

Translated English of Chinese Standard: GB/T26900-2011

Translated by: www.ChineseStandard.net

Wayne Zheng et al.

Email: Sales@ChineseStandard.net

GB

ICS 79.040

B 67

NATIONAL STANDARD
OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 26900-2011

Bamboo charcoal for air-purification
空气净化用竹炭

GB/T 26900-2011 How to BUY & immediately GET a full-copy of this standard?

1. www.ChineseStandard.net;
2. Search --> Add to Cart --> Checkout (3-steps);
3. No action is required - Full-copy of this standard will be automatically & immediately delivered to your EMAIL address in 0~25 minutes.
4. Support: Sales@ChineseStandard.net. Wayne, Sales manager

Issued on: September 29, 2011

Implemented on: December 1, 2011

**Issued by: General Administration of Quality Supervision, Inspection
and Quarantine of the People's Republic of China;**

**Standardization Administration of the People's Republic of
China**

Table of Contents

Foreword	3
1 Scope	4
2 Terms and definitions	4
3 Requirements	4
4 Inspection methods	5
4.1 Determination of moisture content	5
4.2 Determination of ash content	6
4.3 Determination of volatile matter content	8
4.4 Determination of the content of fixed carbon	9
4.5 Determination of formaldehyde adsorption rate	10
4.6 Determination of benzene absorption rate	12
4.7 Determination of TVOC adsorption rate	14
5 Inspection rules	16
6 Logo, package, transportation and storage	18

Foreword

This Standard was proposed by China's State Forestry Administration (SFA).

This Standard shall be under the jurisdiction of National Technical Committee on Bamboo and Rattan of Standardization Administration of China.

The responsible drafting organizations of this Standard: Nanjing Forestry University, Quzhou Minxin Charcoal Co., Ltd, Suichang Wenzhao Bamboo Charcoal Co., Ltd, Anji Jianzhong Bamboo Charcoal Co., Ltd, Zhejiang Fulaisen Zhongzhu Science Co., Ltd, Jiangxi Qingjing Science Co., Ltd, Yuyao Industry & Trading Co., Ltd, Zhejiang Maitanwong Ecology Development Co., Ltd, Suichang Biyan Bamboo Charcoal Co., Ltd, Quzhou JingLi Bamboo Carbon Factory, Quzhou Modern Charcoal Industry Co., Ltd, Suichang Bamboo Charcoal Plant, and Fujian Jian'ou Special Art Bamboo And Wood Co., Ltd.

The chief drafting staffs of this standard: Zhang Qisheng, Zhou Jianbin, Bao Ligen, Chen Wenzhao, Ding Jianzhong, Wang Zhengyu, Xiong Zhijun, Wang Jianyu, Fang Yunjian, Tu Zhilong, Ning Jing, Wu Quansheng, Li Jinming, and Zhou Juan.

Bamboo charcoal for air-purification

1 Scope

This Standard specifies the definitions, requirements, test methods, inspection rules, package, logo, transportation, and storage of bamboo charcoal for air-purification.

This Standard is applicable to bamboo charcoal that purifies formaldehyde, benzene, total volatile organic gas (TVOC), and other harmful gases in the air. And it is not applicable to bamboo charcoal for air-purification through special processing, such as various modified bamboo charcoal.

2 Terms and definitions

The following terms and definitions apply to this Standard.

2.1

Bamboo charcoal for air-purification

Under the conditions of high temperature and limited oxygen (or isolated oxygen), the bamboo is heated through pyrolysis, so as to obtain the black solid.

2.2

Fixed carbon

The remaining effective carbon after the charcoal is burned at high temperature.

2.3

Formaldehyde adsorption rate

A certain mass of dried test sample is placed in adsorption instrument that is fully filled with adsorbent gas. ABSORB for 24h at the constant temperature of 20°C. It [Formaldehyde adsorption rate] is the percentage OF the weight-gain of the test sample TO the original test sample's mass.

3 Requirements

3.1 Appearance: black, odorless, tasteless, amorphous solid.

4.3 Determination of volatile matter content

4.3.1 Method summary

At the temperature of $(850\pm 20)^{\circ}\text{C}$, test sample with certain mass is heated for 7min with isolation from the air. The percentage OF lost mass TO the original test sample's mass is the volatile matter content. If obvious sparks are generated in the experiment, the experiment shall be redone.

