ICS 65.120
CCS B 46

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 45104-2024

Determination of gross energy of feeds-Bomb calorimetric method

饲料总能的测定 氧弹量热法

Issued on: December 31, 2024 **Implemented on: July 1, 2025**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed and coordinated by the National Feed Industry Standardization Technical Committee (SAC/TC76).

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Determination of total energy of feed - Oxygen bomb calorimetry

1 Scope

This document describes the oxygen bomb calorimetric method for the determination of gross energy in feeds.

This document applies to the determination of gross energy of compound feeds, concentrated feeds, concentrate supplements and feed ingredients.

2 Normative references

GB/T 6682

GB/T 10647

GB/T 20195

3 Terms and definitions

The terms and definitions defined in GB/T 10647 apply to this document.

4 Principle

The heat generated by the complete combustion of the sample in an oxygen bomb with an oxygen pressure of 2.8MPa~3.0MPa causes the temperature of the calorimetric system to change.

Calculate the total energy based on the temperature change.

5 Reagents or materials

5.1 Water. GB/T 6682, grade 3 water.

5.2 Benzoic acid calorific value standard substance/standard sample.

5.3 Metal wire. Nickel-chromium wire with a diameter of 0.16 mm to 0.20 mm, or other suitable wire with good thermal characteristics during combustion.

5.4 Cotton thread. no wax, uniform thickness.

5.5 Oxygen. purity not less than 99.995%.

5.6 Combustion-supporting matrix. quantitative filter paper, lens cleaning paper, combustion bags, etc.

6 Instruments and Equipment

6.1 Analytical balance. accuracy 0.1 mg.

6.2 Electric constant temperature drying oven. temperature control accuracy 103°C±2°C.

6.3 Fully automatic calorimeter.

6.4 Combustion dish. Made of platinum, nickel-chromium steel or quartz. Bake at 103°C±2°C for 30min before use and place in a desiccator for later use.