



## DRAFT TANZANIA STANDARD

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### Limestone for animal feed – Specification

PUBLIC COMMENTS

## **Limestone for animal feed – Specification**

### **0 Foreword**

Limestone is the most common source of Calcium used in livestock feeding. It is almost pure Calcium carbonate ( $\text{CaCO}_3$ ). Calcitic limestone contains minimum 36% Calcium and can safely be fed free choice (ad lib) mixed with salt. Dolomitic limestone contains at least 5 % Magnesium Carbonate and should not be used for poultry, but it is as good as calcitic limestone for other animals.

This Tanzania standard would help in exercising proper quality and safety control for limestone, produced or traded in the country for feeding domesticated animals.

In preparation of this Tanzania standard considerable assistance has been derived from C706-19 Standard Specification for Limestone for Animal Feed Use developed by American Society for Testing and Materials.

In reporting the results of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with TZS 4 (see clause 2).

### **1.0 Scope**

This draft Tanzania standard specifies requirements, methods of sampling and test for limestone intended for use as a mineral supplement in animal feeds.

### **2.0 References**

For the purpose of this finalized Tanzania Standard, the following references shall apply. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

TZS 4 – Rounding off numerical values.

TZS 34-3 – Animal feeds and feeding stuffs – Part 3 – Microbiological test methods.

TZS 34-2 – Animal feeds and feeding stuffs – Sampling and test methods – Part 2: Minerals and trace elements.

TZS 34-1 – Animal feeds and feeding stuffs – Part 1 Sampling and general methods.

TZS 76 – General method for determination of Arsenic silver diethyldithiocarmate photometric method.

TZS 109 – Food Processing units – code of hygiene – General.

TZS 268 – General atomic absorption spectrophotometric method for determination of lead in food stuffs

TZS 538:1999 – Packaging and labeling of foods

TZS 821 – Animal feeds and feeding stuffs – Preparation of test samples.

ISO 5985 – Animal feeding stuffs – Determination of ash insoluble in hydrochloric acid.

AOAC 2006.03-2009 – Arsenic, Cadmium, Cobalt, Chromium, Lead, Molybdenum, Nickel, and selenium in fertilizers

### **3.0 Terms and definitions**

For the purpose of this finalized standard, the following terms and definitions shall apply:

#### **3.1 dolomite**

limestone or marble rich in magnesium carbonate

### 3.2 calcitic

common crystalline form of natural calcium carbonate ( $\text{CaCO}_3$ ), that is the basic constituent of limestone, marble, and chalk

## 4.0 Requirements

### 4.1 General requirements

4.1.1 Limestone shall be suitable for animal feeding.

4.1.2 Particle size analysis and other physical requirements shall be specified by the purchaser.

### 4.2 Specific requirements

Limestone shall conform to the requirements prescribed in Table 1.

**Table 1: Physico-chemical requirements**

S/No	Limestone Classes	Calcium, (as $\text{CaCO}_3$ ) Min, %	Magnesium (as $\text{MgCO}_3$ ) max, %	Magnesium (as $\text{MgCO}_3$ ) min, %	Moisture, max, %	Test methods
1	High Calcium	95	5	-	0.5	TZS 34-2
2	Magnesian	60	35 <sup>a</sup>	5	0.5	
3	Dolomitic	49	46 <sup>a</sup>	35	0.5	
4	Ground limestone	82	b	b	0.5	

<sup>a</sup> The high magnesium content of these materials usually limits their use to special-purpose feeds.

<sup>b</sup> as specified by the purchaser

## 5.0 Contaminants

The products covered by this Standard shall comply with the maximum limits for heavy metals specified in Table 2.

**Table 2: Heavy metal contaminants**

S/No.	Heavy metal	Limits	Method of test (see clause 2)
i)	Mercury (Hg), mg/kg, max	0.1	AOAC 2006.03
ii)	Lead (Pb), mg/kg, max	15	TZS 268
iii)	Arsenic (As), mg/kg, max	10	TZS 76
iv)	Cadmium (Cd), mg/kg, max	10	AOAC 2006.03

## 6.0 Hygiene

6.1 The product shall be prepared under strict hygienic conditions according to TZS 109 (see clause 2).

6.2 The product on testing shall not contain the listed microorganisms given in Table 3.

**Table 3: Microbiological limits**

S/No.	Microorganisms	Limit	Methods of test (see clause 2)
i)	<i>Bacillus anthracis</i>	Absent	TZS 34-3
ii)	<i>Clostridium spp.</i>	Absent	TZS 34-3

## 7.0 Sampling and tests

### 7.1 Sampling

Sampling of the product covered under this standard shall be done according to TZS 34-1 (see clause 2).

### 7.2 Tests

Testing of limestone shall be done according to test methods prescribed in Table 1, 2 and 3 (see clause 2).

## 8.0 Packaging, marking and labelling

### 8.1 Packaging

Limestone shall be package in moisture-proof bags, cartons, boxes or drums. All containers shall be sound, clean and free from causal agents of infectious diseases and parasites.

### 8.2 Marking and labelling

In addition to marking and labelling requirements prescribed in TZS 538, limestone for each package shall be marked to display the following information:

- Name of the product – “Limestone”;
- Name and address of the manufacturer;
- Country of origin
- Batch or code number;
- Date of production;
- Net weight in metric units;
- Expiry date;
- Storage conditions;
- Directions for use;
- The percentage of calcium; and
- Trade name or brand name if any.

### 8.3 The container may also be marked with TBS Certification Mark.

**NOTE** – The TBS Standards Mark of Quality may be used by the manufacturers only under licence from TBS. Particulars of conditions under which the licences are granted may be obtained from TBS.