




# Reading the Fine Print: Understanding Mineral Tags

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Among the variety of supplementation options currently available for beef cattle operations, a mineral can be one of the most challenging to select. Mineral tags contain important information regarding the contents of a mineral supplement and are regulated by the Association of American Feed Control Officials (AAFCO). Understanding the information on a mineral tag will aid in the comparison of multiple products and help to ensure the selected mineral product will meet the needs of specific animals.

The standard elements of a mineral tag include:

- 1 Brand Name
- 2 Product Name
- 3 Product Statement And Medication Claim (If Required)
- 4 Guaranteed Analysis
- 5 Ingredient Statement
- 6 Instruction Statement
- 7 Caution And Warning Statement
- 8 Quantity Statement
- 9 Responsible Party Name And Address



**BEEF MINERAL Co.** ①

② **UK Beef IRM Basic Cow-Calf Mineral**

③ **For Beef Cattle on Pasture**

④ **Guaranteed Analysis**

Calcium (Min).....	11.00%
Calcium (Max).....	13.20%
Phosphorus (Min).....	.5.00%
Salt (Min).....	22.00%
Salt (Max).....	25.00%
Magnesium (Min).....	.2.00%
Potassium (Min).....	.0.50%
Cobalt (Min).....	15 ppm
Copper (Min).....	1,600 ppm
Iodine (Min).....	.65 ppm
Manganese (Min).....	5,000 ppm
Selenium (Min).....	.35 ppm
Zinc (Min).....	3,200 ppm
Vitamin A (Min).....	.250,000 IU/lb
Vitamin E (Min).....	.250 IU/lb

⑤ **Ingredients**

Calcium Carbonate, Salt, Monocalcium Phosphate, Dicalcium Phosphate, Processed Grain By-products, Magnesium Oxide, Molasses Products, Hydrogenated Soybean Oil, Potassium Chloride, Manganous Oxide, Manganese Sulfate, Zinc Oxide, Zinc Sulfate, Copper Sulfate Copper Amino Acid Chelate, Sodium Selenite, Selenium Yeast, Brewer's Dried Yeast, Ethylenediamine Dihydroiodide, Calcium Iodate, Cobalt Carbonate, Vitamin A Supplement, Vitamin E Supplement, and Mineral Oil.

⑥ **Instructions for Feeding**

**This mineral meets the University of Kentucky BEEF IRM recommendations for a basic cow-calf mineral.**

Self-feed to beef cattle on pasture in a covered mineral feeder to keep mineral dry. Consumption should be 3 oz. per head per day and will provide the maximum daily intake of 3 mg of selenium per head per day. This 50-lb bag should feed 20 head for approximately 13 days. Minerals should be located near a clean source of drinking water. Feed only according to label directions. This mineral is designed for a specific use in beef cattle on pasture.

**This product has been formulated according to the formulation specifics set by the University of Kentucky.**

For additional information, contact your Beef Mineral Co. representative.

⑦ **CAUTION: Use as directed.** Consumption of selenium should not exceed 3 mg per head daily.

**WARNING:** This product, which contains added copper, should not be fed to sheep or any species with a low tolerance of supplemental copper.

**NET WEIGHT: 50 lbs (22.7kg)** ⑧

Manufactured by:  
Beef Mineral Co. ⑨  
Lexington, KY 40506

Batch #

## 1. Brand Name

This often reflects the name used by the company for marketing the product.

## 2. Product Name

Companies may market a variety of mineral products for the same species. This area denotes the specific product that is in the bag. For custom mineral mixes, this may state the farm name.

## 3. Product Statement And Medication Claim (If Required)

The product statement describes the intended species and class(es) of animals the product is formulated to serve.

Medication claims must clearly state:

- The word “medicated.”
- The name and concentration of each active drug ingredient. Example: Monensin, 1620 g/ton
- The purpose of the medication. Example: Growing cattle on pasture or in dry lot (stocker and feeder; dairy and beef replacement heifers) for increased rate of weight gain and control of coccidiosis

### Calculating medication delivery

The amount of medication will be listed as a concentration and is typically measured in either milligrams (mg) or grams (g) per ton (T). To determine the amount of medication that will be consumed by an individual animal daily, the targeted daily intake must be known. For most free-

choice mineral supplements, this is three or four ounces per head per day.

