

KENYA STANDARD

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**Calcium phosphates feed grade
— Specification**

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TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

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Kenyatta University — Department of Animal Science
Kenya Agricultural and Livestock Research Organization (KALRO)
Kenya Industrial Research and Development Institute (KIRDI)
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Association of Kenya Feed Manufacturers — AKEFEMA
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Calcium phosphates feed grade — Specification

KENYA BUREAU OF STANDARDS (KEBS)

Head Office: P.O. Box 54974, Nairobi-00200, Tel.: (+254 020) 605490, 602350, Fax: (+254 020) 604031
E-Mail: info@kebs.org, Web: <http://www.kebs.org>

Coast Region

P.O. Box 99376, Mombasa-80100
Tel.: (+254 041) 229563, 230939/40
Fax: (+254 041) 229448

Lake Region

P.O. Box 2949, Kisumu-40100
Tel.: (+254 057) 23549, 22396
Fax: (+254 057) 21814

Rift Valley Region

P.O. Box 2138, Nakuru-20100
Tel.: (+254 051) 210553, 210555

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Foreword

This Kenya Standard was developed by the Technical Committee on Animal Feeds under the guidance of the Standards Projects Committee and it is in accordance with the procedures of the Kenya Bureau of Standards.

Calcium phosphates are important mineral ingredients used for animal feeding. However it is necessary that the levels of undesirable elements be kept as low as possible to prevent it from being toxic to animals.

Feed grade Calcium phosphates are now being manufactured and imported into the country. It is expected that this standard which takes into consideration the present manufacturing practices will help in exercising proper quality control during production.

During the preparation of this standard, reference was made to the following document:

IS 5470, Specification for dicalcium phosphate animal feed grade.

Acknowledgement is hereby made for assistance derived from this source.

Calcium phosphates feed grade — Specification

1 Scope

This Kenya Standard specifies the requirements for calcium phosphates feed grade for use in animal feeding.

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

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

ISO 6497, Animal feeding stuffs — Sampling

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

ISO 6869 Animal feeding stuffs — Determination of the contents of calcium, copper, iron, magnesium, manganese, potassium, sodium and zinc — Method using atomic absorption spectrometry

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

mono calcium phosphate (MCP)

is an inorganic compound with chemical formula: $\text{Ca}(\text{H}_2\text{PO}_4)_2$

3.2

di-calcium phosphate (DCP)

is a type of calcium phosphate which is di-basic. It is usually found as dihydrate, but can be thermally converted into anhydrous form with the chemical formula: $\text{CaHPO}_4 \cdot 2\text{H}_2\text{O}$

3.3

mono di-calcium phosphate (MDCP)

is an intermediate between the above two and obtained by reacting pure mineral sources of calcium with purified phosphoric acid or di-calcium phosphate with purified phosphoric acid with chemical formula: $\text{Ca}(\text{H}_2\text{PO}_4)_2 \cdot \text{H}_2\text{O} + \text{CaHPO}_4 \cdot 2\text{H}_2\text{O}$

4. Requirements

4.1 Description

The material shall consist of naturally occurring or synthetic calcium phosphate.

It shall be in the form of free flowing powder or granules. It shall be free from visible foreign matter and toxic substances.

The powder form shall be of such fineness that not less than 98.5 % by weight of the material shall pass through 45 micron sieve.

It shall apply to all calcium phosphates fed directly to the animal or used for manufacturing mineral mixtures and feeds

4.2 Specific requirements

The material shall conform to the limits specified in Table 1.

Table 1 — Requirements for calcium phosphates animal feed grade

SL No	Parameter (percentage by weight)	Limits			Test method
		DCP	MCP	MDCP	
i)	Moisture, % by weight, max.	5	5	5	ISO 6496
ii)	Calcium, as Ca, % by weight, max.	24	17	18	ISO 6490-1
iii)	Phosphorus, as P, % by weight, min.	18	22	21	ISO 6491
iv)	Flouride, as F, % by weight, max.	0.2	0.2	0.2	AOAC"
v)	Solubility in citric acid, min. %	90	95	95	AOAC"
vii)	pH, max.	4	3.5	4.5	AOAC"
^a Association of Official Analytical Chemists Methods.					

4.3 Heavy metal contaminants

The heavy metal contaminants, if present, shall not exceed the limits stipulated in Table 2.

Table 2 — Heavy metal contaminants limits

SL No	Parameter	Limits in ppm	Test method
i)	Arsenic, As, max.	10.0	AOAC"
ii)	Cadmium, Cd, max.	10.0	AOAC"
iii)	Mercury, Hg, max.	0.1	" AOAC ^a
v)	Lead, Pb, max.	15.0	AOAC"
vi)	Chromium, max.	500	AOAC"
^a Association of Official Analytical Chemists Methods.			

5. Packaging and labelling

5.1 Packaging

5.1.1 Calcium phosphates feed grade for sale shall be packed in containers which are of sufficient strength and sufficiently sealed so as to withstand reasonable handling without tearing, bursting or falling open during normal handling and transportation.

5.1.2 Each container for Calcium phosphates feed grade shall be clean and free from visible indications of contamination and infestations

5.2 Labelling

The packages shall be securely closed and marked with the following information:

5.2.1 Retail labeling

- i) Name of product;
- ii) Category and animals for which it is intended;
- iii) Calcium and phosphorus contents, as per cent or ppm, in the product;
- iv) Weight of the product;
- v) Batch number;
- vi) Name and physical address of the manufacturer;
- vii) Date of manufacture and expiry;
- viii) Instructions for use and storage; and
- ix) Feeding rate shall be displayed in g/head/day.

NOTE Labels of calcium phosphates shall not indicate that they can be considered as the sole source of mineral supplementation for target animal.

5.2.2 Bulk Labelling

- i) Name of product;
- ii) Calcium and phosphorus contents, as per cent or ppm, in the product;
- iii) Weight of the product;
- iv) Batch number or date of manufacture;
- v) Name and physical address of the manufacturer; and
- vi) Instructions for storage.

6. Sampling

For the purpose of determining compliance with this standard, Sampling shall be done as per ISO 6497.