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ICS 65.120

DRAFT EAST AFRICAN STANDARD

Compounded cattle feeds — Specification

EAST AFRICAN COMMUNITY

Second Edition 2023

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.

DEAS 75 was prepared by Technical Committee EASC/TC 001, *Animal feeding, feeds and feeding stuffs*.

This second edition cancels and replaces the first edition EAS 75:2000, which has been technically revised.

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.

Introduction

To achieve efficient animal production, all nutrients should be provided in amounts necessary to meet the animal's nutritional requirements. The formulation of balanced diets that provide the correct amounts and proportions of these nutrients is essential to support the requirements for maintenance and production. Nutrient requirements become defined accurately through research trials so as to formulate diets more precisely. The standards presented in this document give the restrictions required for the prevention of poor animal performance.

Feeds may be produced by mixing various feeding stuffs or ingredients which may themselves vary in composition. The choice of raw materials mixtures will depend on locality, season and availability, economics, prices, quality and safety of the product. The chemical composition of feedstuffs plays an important role in formulation of balanced and economical rations for various classes of animals. This is only possible when knowledge of the chemical composition of feedstuffs is available. Studies on the nutritive value of feed stuffs available in the East African region show differences between analytical values.

Compounded cattle feed — Specification

1 Scope

This draft East African Standard specifies supplementary feed requirements, method of sampling and test for compounded cattle feed which include feed for calves, weaners, dairy, beef and draught cattle.

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

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 6654, *Animal feeding stuffs — Determination of urea content*

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

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

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

ISO 14718, *Animal feeding stuffs — Determination of aflatoxin B_1 content of mixed feeding stuffs — Method using high-performance liquid chromatography*

ISO 17375, *Animal feeding stuffs — Determination of aflatoxin B_1*

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*

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*

3 Terms and definitions

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

3.1 dairy
cattle
cattle especially bred and kept for milk production

3.2
beef cattle
cattle bred and kept for meat production

3.3
draught cattle feed
feed designed for cattle kept for draught power

3.4
calf starter feed
feed fed to calves from the 2nd week of age through transitional phase up to weaning. In this phase all nutritional requirements of the calf are met by liquid milk and /or milk replacer

3.5
calf feed
feed suitable for fully ruminating calves and young growing cattle, gradually replacing calf starter feed after recovery from the stress of weaning.

3.6
dairy feed
feed suitable for lactating dairy cows and designed to provide the nutritional requirements for milk production

3.7
beef feed
feed designed for beef animal for the purposes of fattening

3.8
weaners feed
feed designed for young dairy cattle between age 3 to 8 months

3.9
young stock feed
feed fed to young stock from weaning i.e., 12 weeks onwards. The calf at this time derives most of its nutrients from forage.

3.10
standard feed
Feed for animals producing up to 20 litres of milk per day. The animal at this phase is fully developed ruminant, deriving nearly 90% of nutrient requirements from ruminal microbial digestion with concentrate supplementation dependent on milk yield levels.

3.11
high yielder feed
feed for animals producing more than 20 litres of milk per day. The nutritional requirements of high yielders are quantitatively and qualitatively high, as are management levels

4 Requirements

4.1 General quality requirements

4.1.1 All ingredients and raw materials shall not be decomposed or deteriorated and shall comply with the relevant East African standards. The common feed stuffs described in Annex A and their nutrient composition provided in Annex B may be used for purposes of formulating compounded cattle feeds.

4.1.2 Bone meal, blood meal and meat meal from ruminants shall not be used in cattle feed. Other animal origin ingredients shall be sterilised before use.

4.1.3 Where soy bean meal is used, it shall have been subjected to adequate heat treatment to reduce the activity of trypsin inhibitor.

4.1.4 Vitamin preparations added to feed shall be in stabilised form.

4.1.5. Cattle feeds shall:

a) be in form of a meal, cubes or pellets;

b) be free from harmful levels of substances such as metallic objects, and adulterants;

c) be free from fungi, pathogenic microorganisms or insect infestation; and

d) not be musty, rancid and shall not have any objectionable odours.