4.3.2 Instruments

4.3.2.1 Porcelain crucible: Height: 40mm; diameter of upper mouth: 30mm; bottom outer diameter: 18mm; cover outer diameter: 35mm; groove outer diameter: 29mm; external groove depth: 4mm.

4.3.2.2 High temperature electric furnace: Provided with temperature control device that can maintain at the temperature of $(850\pm 20)^{\circ}\text{C}$.

4.3.2.3 Crucible holder: Made of nichrome wire. Crucible's size does not exceed the limit of constant temperature region in the high temperature furnace. And MAKE the bottom of the crucible on the shelf of the crucible to be 10mm - 15mm from the bottom of the furnace.

4.3.2.4 Analytical balance: with sensitivity of 0.1mg.

4.3.2.5 Stopwatch or time clock.

4.3.2.6 Dryer: with desiccant (Not-deliquescent bulk-shape calcium chloride or silica gel) in it.

4.3.3 Operating methods

WEIGH 1g (accurate to 0.1mg) of test sample that has been crushed and gone through 0.25mm (60-mesh) sieve. PLACE in the porcelain crucible that has been burned to constant weight at $(850\pm 20)^{\circ}\text{C}$. COVER the crucible. Gently SHAKE to make the test sample spread out. PLACE it on the crucible shelf. Then, quickly PLACE it into the high temperature electric furnace that has been pre-heated to 850°C . The crucible locates above or below the measurement point of the thermocouple. CONTINUE to heat it for 7min. The temperature of furnace drops at the beginning, but shall be restored to $(850\pm 20)^{\circ}\text{C}$ within 3min. If there are obvious sparks, it shall be redone.

Finally, TAKE the crucible out and PLACE it on the porcelain plate. COOL it in the air for 5min. PLACE it in a dryer and COOL it to the room temperature. And WEIGH it.

4.3.4 Result calculation

CALCULATE the volatile matter content determination results of bamboo charcoal for air-purification by formula (3):

$$V = \frac{m_1 - m_2}{m_1} \times 100\% \quad \text{..... (3)}$$

Where:

V — Volatile matter content of test sample, %;

m_1 — Mass of test sample, in unit of gram (g);

m_2 — Mass of test sample after heating, in unit of gram (g);

4.3.5 Allowable errors

The errors of 2 parallel determination results of volatile matters shall not exceed 0.5%.

4.4 Determination of the content of fixed carbon

4.4.1 Method summary

CALCULATE the fixed carbon content BY the mass of dried bamboo charcoal MINUS its ash content and volatile matter content.

4.4.2 Instruments

4.4.2.1 The ash content test instrument, same as 4.2.2.

4.4.2.2 The volatile matter content test instrument, same as 4.3.2.

4.4.3 Operating methods

4.4.3.1 CRUSH the analysis test sample until all can go through the 0.25mm-sieve (60 meshes). DRY to constant weight at the temperature of 102°C~105°C. The mass of the test sample shall not be less than 30g, for the use of testing the ash content and volatile matters.

4.4.3.2 The operating method of determination of ash content is shown in 4.2.3.

4.4.3.3 The operating method of determination of volatile matter content is shown in 4.3.3.

4.4.4 Result calculation

CALCULATE the fixed carbon content determination results of bamboo charcoal for air-purification by formula (4):

- 1 — The specified position in the adsorption instrument;
- 2 — Grating.

Figure 1 Special determinator for gas adsorption of bamboo charcoal

4.5.3.2 Electrothermal constant-temperature drying oven: with automatic temperature control device, and with blower or natural ventilation device.

4.5.3.3 Climate box: 1m³.

4.5.3.4 Weighing bottle: 60mm × 30mm.

4.5.3.5 Analytical balance: with sensitivity of 0.1mg.

4.5.3.6 Dryer: with desiccant (Not-deliquescent bulk-shape calcium chloride or silica gel) in it.

4.5.4 Operating methods

WEIGH 1g (accurate to 0.1mg) of test sample that has been crushed and gone through 0.25mm (60-mesh) sieve. PLACE in the weighing bottle that has been constant-eight in advance. The thickness of the test sample in the bottom of the weighing bottle shall be well-distributed.