For example, for a mineral that contains 1,620 grams of Monensin per ton, with a targeted daily intake of three ounces per head per day, the amount consumed per animal daily would be determined as follows:

1,620 grams per ton = 0.81 grams per pound  
1 pound = 16 ounces  
0.81 grams per pound divided by 16 ounces = 0.0506 grams per ounce  
0.0506 grams per ounce multiplied by three ounces = 0.152 grams, or 152 mg

### Veterinary Feed Directive

As of January 1, 2017, the FDA eliminated over-the-counter sale of medicated feeds containing drugs that were deemed medically important for human health. Producers must work with a veterinarian in order to purchase feeds containing medically important antibiotics, such as chlortetracycline (CTC) for control of anaplasmosis.

### 4. Guaranteed Analysis

All units are listed on an as-fed basis. Standard units include:

- Percentage (%), or parts of the whole, expressed in hundredths
- Parts per million (ppm), or milligrams per kilogram
- International units per pound (IU/lb)
- Grams per ton (g/ton)

The guaranteed analysis provides information regarding the minimum and

maximum (when required) concentrations of each mineral or vitamin in a specific product. It is important to note that not all included ingredients are required to appear in the guaranteed analysis.

### 5. Ingredient Statement

All ingredients are listed in order, from greatest inclusion to least. This statement allows the buyer to see more information about the mineral sources, as well as additional ingredients not included in the guaranteed analysis.

Some sources of trace minerals have a greater bioavailability compared to other sources. Increased bioavailability means that more of the mineral consumed by the animal can be used by the animal. Paying attention to mineral sources listed in the ingredients section can help when comparing different mineral products. In general, organic or chelated and hydroxy mineral sources have greater bioavailability than inorganic sources. However, forages and feed stuffs can supply enough of some minerals to make inorganic sources in the supplement adequate for meeting the animal's needs. In Kentucky, cattle are at risk for copper (Cu) and Selenium (Se) deficiencies, so selecting mineral supplements that have organic, chelated, or hydroxy sources of these minerals is recommended. Table 1 lists the ingredient names commonly included in mineral supplements and their classifications.

Mineral	Inorganic	Organic	Hydroxy
Calcium	Limestone		
Phosphorus	Dicalcium phosphate, monocalcium phosphate		
Magnesium	Magnesium oxide, magnesium sulfate		
Potassium	Potassium chloride, potassium bicarbonate		
Cobalt	Cobalt carbonate, cobalt sulfate	Cobalt glucoheptonate	
Copper	Copper sulfate	Copper amino acid complex, copper lysine, copper polysaccharide, copper proteinate	Basic copper chloride
Iodine	Calcium iodate	Ethylenediamine dihydroiodide (EDDI)	
Manganese	Manganese oxide, manganese sulfate	Manganese amino acid complex, manganese methionine, manganese polysaccharide, manganese proteinate	Manganese hydroxychloride
Selenium	Sodium selenate, sodium selenite	Selenium yeast	
Zinc	Zinc oxide, zinc sulfate	Zinc amino acid complex, zinc methionine, zinc polysaccharide, zinc proteinate	Zinc hydroxychloride

**Table 1.** Mineral names and classifications commonly included in supplements.

## 6. Instruction Statement

Specific instructions are provided on how to feed a specific product. This statement may include information about whether a mineral is free-choice or designed to be mixed with additional feedstuffs. This section may also provide information regarding targeted intake, which affects the formulation, and ultimately the concentrations, found in the guaranteed analysis. For this reason, targeted intake is important to consider when comparing multiple products. For example, supplemental selenium concentrations cannot exceed three milligrams per head per day as regulated by the FDA. As shown in Example 1, this would mean that the maximum amount of selenium included in a three-ounce targeted intake mineral would be 35 ppm. For a four-ounce targeted intake mineral, the maximum amount of selenium that could be included would be 26 ppm.