4.2 Specific requirements for cattle feeds

4.2.1 The level of free fatty acids in feeds should not exceed 15 % of the crude fat content at the time of manufacture.

4.2.2 Non-protein nitrogen shall not contribute more than the equivalent of 5 % of the total crude protein of high energy urea feed (ISO 6654).

4.2.3 Nutrient and quality requirements of cattle feed shall be as given in Table 1 when tested in accordance with the methods specified therein. Compounded cattle feed may contain additional micronutrients and when added shall comply with the limits provided in Annex C and labelled as such.

Table 1 — Specific nutritional requirements for cattle feed

Requirement	Calf starter feed	Calf feed	Weaner feed	Dairy cattle fee	Beef cattle feed	Draught cattle feed	Test method
Moisture content, %, max.	13	13	13	13	13	13	ISO 6496
Metabolizable energy, MJ/Kg DM,[b] min.	12	12	11.5	11.5	10.5	10.5	ISO 9831
Crude protein, %, min.	18	16	17	16	14	14	ISO 5983-1,
Crude fat, %, max.	8	8	8	8	8	8	ISO 6492
Crude fibre, %, max.	8	8	12	12	12	12	ISO 6865
Calcium, %, min.[a]	0.7	0.9	1	1	0.8	0.8	ISO 6490-1 ISO 6869
Total Phosphorus, %, min [a]	0.5	0.60	0.6	0.6	0.6	0.6	ISO 6491
Sodium chloride, %, min.	0.5	0.5	0.5	0.5	0.5	0.5	ISO 6495
Acid insoluble ash, %, max.	4	4	4	4	4	4	ISO 5985

[a]The calcium/phosphorus ratio shall be maintained between 1:1 and 2:1.
[b] DE=GE*0.85, ME=DE*factor (f).
For feed with < 3% fat ME = DE*1.01 – 0.45,
For feed with ≥ 3% fat ME = (DE*1.01 – 0.45) + (0.0046*EE% -3)
EE is ether extracts (fat)

5 Feed additives and provisions related to their use

5.1 All the additives, preservatives etc. used in the feeds shall be only the ones recommended by the World Organization for Animal Health (OIE).

5.2 Additives in the following categories may be used in cattle feeds and if used, they shall comply with the requirements given in Annex D.

a) antioxidants;

b) emulsifiers;

c) stabilisers;

d) thickeners and gelling agents;

e) binders;

f) enzymes;

g) anti-caking agents and coagulants; and

h) aromatic and appetising substances.

NOTE Materials intended for mixing with animal feed as additives for use as feeding stuffs should specify the kind of and, if appropriate the age group of the animal for which the feed is intended. In addition the quantity in grams per kilogram (or percentage by weight) of the complete feed which conform to the provisions of this standard should be stated in the label.

5.3 No antibiotic, hormone substance, drug or mineral shall be added to or included in a feed other than such ingredients required to satisfy this standard and approved by World organization for animal health (OIE).

6 Anti-nutritive factors

Cattle feeds shall not contain anti-nutritive factors beyond the limits as prescribed by World Organization for Animal Health (OIE).

7 Contaminants

7.1 Aflatoxins

Cattle feeds shall comply with the maximum aflatoxin limits stated in the Table 2 when tested in accordance with the methods specified therein.

Table 2 — Maximum tolerable limits for aflatoxin in cattle feeds

S/N	Aflatoxin	Type of cattle feed	Maximum limit, µg/kg	Test method
i.	Total aflatoxin	Calf starter and calf feed	100	ISO 16050
		Weaner, dairy cattle, beef cattle and draught cattle feed	300	
ii.	Aflatoxin B1	Dairy cattle feed	5	ISO 14718 ISO 17375
		Calf starter and calf feed	10	
		Weaner, beef cattle and draught cattle feed	50	

7.2 Pesticide residues

Cattle feeds shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for the ingredient used in cattle feed.

