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

GB/T 4757-2025

Replacing GB/T 4757-2013

Methods for the batch-flotation testing of fine coal

煤粉（泥）实验室单元浮选试验方法

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3 Microsyringe (2 units) Volume. 0.25 mL; Graduation. 0.01 mL

4 Microsyringe (only 2 units). Capacity. 0.1 mL; Graduation. 0.002 mL

5 Microsyringes (2 units). Capacity. 0.025 mL; Graduation. 0.0005 mL

6 Electronic balance platform 1. Maximum weighing capacity. 2000g; Sensitivity. 0.01g

8 Large bowls, 50 each, capacity. 3L~6L

9 Medium and small bowls, 50 in total, capacity. 1.5L~2.5L

10 Large measuring cups (2 each) Capacity. 2L

11 Medium measuring cups (2 each) Capacity. 1L

12 Wash bottles (2 each), capacity. 1L

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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 supersedes GB/T 4757-2013 "Laboratory Unit Flotation Test Method for

Powdered Coal (Slurry)" and is consistent with GB/T 4757-2013.

Aside from structural adjustments and editorial changes, the main technical changes are as follows.

- a) The instructions for coal sample preparation have been revised (see 3.1, 3.2, 3.3; 3.1, 3.2, 3.3 in the 2013 edition);
- b) The analytical assays have been modified (see 3.4.1, 2013 version 3.4.1);
- c) The formula for calculating flotation reagent dosage and the units of measurement have been changed (see 5.2, 2013 version 5.2);
- d) The pulp concentration values specified for comparability testing have been changed (see 6.1.3, 2013 version of 6.1.3);
- e) The range of pulp concentration and impeller speed specified for the flotation condition selection test has been changed (see 7.3.1, 2013 version 7.3.1);
- f) A tailings scavenging test method has been added (see 7.4.5);
- g) The reference form for the validation test record form has been revised (see 7.4.6, 7.4.5 of the 2013 version);
- h) The final product testing items in the qualification test have been changed (see 7.5.3, 2013 version 7.5.3).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China National Coal Association.

This document is under the jurisdiction of the National Coal Standardization Technical Committee (SAC/TC42).

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This document was first published in 1984, revised for the first time in 2001, revised for the second time in 2013, and this is the third revision.

1 Scope

This document specifies the coal sample, test equipment and tools, and the coal sample and flotation reagent dosage meter for laboratory unit flotation tests of pulverized coal (slurry).

Calculation, comparability flotation test and flotation parameter test.

This document applies to both bituminous coal and anthracite.

2 Normative references

GB/T 211

GB/T 212

GB/T 213

GB/T 214

GB/T 475-2008

GB/T 477

GB/T 30047

GB/T 30049-2013

GB/T 34164

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4.1 Coal samples taken from coal cores

According to Chapter 5 of GB/T 30049-2013, the particle size of the screened product should be less than 0.5 mm (or the particle size to be introduced into the flotation process).

The coal powder (degree) should be no less than 1 kg in weight.

4.2 Coal samples taken from coal seams or production coal samples

After sieving tests according to GB/T 477, the particles with a size less than 0.5 mm (or the particle size specified in the process flow) in both the natural and crushed grades were selected.

Coal powder of flotation particle size (at least 10 kg) shall be added and mixed in with the raw coal according to its proportion, and its mass shall not be less than 10 kg.

4.3 The feed material is sourced from the flotation process at the coal preparation plant.

Sampling was performed according to the sampling method specified in Chapter 6 of GB/T 475-2008, using flotation feed without any added flotation agents, followed by filtration and drying.

Finally, the total mass shall not be less than 10 kg.

4.4 Analytical Testing and Storage

4.4.1 The following items shall be performed in accordance with the relevant provisions of GB/T 211, GB/T 212, GB/T 213 and GB/T 214 (additions may be made as needed).

Analysis of (plus).

- Moisture (Mad);
- Ash Content (Ad);
- Total sulfur (St,d).

4.4.2 Conduct small sieve tests according to GB/T 477.

4.4.3 After the test coal samples are dried to an air-dry state, they should be stored in a sealed container in a dry place, and the storage time should not exceed [a certain period of time]. 10 months.

5.1 Test Equipment

Flotation machine. 1.5L volume, structural requirements as specified in Appendix A.

5.2 Test Equipment

The experimental equipment is shown in Table 1. Table 1 Test Equipment Serial Number Name Unit Quantity Specification 1 Timing device stage 1; Measurement range. 0 min ~ 10 min; Accuracy. 1 s 2 microsyringes, 0.5 mL capacity, 0.02 mL graduation.

6 Electronic balance platform 1.Maximum weighing capacity..2000g; Sensitivity. 0.01g

7 Forced-air drying oven, temperature adjustable from 0°C to 300°C.

6.1 Calculation of the mass of the test coal sample

The mass of the test coal sample is calculated according to formula (1). $m = V \times \rho \times 100 - M_{ad} \times 100$ (1) In the formula.

m --- Mass of the coal sample used in the experiment, in grams (g);

V --- Volume of the flotation tank, in liters (L);

ρ --- Pulp mass concentration, in grams per liter (g/L);

M_{ad} --- Air-dried moisture content of the coal sample used in the experiment (%)

6.2 Calculation of Flotation Agent Dosage

When necessary, the amount of flotation agent can be converted according to formula (2)