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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 13882-2023

Replacing GB/T 13882-2010

Determination of iodine in feeds

饲料中碘的测定

Issued on: August 6, 2023 **Implemented on: March 1, 2024**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents" Drafting. This document replaces GB/T 13882-2010 "Determination of iodine in feed - Ferric thiocyanate-nitrite catalytic kinetic method" and is consistent with Compared with GB/T 13882-2010, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

a) Increased the quantitative limit of the iron thiocyanate-nitrite catalytic kinetic method (see Chapter 1);

b) Added inductively coupled plasma mass spectrometry (see Chapter 4);

c) The preparation method of iodine standard working solution has been changed (see 5.2.10,

4.10 of the.2010 edition);

d) Changed the dry ashing method (see 5.5.1,

7.1.1 of the.2010 version);

e) Deleted the wet method (see

7.1.2 of the.2010 version);

f) The drawing of the iodine standard working curve has been changed (see 5.5.2.1,

7.2.1 of the.2010 version);

g) Changed precision (see 5.7, Chapter 9 of the.2010 edition). Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents. This document is proposed and coordinated by the National Feed Industry Standardization Technical Committee (SAC/TC76). This document was drafted by: Guofang Wuhan Scientific Research and

Design Institute Co., Ltd., Sichuan Well Testing Technology Co., Ltd., Hubei Provincial Animal Science and Technology Co., Ltd. Institute of Drug Control, Sichuan Provincial Grain Quality Monitoring Center, Chengdu Shuxing Feed Co., Ltd. The main drafters of this document. Zhang Fengping, Huang Changjun, Liu Jun, Qian Fang, Li Fang, Liu Xiaomin, Zhang Yanhong, Li Dexiang, Wang Jun, Yang Jun, Li Guiyou, Wang Boyuan, Du Yan. The previous versions of this document and the documents it replaces are as follows:

---First published as GB/T 13882-1992 in.1991, revised for the first time in.2002, and revised for the second time in.2010;

1 Scope

GB/T 13882-2023 is the Chinese national standard on determination of iodine in feeds, 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 6 August 2023 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 March 2024. Classification: ICS 65.120, CCS B 46. 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 document describes methods for the inductively coupled plasma mass spectrometry and ferric thiocyanate-nitrite catalytic kinetic determination of iodine in feed. This document is applicable to the determination of iodine in compound feeds, concentrated feeds, concentrate supplements, additive premixed feeds and feed raw materials. The detection limit of the inductively coupled plasma mass spectrometry method in this document is

0.05 mg/kg, and the quantitation limit is

0.10 mg/kg. Ferric thiocyanate-nitrite The detection limit of the catalytic kinetic method is 0.10mg/kg, and the quantification limit is 0.20mg/kg.

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document.

GB/T 6682 Specifications and test methods for water used in analytical laboratories

GB/T 20195 Preparation of animal feed samples

3 Terms and definitions

There are no terms or definitions to be defined in this document.

4 Inductively coupled plasma mass spectrometry (arbitration method)

4.1 Principle The iodine in the sample is extracted with tetramethylammonium hydroxide (TMAH) solution, and measured with an inductively coupled plasma mass spectrometer. Qualification of mass number 127 (mass-to-charge ratio, m/z) is carried out based on the intensity ratio of the mass spectrum signals of iodine element and internal standard element being proportional to the concentration of iodine element. Quantitatively, determine the iodine content in the sample.

4.2 Reagents or materials Unless otherwise specified, use only high-grade pure reagents.

4.2.1 Water. GB/T 6682, Level 1.

4.2.2 Extraction solution. Measure.200mL of 25% TMAH solution, dilute with water, adjust the volume to 500mL, and mix well.

4.2.3 Dilute the solution. Pipette 5mL of 25% TMAH solution, dilute with water, adjust the volume to 500mL, and mix well.

4.2.4 Iodine standard stock solution (1mg/mL). Weigh potassium iodate (KIO3, CAS No.. 7758- 05-6, reference reagent) 0.1685g, or weigh potassium iodide (KI, CAS No.. 7681-11-0, reference reagent) dried in a silica gel desiccator for 24 hours. 0.1308g, dissolve in water, transfer to 100mL brown volumetric flask, dilute to volume with water, mix well. Store in brown bottle, 2°C~8°C Save, valid for 3 months. Or purchase certified reference materials.

4.2.5 Iodine standard intermediate solution I (10μg/mL). Accurately transfer 1mL of iodine standard stock solution (4.2.4) into a 100mL brown volumetric flask , dilute the solution (4.2.3) to volume, and mix evenly. Ready for immediate use.

4.2.6 Iodine standard intermediate solution II (100ng/mL). Accurately transfer 1mL of iodine standard intermediate solution I (4.2.5) into 100mL brown volume