Sometimes targeted intakes may not be clearly stated on the tag. In this scenario, being able to calculate the targeted intake from the selenium concentration, as shown in Example 2, can be helpful. There are instances when the selenium inclusion is so low, that to reach three milligrams per head per day, the targeted intake might be between seven and eight ounces. This means that cattle will have to consume two to three times as much mineral to meet the selenium provided in a three-ounce targeted intake mineral containing 35 ppm. Additionally, for free-choice products, research has shown that even with three- to four-ounce targeted intakes, cattle often consume below the formulated target. Thus, it may be difficult for cattle to reach these free-choice mineral intakes.

### Example 1. Targeted Intake and Supplement Concentrations

At a three-ounce targeted intake, providing three milligrams of selenium per head per day requires a 35-ppm selenium supplement.

$$\begin{aligned} 35 \text{ ppm} &= 35 \text{ mg/kg} \\ 3 \text{ oz} &= 0.19 \text{ lb} = 0.085 \text{ kg} \\ 35 \text{ mg} \times 0.085 \text{ kg} &= 3 \text{ mg of Se} \end{aligned}$$

At a four-ounce targeted intake, a selenium supplement of 26 ppm is required to get the same three milligrams per head per day.

$$\begin{aligned} 26 \text{ ppm} &= 26 \text{ mg/kg} \\ 4 \text{ oz} &= 0.25 \text{ lb} = 0.113 \text{ kg} \\ 26 \text{ mg} \times 0.113 \text{ kg} &= 3 \text{ mg of Se} \end{aligned}$$

## 7. Caution And Warning Statement

Important health and safety information about the formulation and use of the product is provided.

## 8. Quantity Statement

The total weight of a particular package is given. Most commonly, minerals come in 50-pound bags. The package weight, combined with targeted intakes and the number of cattle that have access to the mineral feeder, can be used to estimate daily mineral intake to ensure cattle are consuming adequate amounts of mineral. Table 2 shows how many days a single 50-pound bag of mineral should last based on targeted intakes and number of head.

## 9. Responsible Party Name And Address

Contact information for the formulator or manufacturer of the product is listed.

### Example 2. Calculating Targeted Intake

If a mineral product contains 12 ppm of Se, but the targeted intake is not clearly stated, the targeted intake can be determined by using the following math.

$$\begin{aligned} 12 \text{ ppm} &= 12 \text{ mg/kg} \\ 12 \text{ mg/kg} \times X \text{ kg} &= 3 \text{ mg of Se} \end{aligned}$$

Divide each side of the equation by 12:  
 $(12 \text{ mg per kg} / 12 \text{ mg per kg}) \times X \text{ kg} = 3 \text{ mg} / 12 \text{ mg per kg of Se}$

Solve for X:  
 $X = 0.25 \text{ kg}$

Convert kilograms to ounces:  
 $0.25 \text{ kg} \times 2.2046 = 0.55 \text{ lb}$   
 $0.55 \text{ lb} \times 16 \text{ oz} = 9 \text{ oz}$   
 The targeted intake in this example is 9 ounces.

Total Head	Days Of Feeding For 50-Lb Bag		
	2 oz targeted intake	3 oz targeted intake	4 oz targeted intake
10	40	26	20
20	20	13	10
30	13	8	6
40	10	6	5
50	8	5	4

**Table 2.** Number of days a 50-pound bag of mineral should last, based on targeted intake and number of head consuming the product.

Although mineral tags are informative, some information that would be beneficial to know when selecting or comparing mineral supplements may not be included on the tag. Information related to proportion of sources is not easily determined from the ingredient statement. As an example, products with chelated trace mineral sources often do not list the percentage of the mineral that is provided from either inorganic or organic sources. This information can be obtained by asking the sales representative. Additionally, in some instances the use of collective feed terms, such as “processed grain by-products,” may limit one’s ability to determine what specific feedstuff is included.

Learning how to interpret a mineral feed tag will improve your ability to select the appropriate product for the correct species and class of livestock. This knowledge will also help assess if intakes are near the product’s targeted intake. For additional information about selecting a mineral supplement, contact your nutritionist or county Extension office.