7.3 Heavy metals

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

Table 3 — Heavy metal limits for cattle feeds

S/N	Heavy metal	Maximum limit (mg/kg)	Test method
i)	Arsenic	2.0	ISO 27085
ii)	Lead	5.0	
iii)	Cadmium	1.0	
iv)	Mercury	0.1	

8 Packaging

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

9 Labelling

Each package of cattle feeds shall be legibly and indelibly labelled with the following:

a) name of the feed;

b) name and physical address of the manufacturer;

c) net weight in metric units;

d) manufacturing date;

e) Storage instruction and

f) expiry date.

The following information shall be included on the bag and may also be includedon a tag:

a) proportions of crude protein, energy, crude, fibre, crude fat, phosphorus and calcium
b) additives if included shall be declared;
c) batch number/ lot identification
d) directions and precautions for use

10 Sampling

Samples shall be drawn in accordance with ISO 6497.

Annex A
(informative)

Description of common feedstuffs

Product	Description	Main nutritional constituent
1. Alfalfa meal	Alfalfa as grown, dried and processed, and to which no other matter has been added	Crude protein, crude fibre
2. Barley meal	The meal obtained by grinding barley, as grown, which shall be the whole grain together only with such other substances as may reasonably be expected to have become associated with the grain in the field.	Crude protein, crude fibre
3. Bean meal	The meal obtained by grinding commercially pure leguminous beans (other than soya bean).	Crude protein, crude fibre
6. Brewery anddistillery grains	The product obtained by drying the residue from distillery mash-tube, and to which no other matter has been added	Crude fibre, crude protein
7. Cassava, dried	The dried root of the species *Manihot esculenta*	starch
8. Clover meal	Clover as grown, dried and processed and to which no other matter has been added	Crude protein, crude fibre
9. Coconut cake	The residue resulting after part removal of oil and of cortex from commercially pure coconut kernels	Crude protein crude fibre
10. Cotton seed cake	The residue resulting after part removal of oil and of cortex from commercially pure cotton seed	Crude protein, crude fibre
11. Sorghum meal	The meal obtained by grinding sorghum as grown which shall be the whole grain together only with such substances as may reasonably be expected to have become associated with the grain in the field.	Crude protein, crude fibre, starch
12. Fish meal	A product, which may contain an added antioxidant but to which no other matter has been added, obtained by drying and grinding or otherwise treating fish or fish waste.	Crude protein, oil, total ash
13. Grass, meal	Any product which, (i) is obtained by artificially drying any of the following: grass, clover, lucerne, green cereal, or any mixture consisting of any of them, and (ii) is otherwise as grown (that is to say including any growths harvested there with but with no other substance added thereto), and contains not less than 13 % crude protein calculated on the assumption that it contain 10 % moisture.	Crude protein, crude fibre
14. Groundnut cake	The residue resulting after part removal of oil and part of non-removal of cortex from commercially pure groundnuts	Crude protein, Oil, crude fibre

Product	Description	Main nutritional constituent
15. Maize	Maize kernel or crushed maize kernel as grown for commercial purposes	Crude protein, starch
16. Maize germ meal	Consisting mainly of embryo of kernel not less than 10 % oil, and not more than 5 % ash	Crude protein, starch
17. Maize and cob meal	Ground maize on the cob	Crude protein, oil, crude fibre
18. Maize meal	Milled whole maize	Crude protein, oil, starch
19. Maize gluten meal	A by-product resulting from removal of a bran starch and germ from maize	Crude protein, oil,
21. Milk powder/milk replacer	Dried milk from which a substantial amount of fat has been removed and to which no other substance is added	Crude protein
22. Millet	Finger millet of the species *Eleusine coracana*	Crude protein, orudefibre, starch
23. Mineral mixture	Mixture of substances used whether in the form powder or licks and purporting to be essential for livestock	Percent of the mineral and trace elements
24. Molasses	A concentrated syrup product obtained in the manufacture of sugar from sugar cane to which no other matter has been added	Sugar as sucrose
25. Oats, ground	The product obtained by grinding commercially pure oats	Crude protein, crude fibre
26. Pea meal	The meal obtained by grinding or crushing commercially pure peas including pods	Crude protein, crude fibre
27. Rice bran	The outside husk or rice kernel to which no other matter has been added	Crude protein, crude fibre, oil, starch
28. Rice meal	The product obtained by grinding commercially pure rice after the removal of hulls and to which no other substance is added	Crude fibre, crude protein, oil, starch
29. Rice polishings	The product obtained when polishing kernels after the removal of hulls and bran	Crude protein, oil, crude fibre, starch
30. Sesame cake	The residue resulting after the part removal of oil from commercially pure simsim kernels	Crude protein, oil, crude fibre
31. Soya bean meal	The residue resulting after the part removal of oil from commercially pure soya bean seeds	Crude protein, oil, crude fibre
32. Sweet potatoes	The dried tubers of the species *Ipomea batatas*	Crude protein, crude fibre, starch

