

ICS 75.160



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

GB/T 17664-1999

**Wood charcoal and test method of wood charcoal
(English Translation)**

Issued on: September 29, 2024

Implemented on: April 1, 2025

Issued by: State Administration for Market Regulation

Table of Contents

Foreword...	3
1 Scope...	5
2 Normative references...	5
3 Terms and definitions...	5
4 Technical requirements...	6
5 Test methods...	7
5.1 Determination of moisture...	7
5.2 Determination of ash...	8
5.3 Determination of volatile matter...	9
5.4 Determination of fixed carbon...	12
5.5 Determination of particles smaller than 10 mm...	12
5.6 Calorific value...	13
6 Inspection rules...	15
6.1 Classification of inspection...	15
6.2 Inspection items...	15
6.3 Batching rules and sampling plan...	15
6.4 Judgment rules...	16
6.5 Statement of judgment results...	16
7 Marking, packaging, transportation, and storage...	17
7.1 Marking...	17
7.2 Packaging...	17
7.3 Transportation...	17
7.4 Storage...	17

1 Scope

This document specifies the technical requirements for charcoal, describes the corresponding test methods, and specifies requirements for inspection, marking, packaging, transportation, and storage.

This document applies to the production, trade, and distribution of charcoal made from biomass raw materials such as wood, bamboo, and straw by carbonization.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 5330 Industrial woven metal wire cloth (square opening series)

GB/T 6678 General principles for sampling chemical products

GB/T 30727 Determination of calorific value in solid biofuels

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

3.1

high-density hard wood charcoal

Charcoal carbonized from hard wood with high density and high hardness.

3.2

hard wood charcoal

Charcoal carbonized from a mixture of hard and soft hard woods.

NOTE: Also known as mixed wood charcoal.

3.3

conifer charcoal

Charcoal carbonized from coniferous woods such as conifer.

3.4

fruit wood charcoal

Charcoal carbonized from a mixture of fruit tree branches and trunks.

3.5

machine-made charcoal

Moulded charcoal made from raw materials such as wood and bamboo processing residues or straw by mechanical extrusion and carbonization.

3.6

chrysanthemum-like charcoal

Rod-shaped charcoal carbonized from burning oak, with a chrysanthemum-like cross-section.

4 Technical requirements

4.1

Appearance. black, rod-shaped or block-shaped solid.

4.2

The technical indicators of charcoal shall comply with the provisions of Table 1 or Table 2.

Table 1 -- Technical indicators of high-density hard wood charcoal, hard wood charcoal, and conifer charcoal

Table 2 -- Technical indicators of fruit wood charcoal, machine-made charcoal, and chrysanthemum-like charcoal

5.1.1 Principle

A specimen of a certain mass is dried at a specified temperature to constant mass, the percentage of the mass lost relative to the original mass of the specimen is determined.

5.1.2.1 Electric thermostatic drying oven. room temperature ~ 200 °C, temperature

control accuracy ± 1 °C.

5.1.2.2 Balance. sensitivity 0.01 g.

5.1.2.3 Weighing bottle.

5.1.3 Test procedure

Perform two tests in parallel.

Crush the specimen into particles smaller than 10 mm, mix quickly, weigh 10 g ~ 20 g of the specimen (accurate to 0.01 g) into a pre-dried and weighed weighing bottle, place it in a drying oven preheated to 105 °C, dry for 2 h ~ 3 h, remove the bottle, place it in a desiccator, cool to room temperature (approximately 30 min), and weigh.

Then perform check tests, each lasting 30 min, until the specimen mass loss is less than 0.01 g or the mass increases. In the latter case, the mass before the increase shall be used as the basis for calculation.

5.1.4 Test data processing

The moisture is expressed as W , as a percentage (%), and calculated according to formula (1).

where.

W - the moisture content, %;

m - the mass of the specimen, in grams (g);

m_1 - the mass of the dried specimen, in grams (g).

The calculation result is expressed as the arithmetic mean of two parallel tests, and the relative deviation shall not exceed 0.5 %.

The results are expressed to one decimal place.

5.2.1 Principle

A dried specimen of a certain mass is ignited and ashed at a specified temperature to constant mass (weighed after cooling), the percentage of the mass of the residue relative to the original mass of the specimen is determined.

5.2.2.1 High-temperature electric furnace. room temperature ~ 1000 °C, temperature

control accuracy ± 5 °C.

5.2.2.2 Electric thermostatic drying oven. room temperature ~ 200 °C, temperature

control accuracy ± 1 °C.

5.2.2.3 Porcelain crucible with a lid. volume 30 mL.

5.2.2.4 Analytical balance. sensitivity 0.0001 g.

5.2.3 Samples

Take at least 10 g of sample to grind, pass all through a 0.25 mm sieve, place it in an oven at 105 °C to dry to constant mass, and place it in a desiccator to cool to room temperature.

5.2.4 Test procedure

5.2.4.1

Place a 30 mL porcelain crucible with a lid in a high-temperature electric furnace, ignite at (800 ± 20) °C to constant mass, cool in air for 5 min, place the crucible in a desiccator, and