

ICS 65.120
CCS B46



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

GB/T 15399-2018

Replacing GB/T 15399-1994

**Determination of sulfur amino acids in feeds - Ion exchange
chromatography**

饲料中含硫氨基酸的测定 离子交换色谱法

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard replaces GB/T 15399-1994 "Ion exchange chromatography method for determination of sulfur-containing amino acids in feed". Compared with GB/T 15399-1994, this standard is subject to the following technical changes as follows:

- The applicable objects in the range increase the concentrate replenishment and increase the limit of quantitation of the method (see Chapter 1);
- Revised the expression of the principle (see Chapter 3, Chapter 3 of the 1994 edition);
- Added phenol to the peroxyacid oxidizing solution (see 4.5, 1994 edition 4.1);
- Give warning when partial sodium sulfite is used as a terminator (see 7.1.2);
- The determination of the resolution of the methionine sulfone and the size of the peak area of the sample (see 7.2);
- Modified the calculation formula in the test data processing (see Chapter 8);
- Added chromatogram of the amino acid mixing standard solution (see Appendix A). This standard is proposed and managed by the National Feed Industry Standardization Technical Committee (SAC/TC76). This standard was drafted. Institute of Agricultural Quality Standards and Testing Technology, Chinese Academy of Agricultural Sciences [National Feed Quality Supervision and Inspection Center (Beijing)], Tongwei Co., Ltd. The main drafters of this standard. Zhao Genlong, Jia Wei, Li Lan, Song Jun, Zhao Yan, Zhang Fengqi. The standard version of the standard is replaced by this standard.
- GB/T 15399-1994. Determination of sulfur-containing amino acids in feed Ion exchange chromatography

1 Scope

GB/T 15399-2018 is the Chinese national standard on determination of sulfur amino acids in feeds - ion exchange chromatography, in the field of agriculture. The /T suffix marks it as

a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 17 September 2018 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 April 2019. Classification: ICS 65.120, CCS B46. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This standard specifies the ion exchange chromatography method for the determination of sulfur-containing amino acids (methionine, cystine and cysteine) in feed. This standard applies to the determination of sulfur-containing amino acids in feed ingredients, compound feeds, concentrated feeds and concentrate supplements. The limit of quantification of cystine (containing cysteine) and methionine was 0.01%.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document. Determination of water-soluble chloride in GB/T 6439 feed

GB/T 6682 Analytical laboratory water specifications and test methods

GB/T 14699.1 Feed sampling Preparation of

GB/T 20195 animal feed samples JJG1064 Amino Acid Analyzer

3 Principle

The sulfur-containing amino acids in the feed are hydrolyzed by performic acid and hydrolyzed to form sulfoalanine and methionine sulfone by ion exchange chromatography. Separation by method, post-column derivatization of ninhydrin, spectrophotometric detection, external standard method for quantification.

4 Reagents or materials

The reagents used were of analytical grade unless otherwise stated.

4.1 Water. It should meet the requirements of Class I water use in GB/T 6682.

4.2 Hydrochloric acid. excellent grade pure.

4.3 Formic acid. The concentration is 88%.

4.4 Sodium hydroxide. excellent grade.

4.5 Formic acid solution I. Mix hydrogen peroxide with formic acid =1, and add phenol in a ratio of 5 mg per ml, and let it sit at room temperature. Set for 1 h, cool in an ice water bath for 30 min. Available now.

4.6 Performic acid solution II. Silver nitrate was added in a ratio of 3 mg per ml to the formic acid solution I (4.5).

4.7 Formic acid solution III. Add appropriate amount of silver nitrate to the formic acid solution I (4.5), the amount of addition per ml is calculated according to formula (1). $mR \geq 1.454 \times m \times CN$ (1) In the formula. mR

---the amount of silver nitrate per milliliter of percarboxylic acid, the unit is milligrams (mg);
CN

---Sodium chloride content in the sample, %; m

--- sample mass in milligrams (mg).