33. Wheat meal	The meal obtained by grinding commercially pure wheat as grown and to which no other substance has been added	Crude protein, crude fibre, starch
34. wheat bran	Outside husk of what kernel to which no other matter was added	Crude protein, crude fibre, starch
35. Wheat pollard	A by-product of wheat separated during production of flour not mentioned otherwise in this schedule containing not more than 4 % of other than wheat vegetable substances	Crude protein, crude fibre, starch
36. Yeast dried	The product obtained by drying of yeast or yeast residues, and to which no other matter has been added.	Crude protein

Annex B
(informative)

Nutrient composition of common feed ingredients

Ingredients	DM%	CP%	CF%	Ca%	P%	ME Kcal/kg	Lysine %	Methionine %
Maize	88	8	12	0.17	0.55	3000	0.53	0.29
Maize bran	88	9.4	13	0.04	1.03	2200	0.18	0.21
Maize/cob meal	88	7	8	-	0.30	-	-	-
Rice bran	88	13.5	6.5	0.06	1.43	3000	0.5	0.22
Cassava meal	88	2.8	4.0	0.3	0.05	3000	-	-
Molasses	75	3.0	-	0.75	0.08	2330	-	-
Millet	88	10.5	2.0	0.05	0.40	1392	0.2	0.27
Sorghum	88	9.0	2.1	0.03	0.28	3250	0.2	0.12
Fish meal	88	60.0	1.0	4.37	2.53	2310	4.08	1.70
Cotton seed cake	88	40.0	14	0.20	1.20	968	1.6	0.52
Soya bean meal	88	43.0	6	0.53	0.64	2800	2.84	0.65
Limestone	98	-	-	38.0	-	-	-	-
Oyster shells	98	-	-	35.0	-	-	-	-
Wheat pollard	98	15.0	-	-	-	-	0.60	0.35
Wheat bran	91.4	15.0	12.5	-	1.20	-	0.60	0.35
Sunflower cake	92	35.0	26.7	-	-	-	1.80	1.20
Groundnut cake	93	40.0	7.3	-	-	-	2.00	1.80

Rice polishings	92.5	12.0	4.2	-	-	-	4.0	0.40
Dicalcium phosphate	-	-	-	24	18	-	-	-
Tricalcium phosphate	-	-	-	38	19	-	-	-
Alfalfa hay	87.5	18.9	33.1	-	-	-	-	-
Sugarcane bagasse	90.5	1.7	50.3	-	-	-	-	-
Sesame cake	93	36.1	6.7	-	-	-	-	-
Sugarcane tops	33.5	6.2	29.5	-	-	-	-	-
Whey	90	13.0	1.3	0.97	0.76	3100	-	0.2

Annex C
(normative)

Micronutrients requirements for cattle feeds

If micronutrients are added into the feed, requirements given in Table B.1 shall be complied with and labelled as such.

