

HJ

INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

HJ 761-2015

**Solid waste. Determination of organic matter. Ignition loss
method**

固体废物 有机质的测定 灼烧减量法

(English Translation)

Issued on: October 22, 2015

Implemented on: December 1, 2015

Issued by: Ministry of Ecology and Environment

Table of Contents

Foreword

1 Determination of organic matter in solid wastes by burning reduction method

2 Normative references

3 Terms and definitions

4 Principle of the method

5 Instruments and equipment

6 Samples

6.1 Sampling

6.2 Sample preparation

27 Analysis steps

Foreword

To implement the Environmental Protection Law of the People's Republic of China and the Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste this standard is formulated to protect the environment, protect human health, and regulate the monitoring methods of organic matter in solid waste.

This standard specifies the method for determining the burning loss of organic matter in solid waste.

This standard is the first release.

This standard was formulated by the Science and Technology Standards Department of the Ministry of Environmental Protection.

This standard is mainly drafted by. Dalian University of Technology, Yuxing Technology Development (Shenzhen) Co., Ltd., China Environmental Protection Union the Environmental Protection Technology Standards Research Committee and Beijing Shengbang Tianye Technology Co., Ltd.

This standard is verified by. Yingkou Environmental Monitoring Center Station, Shenyang Environmental Monitoring Center Station, and Anshan City Environmental Monitoring Xinzhan, Liaoyang Environmental Monitoring Center Station, Panjin Environmental Monitoring Center Station, Benxi Environmental Monitoring Center Station.

This standard was approved by the Ministry of Environmental Protection on October 22, 2015.

This standard has been implemented since December 1, 2015.

This standard is explained by the Ministry of Environmental Protection.

1 Determination of organic matter in solid wastes by burning reduction method

Warning. All the heating processes involving solid waste in the experiment must be completed in the fume hood, and the operation should be carried out as required.

Wear protective gear.

1 Scope of application this standard specifies the method for determining the organic matter content of solid waste by the ignition reduction method.

This standard applies to the determination of organic matter content in solid waste such as agricultural waste, domestic waste, kitchen waste, sludge, etc.

When the sampling amount is 0.5 g, the detection limit of this method is 0.04%, and the lower limit of detection is 0.16%.

2 Normative references

The contents of this standard refer to the following documents or their terms. For undated references, the valid version is appropriate.

Used in this standard.

HJ/T 20 Technical Specifications for Sampling and Sample Preparation of Industrial Solid Waste
CJ/T 313 Domestic waste sampling and analysis method

3 Terms and definitions

Organic matter of solid waste Refers to organic matter that exists in various forms of carbon in solid waste. It includes residues of various animals and plants, microorganisms and various products thereof which are decomposed and/or synthesized.

4 Principle of the method

The organic matter in the solid waste can be regarded as the weight loss of the dried sample at $(600 \pm 20) ^\circ\text{C}$.

5 Instruments and equipment

5.1

Analytical balance. Accuracy is 0.0001 g.

5.2

High temperature muffle furnace. The temperature can be controlled at $600\text{ }^{\circ}\text{C} \pm 20\text{ }^{\circ}\text{C}$.

5.3

Electrothermal drying oven. The temperature can be controlled at $105\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$.

5.4

Dryer. Contains a desiccant.

5.5

Porcelain crucible. 30 ml in volume, covered.

6.1 Sampling

Performed in accordance with HJ/T 20 or CJ/T 313.

6.2 Sample preparation

When preparing the organic matter analysis sample, use the tweezers to remove the inactive substances such as plastics and stones in the air-dried sample, and grind to all passed through a 0.25 mm aperture sieve, mixed and placed in a grinding bottle and stored at room temperature for testing.

27 Analysis steps

7.1 Burn the porcelain crucible (5.5) in a muffle furnace at $600\text{ }^{\circ}\text{C} \pm 20\text{ }^{\circ}\text{C}$ to constant weight (the difference between two consecutive weighings is not large) at 0.001 g).

7.2 Weigh the sample (6.2) 1 g (accurate to 0.0001 g), tile it in porcelain crucible (7.1), cover the lid halfway, and then place it Place in an electric drying oven (5.3), bake at $105\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ for 1 h, remove and transfer to a desiccator to cool to room temperature and weigh.

Repeat the above steps for inspective drying for 30 min each time until constant weight.

7.3 Weigh the dried sample (7.2) 0.5 g (accurate to 0.0001 g), tile it in porcelain crucible (7.1), cover the crucible, then Then put it into the muffle furnace, after the temperature rises to $600\text{ }^{\circ}\text{C}$, burn it at $600\text{ }^{\circ}\text{C} \pm 20\text{ }^{\circ}\text{C}$ for 3 h, remove it and then in the air.

After cooling for about 5 minutes, it was transferred to a desiccator, cooled to room temperature, and weighed. Repeat the above steps for an inspection burn, each time 30 min, until constant weight.

8 Calculation and representation of results

8.1 Calculation of results the organic matter content w in the sample is calculated according to formula (1).

10010 x=

Mmw (1)

In the formula.

W-dry organic matter content, %;

Om - the weight of the sputum and dried samples, g;

1m - ?? and the weight of the dried sample after burning, g;

M-the mass of the dried sample, g;

100-unit conversion multiple.

8.2 Results representation when the organic matter content in the solid waste is less than 1%, the result is retained to two decimal places, when the test result is greater than or equal to at 1%, the calculation retains three significant digits.

9 precision

Six laboratories measured 12.6%, 33.3%, and 58.3% of actual samples, respectively, and the relative standard deviation in the laboratory.

They are. 3.1% to 5.0%, 1.1% to 2.7%, 1.0% to 2.8 %; the relative standard deviations between laboratories are.

4.1%, 1.3%, 0.8%; repeatability limits. 1.5%, 1.8%, 3.5%; reproducibility limits. 1.5%, 2.0%, 3.8%.

10 Quality Assurance and Quality Control Take 10% to 20% of the sample for parallel sample. When the number of samples is less than 10, make at least one parallel sample of the sample.

The relative deviation of the results is not more than 5.0%.

11 Waste treatment

All waste generated during the experiment should be stored in a centralized manner and disposed of in accordance with relevant regulations.