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

GB 29215-2012

**National food safety standards -- Food additives -- Plant carbon
(wood activated carbon)**

食品添加剂 植物活性炭(木质活性炭)

(English Translation)

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1 Scope

This standard is applicable to vegetable additives prepared by physical or chemical methods such as wood chips, bamboo, coconut shells or shells.

Charcoal (wood activated carbon).

2.2 Relative molecular mass

12.01 (according to 2007 International Relative Atomic Quality)

3.1 Sensory requirements

Shall comply with the provisions of Table 1.

Table 1 sensory requirements

The project requires a test method Color black State powder or particles Take the appropriate amount of sample in a 50mL beaker and look under natural light Color and state

3.2 Physical and chemical indicators

Shall comply with the provisions of Table 2.

Table 2 Physical and chemical indicators

Item Index Test Method Iodine Adsorption Value (in dry basis)/(mg/g) ≥ 400 GB/T 12496.8
Sulfate Ash (on dry basis), w /% ≤ 7.0 Appendix A A.4 Cyanide through test GB/T
12496.14 Advanced Aromatic Hydrocarbons Pass Test Appendix A A.5 Water Solids (on a
dry basis), w /% ≤ 4.0 Appendix A A.6 Arsenic (As) (dry basis)/(mg/kg) ≤ 3 Appendix A
A.7 Lead (Pb) (dry basis)/(mg/kg) ≤ 5 Appendix A A.8 Appendix A Testing method A.1

Warning Some of the reagents used in the test methods of this standard are toxic or corrosive and should be operated with appropriate safety and protective measures.

A.2 General provisions the reagents and water used in this standard, when not specified in other requirements, refer to the analysis of pure reagents and GB/T 6682-2008 in the provisions of the three Water level. Standard titration solution used in the test, the standard solution for the determination of impurities, preparations and products, without any other requirements, GB/T 601, GB/T 602, GB/T 603. The solution used refers to an aqueous solution when it is not specified with any solvent formulation.

A.3 Identification test A.3.1 Reagents and materials A.3.1.1 Hydrochloric acid solution. 5%.

A.3.1.2 Iodine solution. Dissolve 14.0 g of iodine and 36.0 g of potassium iodide in 100 mL of water, add 3 drops of hydrochloric acid, dilute to 1000 mL with water, Shake well.

A.3.2 Identification method Take about 3.0g sample, placed in 10mL hydrochloric acid solution containing iodine bottle, boil and keep for 30s, cooled to room temperature, add 100mL Iodine solution, plug the stopper, strong shaking 30s. With medium-speed qualitative filter paper filter, discard the original filtrate 20mL, the filtrate transferred to 50mL colorimetric Tube to the scale, compared with the reference solution, the color should not be deeper than the reference solution.

Reference solution. with a pipette to remove 10mL of iodine solution placed in 50mL colorimetric tube, diluted with water to the mark, shake.

A.4 Determination of Sulfate Ash A.4.1 Reagents and materials A.4.1.1 Ammonium carbonate.

A.4.1.2 Sulfuric acid.

A.4.1.3 Sulfuric acid solution. 1 19.

A.4.2 Instruments and equipment A.4.2.1 porcelain crucible. 30mL.

A.4.2.2 High temperature furnace. can control the temperature at $800\text{ }^{\circ}\text{C} \pm 25\text{ }^{\circ}\text{C}$.

A.4.3 Analysis steps Approximately 0.5 g of the sample was weighed to 0.0002 g and placed in a porcelain crucible at a constant temperature of $800\text{ }^{\circ}\text{C} \pm 25\text{ }^{\circ}\text{C}$ until a constant mass was added.

Into a sufficient amount of sulfuric acid solution, infiltration of all samples. Placed on the hot plate slowly heated until the sample is dry and fully carbonized, continue to heat straight to all samples volatilize or almost all of the charcoal is oxidized and cooled to room temperature. Add 0.1mL sulfuric acid wetting residue, according to the above way to continue to add Heat until the residue and excess sulfuric acid are evaporated, in order to promote the evaporation of sulfuric acid in the addition of sulfuric acid residue to add a few pieces of ammonium carbonate. Continue on $800\text{ }^{\circ}\text{C} \pm 25\text{ }^{\circ}\text{C}$ to a constant mass.

A.4.4 Calculation of results the mass fraction w_1 of sulfate ash is calculated according to formula (A.1) $w_1 = \frac{m_1 - m_2}{m} (100\% - w_4) \times 100\%$ (A.1) where.

m_1 --- the mass of the residue after ignition and the crucible, in grams (g);

m_2 --- the mass of the crucible, in grams (g);

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

w_4 --- mass fraction of dry reduction as measured in Appendix B, %.

