

**Common salt and mineral Supplements for
livestock- Specification**

(Third Revision, 2015)

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1. Ministry of Agriculture Livestock and Fisheries — State Department of Livestock
2. Kenyatta University — Department of Animal Resource
3. Kenya Agricultural Research Institute (KARI)
4. Unga Farm Care EA Ltd.
5. Modern Ways Ltd.
6. Consumer Information Network
7. Department of Veterinary Services
8. AKEFEMA-Association of Kenya Feed Manufacturers
9. Government chemist department.
10. Pioneer Feeds Ltd
11. Nutrimix (K) Ltd
12. Pembe Flour Mills
13. Coopers (K) Ltd
14. Joeliz Bone meal Ltd.
15. Proctor and Allan (EA) Ltd
16. Kenya Bureau of Standards — Secretariat

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□ Kenya Bureau of Standards, 1997

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(Third Revision, 2015)

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P R E F A C E

This Third Revision of this Kenya Standard has been developed by the Animal Feeds Technical Committee and it is in accordance with the procedures of the Bureau. The standard provides a national specification for common salt and mineral licks for animal consumption.

Minerals are essentially structural and functional elements in animals. They are found in bones, body fluids, body tissues, vitamins, enzymes and amino acids. Minerals are important in physical, chemical and biological functions. Lack of adequate amounts of minerals leads to poor fertility, general emaciation, and affects productivity.

Animals should be fed with minerals in proper proportions and quantities. This is because the ratio of minerals in feeds determines the degree to which individual ingredients are of use or harm to the animal. Excess consumption of some minerals, mostly trace elements, can cause poisoning in animals.

Some of the essential minerals for animals include calcium, phosphorus, potassium, sodium, chloride, cobalt, iodine, manganese and fluorine. Some mineral requirements are met naturally from forages and naturally occurring earth licks. However mineral Licks and compounded feeds are useful sources of supplemental minerals. that can either be organic/biological or inorganic/geological sources. The sources include green plants, earth licks, and compounded feeds. Common salts and mineral licks for animal consumption are useful mineral supplements. Common salt is a useful addition to livestock diet but cannot satisfy the mineral requirements of the animal.

In the preparation of this standard, account was taken of the results and experiences from both research on pasture nutrients and utilization of mineral licks in feeding various animals in different areas.

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

KS 05-229 Specification for edible salt.

KS-2577: 2014 calcium phosphates feed grade — specification

IS 920: 1972 Specification for common salt and cattle licks for animal consumption.

IS 1664: 1968 Specification for mineral mixtures for supplementing cattle feeds.

Acknowledgement is hereby made for the assistance received from these sources.

KENYA STANDARD

**COMMON SALT AND MINERAL SUPPLEMENTS
FOR LIVESTOCK- SPECIFICATION**

1. SCOPE

This Standard prescribes requirements for the composition of common salt and mineral Supplements for livestock.

2. DEFINITION

For the purposes of this standard the following definitions shall apply:

- (i) **Livestock** — Refers to cattle, sheep and goats, camels and equine
- (ii) **Mineral**-a naturally occurring homogenous inorganic solid substance having a definite chemical composition and characteristic crystalline structure colour and hardness.
- (iii) **Common salt** is a crystalline solid predominantly composed of sodium chloride.
- (iv) **Mineral supplements** are concentrated sources of minerals in combination that serve to supplement the daily diet with these nutrients in cases when the intake from food is insufficient. They are presented in granular, powder or block form.
- (v) **Mineral blocks** are mineral supplements presented in a solid form.

3. REQUIREMENTS**3.1 Common Salt — Category 1**

- 3.1.1** Common salt shall be in the form of a crystalline solid; white or pale pink or light grey in colour.
- 3.1.2** Common salt shall not contain any harmful constituents.
- 3.1.3** It shall be free from visible contaminants such as clay, grit or extraneous adulterants and impurities.
- 3.1.4** The salt shall contain not more than 5 per cent by mass of moisture, on as-received basis, when tested according to the method prescribed in KS 63: *.
- 3.1.5** The material dried in accordance with the method prescribed in KS 63 shall also comply with the nutrients requirements given in Table 1.

* Methods of test for animal feedstuffs (*Second Revision*).

3.1.6 Heavy metal contaminants, namely, mercury, lead and arsenic salt in total shall not exceed 10 ppm.

3.1.7 Common salt shall not be represented as a mineral Lick since it cannot satisfy all mineral requirements of the animal.

TABLE 1. REQUIREMENTS FOR COMMON SALT FOR LIVESTOCK CATEGORY 1

SL No	COMPOSITION	REQUIREMENT	METHOD OF TEST
(i)	Sodium chloride content (as NaCl) per cent by mass, min.	90	KS 63
(ii)		6	KS 05-229
(iii)	Other non-harmful salt, e.g. KCl, Na ₂ CO ₃ , MgSO ₄ per cent(max)	1	KS 05-229
	Water insoluble matter, per cent by mass, max.		

NOTE: These requirements are on moisture-free basis.

3.2 Mineral Supplements(powders/granules) — Category 2

3.2.1 Mineral supplements shall be in the form of free flowing powder, crystals or granules.

3.2.2 The supplements shall be free from contaminants such as clay, grit, extraneous adulterants and impurities.

3.2.3 The mineral supplement shall contain not more than 5.0 per cent by mass of moisture, on as-received basis, when tested according to the method in KS 63.

