

ICS 67.060
CCS X 11

LS

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

LS/T 6135-2018

**Inspection of grain and oils. Determination of lead in cereals.
Diluted acid extraction coupled with graphite furnace atomic
absorption spectrophotometer**

(English Translation)

Issued on: April 9, 2018

Implemented on: July 1, 2018

Issued by: National Grain and Material Reserves Administration

Table of Contents

- Foreword
- 1 Scope
- 2 Normative references
- 3 Principle
- 4 Reagents and solutions
 - 4.1 Reagents
 - 4.2 Reagent preparation
 - 4.3 Standards

Foreword

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

This standard was proposed by the National Grain and Material Reserve Bureau.

This standard is under the jurisdiction of the National Grain and Oil Standardization Technical Committee (SAC/TC270).

This standard was drafted. Scientific Research Institute of the State Grain Administration, Standard Quality Center of the State Grain Administration, and Grain Quality Supervision of the Ministry of Agriculture and Rural Affairs.

Testing Center, Hunan Grain and Oil Product Quality Monitoring Center, Tianjin National Grain Quality Monitoring Center, Hebei Grain and Oil Quality Testing Center, Ji Linshui Cereals and Oils Hygiene Inspection and Monitoring Station, Shanghai National Grain Quality Monitoring Center, Xiamen Grain and Oil Quality Supervision Station, Wuhan Cereals, Oils and Foodstuffs Center Inspection station, Harbin sub-station of Heilongjiang Provincial Cereals and Oils Hygiene Inspection and Monitoring Station, Changchun City Cereal and Oil Hygiene Inspection and Monitoring Station, Shanxi Grain Quality Monitoring Heart, Sichuan Grain and Oil Center Monitoring Station, Guizhou National Grain Quality Monitoring Center, Yunnan National Grain Quality Monitoring Center, Jilin Zhongliang Grain and Oil Quality Supervision Center Co., Ltd., Jiangxi Zhongliang Grain Quality Testing Center, Beijing Agricultural Product Quality Testing and Farmland Environmental Monitoring Technology Research Center.

1 Scope

This standard specifies the principle, reagents and solutions, instruments and equipment for the determination of lead in grains by dilute acid extraction-graphite furnace atomic absorption spectrometry.

Analyze steps, result calculations, and precision.

This standard applies to the determination of lead in grain, grain and milled products such as wheat, corn and rice.

The detection limit of lead in this standard is 0.016 mg/kg, and the limit of quantification is 0.054 mg/kg.

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.

Preparation of standard solution for GB/T 602 chemical reagent impurity determination
GB/T 5490 General rules for grain and oil inspection GB/T 5491 Inspection of food and oil materials, sample method GB/T 6682 Analytical laboratory water specifications and test methods

3 Principle

After the sample is pulverized, lead is extracted by shaking with dilute nitric acid, and determined by graphite furnace atomic absorption spectrometry. The standard curve method is used to calculate the lead element in the sample.

content.

4 Reagents and solutions

Note: Unless otherwise stated, all reagents are of analytical grade and water should meet the requirements of Class I water in GB/T 6682.

4.1 Reagents

4.1.1

Nitric acid (HNO₃). excellent grade pure.

4.1.2

Palladium nitrate $[\text{Pd}(\text{NO}_3)_2]$ hydrate. purity is 99.9%.

4.2 Reagent preparation

4.2.1 0.5% nitric acid solution (volume fraction). Take 0.5mL nitric acid (4.1.1) to a volume of 100mL.

4.2.2 1% nitric acid (volume fraction). Take 1.0 mL of nitric acid (4.1.1) to a volume of 100 mL.

4.2.3 5% nitric acid solution (volume fraction). Take 5.0 mL of nitric acid (4.1.1) to a volume of 100 mL.

4.2.4 100 mg/L palladium nitrate. 0.1 g of palladium nitrate was dissolved in 0.5% nitric acid solution (4.2.1) and made up to 1000 mL.

4.3 Standards

The lead standard solution has a mass concentration of 1000 mg/L (or 500 mg/L) and can also be prepared according to the method specified in GB/T 602.