The experimental results are based on the arithmetic mean of the parallel measurement results. The absolute difference between the two independent determinations obtained under repeatability conditions the value is not greater than 0.5%.

A.5 Advanced Aromatic Hydrocarbon Test A.5.1 Reagents and materials A.5.1.1 Cyclohexane.

A.5.1.2 Quinine sulfate standard solution. 1mL solution containing quinine sulfate $[(C_{20}H_{24}N_2O_2)_2 \cdot H_2SO_4]$ 0.1 μ g.

Weigh 1.048g of quinine sulfate $[(C_{20}H_{24}N_2O_2)_2 \cdot H_2SO_4 \cdot 2H_2O]$, placed in a 1000mL volumetric flask, dissolved in sulfuric acid Solution (3 1000), diluted with sulfuric acid solution (3 1000) to the scale, shake. The solution is quinine standard solution I, 1mL dissolved Liquid containing quinine sulfate $[(C_{20}H_{24}N_2O_2)_2 \cdot H_2SO_4]$ 1mg.

Remove 1 mL of quinine sulphate standard solution I with a pipette, place in a 100 mL volumetric flask, dilute with sulfuric acid solution (3 1000) Scale, shake. The solution is quasi-sulfuric acid standard solution II, 1 mL solution containing quinine sulfate $[(C_{20}H_{24}N_2O_2)_2 \cdot H_2SO_4]$ 0.01 mg.

Remove 1 mL of quinine sulphate standard solution II with a pipette, place in a 100 mL volumetric flask, dilute with sulfuric acid solution (3 1000) Scale, shake. The solution is the standard solution of quinine sulfate, 1mL solution containing quinine sulfate $[(C_{20}H_{24}N_2O_2)_2 \cdot H_2SO_4]$ 0.1 μ g, the solution is now ready for use.

A.5.2 Instruments and equipment A.5.2.1 Cable extractor device diagram, see Figure A.1.

A.5.2.2 Colorimetric tubes. 10 mL.

1 --- condenser;

2 - cable extractor;

3 --- filter paper bag;

4 --- flask (50mL).

Figure A.1 Cable extractor device diagram

A.5.3 Analysis steps Weigh the sample that had passed through the 71 μ m test sieve and

dried in accordance with Appendix B, $1.00\text{ g} \pm 0.01\text{ g}$, wrapped in clean filter paper, in a stripper, 12.0 mL of cyclohexane was added to the flask and the device was connected as shown in Figure A.1. The flask was placed in a $90\text{ }^{\circ}\text{C}$ to $95\text{ }^{\circ}\text{C}$ water bath Continued extraction 2h. The extract was cooled and transferred to a colorimetric tube.

The standard solution was prepared by placing 10 mL of the standard solution of quinine sulfate in a colorimetric tube.

Under the UV lamp (365 nm), the sample solution shows the color or fluorescence does not exceed the standard solution for the pass test.

A.6 Determination of water-soluble substance (on a dry basis) A.6.1 Instruments and equipment A.6.1.1 reflux condenser.

A.6.1.2 electric thermostat oven. can control the temperature of $100\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$.

A.6.2 Analysis steps Remove the sample that had passed through the $71\text{ }\mu\text{m}$ test sieve and dried in accordance with Appendix B, approximately 0g, accurate to 0.01g. Placed in a condenser with a reflux condenser Brewed valve in a 250 mL dry flask. Add 100.0 mL of water and several glass spheres, heated to reflux for 1 h. Slightly cool and then use Quick-cut filter paper for dry filtration, discard the original 10mL filtrate. The resulting filtrate was cooled to room temperature. Remove 25 mL of the filter with a pipette the solution was placed in a pan at $100\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ until the mass was constant. The pan was placed on a water bath and evaporated to the filtrate the solution should not boil the solution. Dried at $100\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ until the mass is constant. Retention filtrate A is used for the determination of arsenic.

A.6.3 Calculation of results the mass fraction of water-soluble matter w_2 is calculated according to formula (A.2) $w_2 = \frac{m_1 - m_2}{m} \times \frac{25}{100} \times 100\%$ (A.2) where.

m_1 --- the value of the mass of the residue and the evaporated dish after drying, in grams (g);

m_2 --- the value of the quality of the evaporating dish, in grams (g);

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

25 --- Remove the volume of the test solution in milliliters (mL);

100 - The volume of water added in milliliters (mL).

The experimental results are based on the arithmetic mean of the parallel measurement results. The absolute difference between the two independent determinations obtained under repeatability conditions the value is not greater than 0.3%.

A.7 Determination of arsenic (As) Remove 20.00 mL of the retained filtrate A (A.6.2) and place it as a test solution. The following by GB/T 5009.76 into the Line determination.

A.8 Determination of lead (Pb) A.8.1 Methodological Summary the lead ions in the sample