3.2.4 Mineral composition of specified supplements shall comply with requirements given in Table 2.

TABLE 2. NUTRIENT COMPOSITION FOR DIFFERENT TYPES OF MINERAL SUPPLEMENTS FOR LIVESTOCK

<i>Nutrient /ingredient per cent by mass or ppm (mg/kg)</i>	Mature Stock/Beef Cattle	Sheep and Goats for Meat production	Sheep and Goats for Milk production	Growing Stock(cattle)	Bulling heifers/yearlings	Lactating Beef Cows	Lactating Dairy Cows	Dry Dairy Cows	Equines based on 500kg Body Mass	Camels based on 500Kg Body Mass
<i>Based on mineral feeding rate (g/day/animal)of:</i>	100g	5-20g for sheep,25-30g for goats	15-20g for sheep,25-30g for goats	50g for growing calves,100g for up to12mth heifers	100g for 12 months+heifers	100-150g	100-150g	100-150	25-50g depending on work and age	25-50g depending on work and age
<i>Sodium chloride%</i>	20-30	20-30	15-25	20-30	20-30	15-25	15-25	20-30	10-20	10-20
<i>Calcium%(max)</i>	26	26	26	26	26	26	24	5	20	20
<i>Phosphorous%</i>	1 to 3	1 to 3	3-8	3-6	4-8	4-10	6-12	5-10	4-12	4-12
<i>Magnesium%</i>	(max) 1	(max) 1	3-6	3-5	3-5	3-10	3-10	8-15	1-6	1-6
<i>Copper,ppm</i>	800 - 2500	Nil	(max) 1000	1000-2500	1500-3500	1500-2500	1500-3500	1500-3000	800-2500	800-2500
<i>Manganese,ppm</i>	2000- 4000	2000- 4000	3000-5000	2000-4000	2000-4000	3000-5000	3000-6000	3000-5000	2000-5000	2000-5000
<i>Zinc,ppm</i>	3000-5000	3000-6000	4000-6000	4000-6000	4000-6000	4000-7000	5000-8000	5000-8000	3000-8000	3000-8000
<i>Cobalt,ppm</i>	40-100	40-100	60-150	60-100	60-100	60-150	80-200	80-150	(max) 100	(max) 100
<i>Iodine,ppm</i>	100-250	100-250	200-350	200-400	200-400	300-600	300-1000	300-600	25-150	25-150
<i>Selenium,ppm</i>	10-25	10-25	15-30	15-25	15-25	20-35	25-40	25-40	10-30	10-30
<i>Fluorine%(max)</i>	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

NB:

(i) Vitamin B12 may substitute cobalt at a minimum rate of 3000mcg/kg to 100mg/kg cobalt with no upper limit.

(ii) The equine/camel standard is to be applied on a pro-rata basis from 500kg Body Mass in either composition or feeding rate depending upon

KS 458: 2015

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label claims for specific breeds of different body weights

- (iii) Iron and sulphur are present in significant quantities from other sources within the diet and are present in raw materials used in mineral formulation. There is no requirement to include additional iron or sulphur.

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3.2.6 Heavy metal contaminants, namely, mercury, lead and arsenic salt in total shall not exceed 10 ppm.

3.2.7 Ingredients listed in Annex A may be used in the manufacture of mineral supplements for livestock.

3.3 Mineral supplements blocks/bricks (category 3)

3.3.1 Mineral supplement (salt blocks) shall be in form of compressed solid blocks or bricks consisting predominantly but not exclusively of salt.

3.3.2 The supplements shall be free from contaminants such as clay, grit, extraneous adulterants and impurities

3.3.3 The blocks or bricks shall be able to maintain their shape during handling and consumption.

3.3.4 Mineral composition of specified supplements shall comply with the requirements given in table 3.

Table 3. Composition of supplemental salt blocks for livestock (per cent by mass or ppm (mg/kg)).

Nutrient /ingredient	Sheep/goats	General(including but not exclusive to cattle, ,horse, camel e.t.c.)
Based on mineral feeding rate (g/day/animal)of:		
Sodium chloride%	50-98	61-98
Calcium%(max)	3	7
Phosphorous%(max)	1.5	6
Magnesium%(max)	1.5	1
Copper,ppm	Nil	2000(max)
Manganese,ppm	1000-4000	1000-4000
Zinc,ppm	2000-5000	2000-5000
Iodine,ppm	50-250	50-250
Selenium.ppm	10-25	10-25

4. PACKAGING AND LABELLING

4.1 **Packaging** — the salt or mineral supplement shall be packed and supplied in suitable weather-resistant material.

4.2 **Labelling** — The packages shall be securely closed and marked with the following information:

- (i) Name of product;

- (ii) Category and animals for which it is intended;
- (iii) Mineral 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
- (vii). Instructions for use and storage
- (viii) Declaration for unique attributes for custom made products shall be declared on packaging.
- (ix) Feeding rate must be displaced in g/head/day.
- (x) Labels of mineral supplements (salt blocks/bricks) shall not indicate that they can be considered as the sole source of mineral supplementation for target livestock

5. SAMPLING AND TEST METHODS

Representative samples of common salt or mineral licks for animal consumption shall be drawn from the market, factory or anywhere else and the criteria for conformity shall be determined in accordance with the methods prescribed in the standard.

ANNEX A (informative)

INGREDIENTS FOR MINERAL MIXTURES

The following are the ingredients that may be used for compounding mineral mixtures for supplementing livestock feeds.

- Cobalt carbonate
- Common salt
- Copper sulphate
- Copper carbonate
- Copper chelate
- Amino acid chelate of copper
- Dicalcium phosphate, monocalcium phosphate or monocalcium phosphate
- Red oxide of iron
- Iron sulphate
- Lime stock feed
- Calcium carbonate
- Manganese sulphate
- Manganese oxide
- Oyster shell
- Potassium iodate

Calcium iodate
Sodium selenite
Selenium yeast
Zinc sulphate
Zinc oxide
Amino acid chelate of zinc
Magnesium oxide, commonly known as calcined magnesite
Sodium chloride

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