Table B.1 — Micronutrient requirements of cattle

Nutrient	Calf starter feed		Calf feed		Weaner feed		Dairy feed		Beef cattle feed		Draught cattle feed	
	Min	Max	Min	Max	min	max	Min	Max	Min	Max	min	max
Magnesium, mg/kg	700	-	700	-	700	-	700	-	700	-	700	-
Iron, mg/kg	100	200	100	200	100	200	100	200	100		100	200
Manganese, mg/kg	20	100	20	100	20	100	20	100	20	100	20	100
Copper, mg/kg	10	20	10	20	10	-	10	20	10	20	10	-

Cobalt, mg/kg	0.1	1	0.10	1	0.1	-	0.1	1	0.1	1	0.1	-
Iodine, mg/kg	0.1	-	0.1	-	0.1	-	0.1	-	0.1	-	0.1	-
Selenium, mg/kg	0.1	0.5	0.1	0.5	0.1	-	0.1	0.5	0.1	0.5	0.1	-
Fluorine, mg/kg	-	20	30	30	-	-	-	30	-	50	-	-
Vitamin A, IU/kg	6 000	-	10 000	-	6 000	-	10 000	-	6 000	-	6 000	-
Thiamine, mg/kg	4	-	-	-	4	-	-	-	-	-	4	-
Riboflavin, mg/kg	7	-	-	-	7	-	-	-	-	-	7	-
Niacin, mg/kg	25	-	-	-	25	-	-	-	-	-	25	-
Pantothenic acid, mg/kg	12	-	-	-	12	-	-	-	-	-	12	-
Pyridoxine, mg/kg	5	-	-	-	5	-	-	-	-	-	5	-
Biotin, mg/kg	0.1	-	-	-	0.1	-	-	-	-	-	0.1	-
Choline, mg/kg	400	-	-	-	400	-	-	-	-	-	400	-
Vitamin B_{12}, mg/kg	0.02	-			0.02						0.02	
Vitamin D_3,	600		1		600		1 000		600		600	

Nutrient	Calf starter feed		Calf feed		Weaner feed		Dairy feed		Beef cattle feed		Draught cattle feed	
	Min	Max	Min	Max	min	max	Min	Max	Min	Max	min	max
mg/kg			000									
Vitamin E, mg/kg	3	-	3	-	3	-	3	-	-	-	3	-
Vitamin C, mg/kg	350	-	-	-	350	-	-	-	-	-	350	-
Antioxidant (BHT)[1)], mg/kg	125	150	125	150	125	-	125	150	125	150	125	

Annex D
(normative)

Recommended additives used in cattle feeds

D.1 Requirements for antioxidants in cattle feed

Cattle feeds shall contain no added antioxidant other than an antioxidant of a name or description specified in the first column of the table below or any other antioxidant as shall be approved by OIE, where an antioxidant is added should not exceed the maximum content, if any, specified in the second column of the Table D.1.

Table D.1 — Requirements for antioxidants in cattle feeds

Name of additive	Maximum content in complete feedstuff, mg/kg
L-Ascorbic acid Sodium L-ascorbate Calcium di (L-ascorbate) 5,6-Diacetyl-L-ascorbic acid 6-Palmitoyl-L-ascorbic acid Tocopherol-rich extracts of a natural origin Synthetic alpha-tocopherol Synthetic gamma-tocopherol Synthetic delta-tocopherol	GMP
Propyl gallate Octyl gallate Dodecyl gallate	100, singly or in combination
Butylated hydroxyanisole (BHA)	150

D.2 Requirements for emulsifiers, stabilisers, thickeners and gelling agents

D.2.1 General

Cattle feeds shall contain no added emulsifier, stabiliser, thickener or gelling agent other than an emulsifier, stabiliser, thickener or gelling agent of a name or description, specified D.2.2 and D.2.3 or any other emulsifier, stabiliser, thickener or gelling agent as shall be approved by OIE.

D.2.2 Name or description

Lecithins; Alginic acid; Sodium alginate; Potassium alginate; Ammonium alginate Calcium alginate; Prophylene glycol alginate (propane- 1,1-diol alginate) Agar; Carrageenan; Furcellaran; Locust bean gum (carob gum); Tamarind seed flour Gurar gum (gua flour); Tragacanth; Acacia (gum Arabic); Zanthan gum;

Dglucitol (sorbitol); mannitol; Glycerol; Pectins; microcrystalline cellulose; Methylcellulose; Ethylcellulose; Hydroxylpropylcellulose;Hydorxyprophylmethylcellulose; Ethylmethlcellulose; Carboxymethylcellulose;sodium salt; Sodium, potassium and calcium salts or edible fatty acids alone or in mixtures, derived from edible fat or distilled fatty acids Monoacyl and diacylglycerols esterified with the following acids: (a) acetic (b) lactic (c) citric (d) tartaric (e) monoacetylatartaric and (f) diacetyltartaric.

