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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 20802-2006

Feed additive -- Cupric methionine complex (chelate)

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(English Translation)

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Foreword

The first chapter of this standard, Chapter 3 and Chapter 5 is mandatory, the rest are recommended.

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 20802-2006 "feed additive methionine copper." this standard compared with GB/T 20802-2006, the main technical differences are as follows.

--- "Sensory traits" to "appearance and traits", appearance and traits added water-soluble indicators.

--- Removed the molar ratio of 1. 1 methionine copper network (chelate) related content.

--- In the technical indicators added chelation rate indicators.

--- The expression of copper and methionine content by the percentage of the amount of marked changes to copper and methionine content.

--- The molar ratio of 2. 1 methionine copper moisture content from less than or equal to 5% to less than or equal to 2%; the lead content from small Modified to equal or equal to 20 mg/kg at 30 mg/kg; the sieve was sieved from "100% through 0.42 mm (40 mesh) 0.20mm (80 mesh) sieve screenings less than or equal to 20% "was revised to" 0.20mm sieve sieve screen is less than or equal to 20%. "

--- Inspection rules provided for the factory inspection and type inspection.

This standard is proposed and managed by the National Feed Industry Standardization Technical Committee (SAC/TC76).

This standard drafting unit. Chinese Academy of Agricultural Sciences Beijing Institute of Animal Husbandry and Veterinary, Feed Quality Supervision and Inspection Station in Shanghai, Shanghai feed Industrial Standardization Committee.

1 Scope

This standard specifies the requirements of feed additive methionine copper (chelate) compounds, test methods, inspection rules and labeling, packaging, transportation, Storage and shelf life.

This standard applies to methionine (2-amino-4-methylthio-butyric acid) and copper sulfate synthesis molar ratio of 2. 1 methionine copper network (chelation) Compound products.

The molar ratio of 2. 1 methionine copper network (chelate) formula $C_{10}H_{20}N_2O_4S_2Cu$, the relative molecular mass of 359.95 (press

2007 International relative atomic mass meter).

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the

latest edition (including all amendments) applies to this document.

GB/T 601 chemical reagent standard titration solution preparation GB/T 5917.1 forage particle size determination two sieve screening method GB/T 6435 Determination of moisture in feed GB/T 6682 analytical laboratory water specifications and test methods GB 10648 feed label Determination of total arsenic in feedstuffs GB/T 13079-2006 Feedstuffs - Determination of lead - Atomic absorption spectrometry GB/T 13080-2004 GB/T 13080.2-2005 Feed additives - Determination of chelating rate of methionine iron (copper, manganese, zinc) Gel Filtration Chromatography GB/T 14699.1 feed sampling

3.1 Appearance and traits

The methionine copper complex (chelate) with a molar ratio of 2. 1 is a blue-purple powder slightly soluble in water with a slight methionine odor. No caking, hair Mold, deterioration phenomenon.

3.2 Specifications

Feed additive methionine copper (chelate) products should be consistent with the provisions of Table 1.

Table 1 technical indicators

Project Indicators

Copper (Cu) /% ≥ 16.8 Methionine /% ≥ 78.0 Chelation rate /% ≥ 95

Table 1 (continued)

Project Indicators

Moisture /% ≤ 2

Total arsenic (As)/(mg/kg) ≤ 10 Lead (Pb)/(mg/kg) ≤ 20 Particle size (0.20 mm sieve) /% ≤ 20

4 Test methods

CAUTION Some procedures specified in the test methods may result in hazardous conditions and the operator should take appropriate safety and protective measures.

The standard test methods used reagents and water, did not indicate when the other requirements, refer to analytical reagents and GB/T 6682 provisions Three water; all titration analysis standard solution prepared and calibrated according to GB/T 601.

4.1 Sensory test

Take the right amount of sample placed on a white paper, observe the color under natural light, smell its taste.

4.2.1 Reagents and solutions

4.2.1.1

Methanol.

4.2.1.2

Trichloromethane.

4.2.1.3

Dithizone solution in chloroform (10 µg/mL) Weigh 1 mg of dithizone and dissolve in 100 mL of chloroform (4.2.1.2).

4.2.1.4

pyridine.

4.2.2 Identification method

Weigh 1.0g sample, extracted with 25mL methanol (4.2.1.1), filtered, the filtrate was taken 0.1mL, sequentially added dithizone trichloromethane dissolved Liquid (4.2.1.3) 3mL, the test solution shall not appear cloudy, precipitation phenomenon; then add pyridine (4.2.1.4) 0.5mL, blue liquid test solution shall not appear.

4.3.1 Principle

After digestion with nitric acid and hydrochloric acid, the sample was complexed with copper ions with ethylenediaminetetraacetic acid (EDTA) at a pH of 5, Pyridylazo)-2-naphthol (PAN) indicator indicates the end point of the titration, calculated from the volume of disodium ethylenediaminetetraacetate standard solution consumed Copper content.

4.3.2 Reagents and materials

4.3.2.1

Nitric acid.

4.3.2.2

Hydrochloric acid.