Then PLACE the weighing bottle filled with formaldehyde to the specified location in the bottom of adsorption instrument. The volatile capacity of formaldehyde shall be larger than the adsorption capacity of the test sample. Meanwhile, PLACE the weighing bottle filled with test sample to the grating of adsorption instrument. ABSORB for 24h in the climate box at the constant temperature of 20°C. WAIT to be tested. Blank test is conducted simultaneously.

4.5.5 Result calculation

4.5.5.1 The formaldehyde adsorption rate can be expressed by %, and calculated by formula (5):

$$X = \frac{m_2 - m_1 - m_3}{m} \times 100\% \quad \dots\dots\dots (5)$$

Where:

X — Formaldehyde adsorption rate of bamboo charcoal, %;

m₁ — Mass of test samples before adsorption AND weighing bottle, in unit of gram (g);

m₂ — Mass of test samples after the adsorption of 24h AND weighing bottle, in unit of

Where:

B — TVOC adsorption rate of bamboo charcoal, in unit of milligram per gram (mg/g);

X — TVOC adsorption rate of the bamboo charcoal, %.

4.7.6 Allowable errors

The errors of 2 parallel determination results of the TVOC adsorption rate shall not exceed 0.3%.

5 Inspection rules

5.1 Inspection classification

5.1.1 Ex-factory inspection

5.1.1.1 Bamboo charcoal for air-purification products shall be qualified by the inspection department in the factory according to the method specified in this Standard, accompanied by a certificate of product quality to leave the factory. The inspection items are: moisture content, formaldehyde adsorption rate, benzene adsorption rate, and TVOC adsorption rate.

5.1.1.2 Fixed carbon content can be included in the factory inspection items, when it is required by customer.

5.1.2 Type inspection

The type inspection includes all the inspection items listed in Table 1 of Chapter 3.

Type inspection shall be conducted, when there is one of the following conditions:

- a) When the raw materials and the production process are in great change;
- b) When the production is resumed after a long-term shutdown;
- c) At least once every 2 months during normal production;
- d) When quality and technical supervision agency puts forward the request of type inspection.

5.2 Determination of level

5.2.1 If one index in all levels of bamboo charcoal for air-purification test report does not meet the requirements of this Standard, it shall be re-inspected by multi-points sampling. And if one index in re-inspection report does not meet the requirements of this

6 Logo, package, transportation and storage

6.1 Logo

6.1.1 Product packaging shall contain a solid logo. It includes: Product name, number of this Standard, batch number, net weight, level, factory name, factory address, and date of production.

6.1.2 The products of bamboo charcoal for air-purification used for export shall be marked in accordance with the export requirements.

6.2 Package

The interior layer of the package of bamboo charcoal for air-purification shall be sealed and moistureproof. And appropriate external package can be added. It can also adopt other forms of package according to user needs and negotiation by both parties.

6.3 Transportation

During transportation, it shall be prevented from rain, snow, and frost etc. It shall pay attention to loading and unloading. If it is in soft package, it must not use hook to haul.

6.4 Storage

Bamboo charcoal for air-purification shall be stored in a cool, ventilated and dried warehouse. KEEP away from fire source and PREVENT from exposing to the sun and rain. And the warehouse shall not have any toxic and harmful gas. New fired bamboo charcoal shall be packaged, stacked and shipped after spreading-out for 3 days.

_____ **END** _____

This is an excerpt of the PDF (Some pages are marked off intentionally)

Full-copy PDF can be purchased from 1 of 2 websites:

1. <https://www.ChineseStandard.us>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Select your country (currency), for example: USA (USD); Germany (Euro).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Tax invoice can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with download links).

2. <https://www.ChineseStandard.net>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Add to cart. Only accept USD (other currencies - <https://www.ChineseStandard.us>).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with PDFs attached, invoice and download links).

Translated by: Field Test Asia Pte. Ltd. (Incorporated & taxed in Singapore. Tax ID: 201302277C)

About Us (Goodwill, Policies, Fair Trading...): <https://www.chinesestandard.net/AboutUs.aspx>

Contact: Wayne Zheng, Sales@ChineseStandard.net

Linkin: <https://www.linkedin.com/in/waynezhengwenrui/>

----- The End -----