mass, max.                   | 10          | ISO 6496    |
| ii    | Crude protein, per cent by mass, min. <sup>a</sup> | 55          | ISO 5983-1  |

|   |   |     |            |
|---|---|-----|------------|
| iii   | Crude fat, max. <sup>a</sup>                            | 12  | ISO 6492   |
| iv  | Acid insoluble ash, per cent by mass, max. <sup>a</sup> | 3   | ISO 5985   |
| v   | Total ash, per cent by mass, max. <sup>a</sup>          | 20  | ISO 5984   |
| vi  | Calcium, per cent by mass, min. <sup>a</sup>            | 3   | ISO 6490-1 |
| vii   | Phosphorous, per cent by mass, min. <sup>a</sup>        | 1.5 | ISO 27085  |
| viii  | Sodium chloride, per cent by mass, max. <sup>a</sup>    | 2   | ISO 6495   |
| <sup>a</sup> The characteristic is on dry matter basis. |   |     |            |

## 5 Feed additives

Fishmeal treated with antioxidants shall conform to the requirements in Table 2.

**Table 2 — Antioxidant treated fishmeals**

| Antioxidant                         | Per cent (max.) levels | Test method |
|-------------------------------------|------------------------|-------------|
| Butylated hydroxy -Toluene (B.H.T.) | 200 ppm                | GMP         |
| Butylated hydroxyanisole (B.H.A.)   | 200 ppm                |             |
| Ethoxyguin                          | 150 ppm                |             |

## 6 Contaminants

### 6.1 Aflatoxin

Aflatoxin contamination in fishmeal shall not be more than 20 ppb for B<sub>1</sub> and 50 ppb for total aflatoxin when tested in accordance with ISO 16050 and ISO 17375.

### 6.2 Pesticide residues

Fishmeal shall comply with the maximum pesticide residue limits established by the Codex Alimentarius Commission.

### 6.3 Heavy metal

Fishmeal shall be free from heavy metals in amounts which may represent a hazard to animals and shall comply with the maximum limits of heavy metals as specified in Table 3 when tested in accordance with the test methods specified therein.

**Table 3 — Limits for heavy metals in fishmeal**

| S/No | Heavy metal | Maximum limit,<br>mg/kg | Test method |
|------|-------------|-------------------------|-------------|
| 1    | Arsenic     | 2.0                     | ISO 27085   |
| 2    | Lead        | 5.0                     |             |
| 3    | Cadmium     | 1.0                     |             |



## 7 Hygiene

7.1 Fishmeal shall be prepared in accordance with CAC/RCP 54.

7.2 Fishmeal shall conform to the microbiological limits specified in Table 3 when tested in accordance with the test methods specified therein.

Table 4 — Microbiological limits in fishmeal

| S/No | Microorganism                 | Limit, max. | Test method |
|------|-------------------------------|-------------|-------------|
| I    | <i>E.coli</i>                 | absent      | ISO 16654   |
| II   | <i>Salmonella spp</i>         | absent      | ISO 6579-1  |
| III  | <i>Pseudomonas aeruginosa</i> | absent      | ISO 11133   |

## 8 Weights and measures

Fish meal shall be weighed according to the weights and measures regulation of the destination country

## 9 Packaging

Fishmeal shall be packaged in suitable containers that are of sufficient strength, and sufficiently sealed to withstand reasonable handling without tearing, bursting or falling open. The containers shall be clean and not previously used.

## 10 Labelling

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

- expiry date;
- name of the feed "fishmeal";
- name and physical address of the manufacturer;
- additives if included shall be declared;
- net weight in metric units;
- directions and precautions for use;
- batch number /lot identification;
- manufacturing date; and
- storage instructions.

## **11 Sampling**

Sampling shall be done in accordance with ISO 6497.

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## Bibliography

EAS 97:2000, *fish meal specification*

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