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**Bamboo charcoal for air-purification
(English Translation)**

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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.

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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 adsorbtion 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.

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.

4.3.2.1 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.

4.3.2.6 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±20)°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).

Where.

V - Volatile matter content of test sample, %;

m1 - Mass of test sample, in unit of gram (g);

m2 - 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%.

4.4.1 Method summary

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

4.4.3.1 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.

4.4.3.3 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).