



AFDC 9 (655) CD3

DRAFT TANZANIA STANDARD

Calf milk replacers – Specification

DRAFT STANDARD FOR PUBLIC COMMENTS

TANZANIA BUREAU OF STANDARDS

Calf milk replacers – Specification

0 FOREWORD

Calf milk replacers contribute significantly to calf feeding in the country to supplement milk for the purpose of increasing milk profit. In this regard, it is essential to substitute cow milk with diet which will supply essential nutrients for the calf growth.

This Tanzania standard has been prepared to ensure that calf milk replacers manufactured or imported in the country are safe and meet the nutritional requirements of the calf.

In the preparation of this Tanzania standard assistance was drawn from TZS 397:2017 Cattle feed supplements – Specification published by the Tanzania Bureau of Standards.

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 Tanzania standard specifies requirements, methods of sampling and test for calf milk replacers.

2.0 NORMATIVE 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 76 – General method for determination of Arsenic silver diethyldithiocarmate photometric method

TZS 109 – Food processing units – code of hygiene – General

TZS 122-1– Microbiology of food and animal feeding stuffs – Horizontal method for the detection of *Salmonella spp*

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

TZS 538 – Labelling of pre-packaged foods — General requirements

TZS 730-1 – Microbiology of food and animal feeding stuffs – Horizontal method for the detection of *Escherichia coli*

TZS 799 – Food stuffs – Determination of aflatoxin B1 and the total content

TZS 821 – Animal feeding stuffs – Preparation of test samples

TZS 2472 – Animal feeding stuffs – Determination of acid detergent fibre (ADF) and acid detergent lignin (ADL) Contents

TZS 2476 – Animal feeding stuffs -Determination of fat content

TZS 2478 – Animal feeding stuffs – Determination of moisture and other volatile matter content

TZS 2480 – Animal feeding stuffs - Determination of nitrogen content and calculation of crude protein content - Part 1: Kjeldahl method

TZS 2487- Animal feeding stuffs — Determination of the contents of Calcium, Copper, Iron, Magnesium, Manganese, Potassium, Sodium and Zinc — Method using atomic absorption spectrometry

TZS 2488 – Animal feeding stuffs – Sampling

TZS 2489 – Animal feeding stuffs – Determination of vitamin E content – Method using high-performance liquid chromatography

3.0 TERMS AND DEFINITIONS

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

3.1 milk replacer (milk substitute meal)

compound feed administered in dry or liquid form for feeding young animals such as calves, lambs or kids as a complement to, or substitute for, post-colostrum milk.

3.2 antioxidant

substance added to feeds to protect polyunsaturated fatty acids and fat-soluble vitamins from destruction by peroxidation.

4.0 REQUIREMENTS

4.1 General requirements

4.1.1 Raw materials

- The ingredients used in the manufacture of calf milk replacers include a very high-quality protein raw materials with a similar amino acid composition and low NPN content such as skimmed milk powder (SMP) and whey powder concentrate (WPC).

4.1.2 Calf milk replacers shall;

- have cream to light tan colour.
- be free of lumps and foreign materials.
- have a blend to be pleasant with no “off” odours noted.
- be milky with no “off” flavours.
- have antioxidant added to reduce oxidation of the fat.
- have no added antibiotics or hormones

4.1 Specific requirements

Calf milk replacers shall comply with the requirements specified in Table 1.

Table 1: Nutrients requirements in dry matter basis

S/No.	Parameter	Calf milk replacers	Method of test
1)	Moisture, % Max	12.0	TZS 2478
2)	Crude protein, % Min.	20.0	TZS 2480
3)	Crude fat, % Min.	15.0	TZS 2476
4)	Crude fibre, % Max.	0.3	TZS 2472

S/No.	Parameter	Calf milk replacers	Method of test
5)	Calcium, % Min.	0.6	TZS 2487
6)	Phosphorus, % Min.	0.5	ICP/AAS
7)	Vitamin A, I.U/kg, min	3 800	ISO 14565
8)	Vitamin D, I.U/kg, min	600	AOAC
9)	Vitamin E, I.U/kg, min	300	TZS 2489

5.0 CONTAMINANTS

5.1 Calf milk replacers shall comply with the maximum limits for heavy metals specified in Table 2.

Table 2: Heavy metals contaminants

S/No	Heavy metal	Limits (mg/kg, max)	Test Method (see clause 2)
1)	Mercury (Hg)	0.5	ICP/AAS
2)	Lead (Pb)	1.0	TZS 268
3)	Arsenic (As)	2.0	TZS 76
4)	Cadmium (Cd)	5.0	ICP/AAS

5.2 Aflatoxins

Total aflatoxins content maximum limit in calf milk replacers shall be 10 ppb when tested in accordance with TZS 799.

6.0 HYGIENE

6.1 Calf milk replacers shall be prepared under strict hygienic conditions according to TZS 109 (see clause 2).

6.2 Calf milk replacers shall comply with microbiological limits as shown in Table 3;

Table 3: Status for microbiological tolerance in calf milk replacers

S/No.	Microorganism	Status	Test methods (see clause 2)
1.	<i>Salmonella spp</i> 25/g	Absent	TZS 122-1
2.	<i>Escherichia coli</i> cfu/g	Absent	TZS 730-1

7.0 SAMPLING AND TESTS

7.1 Sampling

Sampling of Calf milk replacer shall be done according to TZS 2488 and test samples shall be prepared in accordance with TZS 821 (see clause 2).

7.2 Tests

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

8.0 PACKING, MARKING AND LABELLING

8.1 Packing

Calf milk replacer for sale shall be packed in containers which are of sufficient strength and sufficiently sealed so as to withstand handling without tearing, bursting or falling open during normal handling and transportation. The container shall be clean and free from visible indications of contamination, infection and insect infestation and not previously used.

8.2 Marking and labelling

Calf milk replacers containers shall be marked and labelled in accordance with TZS 538 (see clause 2). In addition, each container shall be legibly and indelibly marked with the following information:

- (i) Name of product;
- (ii) Category of animals for which it is intended;
- (iii) Name and physical address of the manufacturer;
- (iv) Net Weight content in metric unit;
- (v) Batch or code number;
- (vi) Date of manufacture;
- (vii) Expiry date;
- (viii) Instructions for use and storage;
- (ix)** declared proportions of Crude protein, Crude fat and Crude fibre.

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.