D.2.3 Sucrose esters or fatty acids

D.2.3.1 The following sucrose esters fatty acids may be added to cattle feeds:

a) mixture of sucrose esters of monocyl and diacylglycerols (sucroglycerides, polyglycerides);

b) polyglycarol esters ofnonpolymerised edible fatty acids;

c) propylene glycol esters of fatty acids (propane -1,2- diol esters of fatty acids);

d) stearoyl-2-lactylic acid; Sodium stearoy-1,2-lacylate; calcium stearoy-1,2-lactylate;

e) stearoyl-1-tartrate; glycerol poly (ethylene glycol) ricinolcate; dextrans; sorbitan monostearate;

f) sorbitantristearte; sorbitan monolaurate; sorbitan mono-eleate; sorbitanmonopalmitate;

g) partial plyglycerol esters of polycondensed fatty acids of castor oil (polyglycerol polyricinoleate) polyoxyethylene (20) sorbitan monolaurate;

h) polyoxyethylene (20 sorbitanmonopalmitate, polyoxyethylene (20) sorbitan monostearate;

i) polyoxyethylene (20) sorbitantristearate;

j) polyoxyethylene (20) sorbitanmonocleate;

k) polyoxyethylene (20) sorbitantricleate;;

l) polyoxyethylene (8) sorbitan stearate; and

m) polyoxyethylene (40) stearate

D.2.3.2 The emulsifiers, stabilisers, thickeners and gelling agents listed in Table D.2 shall conform to the requirements therein.

Table D.2 — Requirements for emulsifiers, stabilisers, thickeners and gelling agents in cattle feeds

Name or description	Kind of animal	Maximum content in complete feed, mg/kg
Pontst sodium triphoshate	Calves	5 000
Polyethlene glycol esters of fatty acids from soya oils	Calves	6 000 in milk replacer [a] feeds only
Polyoxyethylated glyceride of tallo fatty acids	Calves	5 000 in milk replacer[a] feeds only
Ester of polyglycerol and of alcohols obtained by the reduction of oleic and palmitic acids	Calves	5 000 in milk replacer

Poly (ethylene glycol) 6 000 Polyoxypropylene- Polyoxyethelene	All animals	300
Polymers (M.W 6 800-9 000)	All animals	50
Propane -1,2-diol	Dairy cows,	12 000
	Cattle for fattening, calves	36 000
[a] Milk replacer feed" means a manufactured feed used as a substitute for natural nilk.		

D.3 Requirements for binders, anti-caking agents and coagulants

D.3.1 General

Cattle feeds shall contain no added binder, anti-caking agent or coagulant other than a binder, anti-caking agent or coagulant of a name or description specified in D.3.2.

D.3.2 Name or description

Lignosulphonates; Colloidal silica; Silicic acid, precipitate and dried; Sodium aluminosilicate, Sodium, potassium and calcium stearate; Kaolin and Kaslinitic clays free of asbestos- natural accruing mixtures of minerals containing at least 65 % complex hydrated aluminium silicates whose main constituent in Kasolinite; Bentonite and other montmerillonitee clays; Vermiculite-hydrated silicate of magnesium, aluminium and iron; Citric acid; Kieselguhr (diatomaceous earth, purified); Calcium silicate (synthetic); Natural mixtures of steatite and chlorite free of asbestos.

D.4 Requirements for aromatic and appetising substances

Cattle feeds shall contain no added aromatic or appetising substance other than an aromatic or appetising substance of a name or description specified in Table D.3 and taking account of any such substance which is naturally present, without exceeding the maximum content specified.

Table D.3 — Requirements for aromatic and appetising substances

Name or description	Maximum content in complete feed, mg/kg
Saccharin All natural products and corresponding synthetic products	GMP

