

ICS 65.120
CCS B 46



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

GB/T 21034-2007

**Feed additive -- Calcium salt of hydroxyl analogue of
methionine
(English Translation)**

Issued on: October 14, 2017

Implemented on: May 1, 2018

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China, Standardization
Administration of the People's Republic of China**

Table of Contents

Foreword

1 Scope

2 Normative references

3 Requirements

3.1 Appearance and traits

3.2 Specifications

4 Test methods

4.1 Sensory test

4.2 Identification test

4.3 Methionine hydroxy analog calcium salt and methionine hydroxy analog content determination

4.4 Determination of loss on drying

4.5 Determination of calcium

4.6 Heavy metals determination

4.7 Determination of total arsenic

5 Inspection rules

5.1 Group approved

5.2 Sampling methods

5.3 Factory inspection

5.4 Type test

5.5 Determine the method

6 Labels, packaging, transportation, storage

6.1 Label

6.2 Packaging

6.3 Transportation

6.4 Storage

7 Shelf life

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 21034-2007 "feed additive hydroxy methionine calcium." this standard compared with GB/T 21034-2007, the main technical differences are as follows.

- The standard name changed to "feed additive methionine hydroxy analog calcium salt";
- The appearance and traits changed to "This product is white, light gray or taupe powder or granules, a unique stench";
- Increased product methionine hydroxy analog identification method (high performance liquid chromatography);
- Remove the technical indicators in the requirements of granularity;
- Test rules to add a "type test." this standard is proposed and managed by the National Feed Industry Standardization Technical Committee (SAC/TC76).

This standard drafting unit. China Agricultural University, China Feed Industry Association, Novartis (China) Investment Co., Ltd..

1 Scope

This standard specifies the feed additive methionine hydroxy analog calcium salt requirements, test methods, inspection rules and labeling, packaging, transportation Lose, storage and shelf life.

This standard applies to methionine hydroxy analogues and calcium hydroxide as the main raw material feed additive methionine hydroxy analogues Calcium salt.

Chemical name .2-hydroxy-4-methylthiobutyric acid calcium salt;
2-hydroxy-4-methylthiobutyric acid calcium; hydroxy methionine calcium.

Molecular formula $(\text{CH}_3\text{SCH}_2\text{CH}_2\text{CHOHCOO})_2\text{Ca}$.

Relative molecular mass .338.44 (By International Relative Atomic Weight in 2007).

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 603 chemical reagent test methods used in the preparation of preparations and products GB/T 6435 Determination of moisture in feed GB/T 6436 Determination of calcium in feed GB/T 6682 analytical laboratory water specifications and test methods GB/T 9725 chemical reagent potentiometric titration General GB 10648 feed label GB/T 13079 Determination of total

arsenic in feed GB/T 14699.1 feed sampling GB/T 19371.2 feed methionine hydroxy analogues Determination of high performance liquid chromatography

3.1 Appearance and traits

This product is white, light gray or taupe powder or granules, a unique stench.

3.2 Specifications

Technical indicators should be consistent with the provisions of Table 1.

Table 1 technical indicators

Project Indicators

Methionine hydroxy analog calcium salt content (dry basis) /% ≥ 95.0 Methionine hydroxy analog content (dry basis) /% ≥ 84.0

Table 1 (continued)

Project Indicators

Calcium /% 11.0 ~ 15.0 Loss on drying /% ≤ 1.0 Heavy metals (Pb)/(mg/kg) ≤ 20 Total arsenic (As)/(mg/kg) ≤ 2

4 Test methods

Unless otherwise specified, the reagents used are of analytical grade; the water used in chromatographic analysis shall comply with the requirements of Class I water in GB/T 6682, other Test water in line with the provisions of three water GB/T 6682 provisions; reagents and solution preparation should be consistent with the provisions of GB/T 601 and GB/T 603.

4.1 Sensory test

Under natural light conditions, the product is placed on a white porcelain plate and visually identified as light gray or beige particles. Open the package, product Odor in the unique stench.

4.2.1 Reagents and solutions

Anhydrous copper sulfate saturated sulfuric acid solution. Take anhydrous copper sulfate by adding concentrated sulfuric acid until precipitation appears.

4.2.2 Amino acid identification method

Weigh the sample 25mg in a dry test tube, add anhydrous copper sulfate saturated sulfuric acid solution (4.2.1) 1mL, the solution was immediately yellow, and then turn Into

yellow-green.

4.2.3.1 Reagents and solutions

4.2.3.1.1

Standard. Methionine hydroxy analog calcium salt standard (purity 99%).

4.2.3.1.2

methionine hydroxy analog calcium salt standard solution (100mg/L). Weigh methionine hydroxy analog calcium salt standard (4.2.3.1.1) 0.1g (accurate to 0.0001g), add water after ultrasonic solubilization volume to 100mL, take the solution 10mL, water volume to 100mL.

4.2.3.2 Identification method

Weigh the sample 0.1g (accurate to 0.0001g), add water ultrasonic assisted solution volume to 100mL, take the solution 10mL, water to volume 100mL.

According to GB/T 19371.2 determination, the sample solution of methionine hydroxy analog calcium salt solution peak retention time and methionine hydroxyl Analogues calcium salt standard solution (4.2.3.1.2) the same, and the hydroxy analog content $\geq 80\%$.

4.3.1 Reagents and materials

4.3.1.1

Acid solution. Glacial acetic acid. water. concentrated hydrochloric acid = 50 10 3.

4.3.1.2 Potassium bromate - potassium bromide standard titration solution, c (

6KBrO_3

) Is about 0.6 mol/L.

Weigh 17.5g potassium bromate (accurate to 0.0001g) and 112.5g potassium bromide (accurate to 0.0001g), dissolved in water after the volume to 1L. According to GB/T 601 provisions of the method of calibration, this solution stored in a brown bottle, valid for one month.

4.3.2 Equipment

4.3.2.1

automatic potentiometer or pH meter.

4.3.2.2

platinum saturated calomel electrode composite electrode.