

Voluntary Report – Voluntary - Public Distribution

Date: April 07, 2023

Report Number: CH2023-0053

Report Name: National Food Safety Standard of Food Additive Vegetable Carbon Notified to WTO

Country: China - People's Republic of

Post: Beijing

Report Category: Sanitary/Phytosanitary/Food Safety, FAIRS Subject Report

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Report Highlights:

On March 6, 2023, China notified an updated National Food Safety Standard of Food Additive Vegetable Carbon to the World Trade Organization (WTO) under G/SPS/N/CHN/1271. The deadline for comment submission is May 5, 2023. The proposed date of entry into force is to be determined. Comments may be submitted by email to China's SPS Enquiry Point at sps@customs.gov.cn. This report provides an unofficial translation of the draft standard.

Summary:

On March 6, 2023, China notified an updated National Food Safety Standard of Food Additive Vegetable Carbon to the WTO under [G/SPS/N/CHN/1271](#). This standard applies to food additive vegetable carbon produced by the carbonization of vegetable raw materials such as wood, bamboo, and coconut shell. It specifies the technical requirements and testing methods for the food additive vegetable carbon.

The notified standard is an update of the current National Food Safety Standard of Food Additive Vegetable Carbon ([GB 28308-2011](#)) (link in Chinese), which went into effect in June 2012. This report provides an unofficial translation of the draft standard.

BEGIN TRANSLATION

National Food Safety Standard of Food Additive Vegetable Carbon

(Open for Comments)

Forword

This standard replaced National Food Safety Standard of Food Additive Vegetable Carbon (GB 28308-2012).

Compared with the GB 28308-2012, this standard is revised as follows:

- Revised the description of the standard scope,
- Modified the relative molecular quality,
- Added particle size indicators,
- Modified the analysis steps for the identification tests,
- Modified the indicator name of Cadmium (Ge) as Cadmium (Cd),
- Modified the indicator name of lead (Pb),
- Added testing methods of lead (Pb), total arsenic (expressed as As),
- Modified testing methods of high-grade aromatics.

National Food Safety Standard of Food Additive Vegetable Carbon

1 Scope

This standard is applicable to food additive vegetable carbon black that has been carbonized and refined from plant raw materials such as wood, bamboo, coconut shells, etc.

2 Chemical name, chemical element symbol, atomic mass

2.1 Chemical name

Carbon

2.2 Chemical element symbol

C

2.3 Atomic mass

12.01 (according to the international relative atomic mass in 2018)

3 Technical requirements

3.1 Sensory requirements

Sensory shall comply with requirements in Table 1.

Table 1: Sensory Requirements

Items	Requirements	Testing Methods
Color	Black	Take an appropriate amount of sample, place the sample in a clean and dried white porcelain dish, then observe its color and status under the natural light, and smell it.
Status	Powder	
Odor	Odorless, no abnormal odor	

3.2 Physical and chemical indicators

Physical and chemical indicators shall comply with requirements in Table 2.

Table 2: Physical and Chemical Indicators

Items	Indicators	Testing Methods
Carbon content (dry basis), w/%	≥ 95	A.3 in Appendix A
Weight loss on drying, w/%	≤ 12.0	A.4 in Appendix A
Ash content, w/%	≤ 4.0	A.5 in Appendix A
Particle size (D10)/ μm	≥ 0.275	GB/T 19077
Alkali-soluble coloring substances	through experiment	A.6 in Appendix A
High-grade aromatics	through experiment	A.7 in Appendix A
Total arsenic (calculated as As)	3.0	GB 5009.76 or GB 5009.11

/(mg/kg)	≤		
Lead (Pb)/(mg/kg)	≤	2.0	GB 5009.75 or GB 5009.12
Cadmium (Cd)/(mg/kg)	≤	1.0	GB 5009.15
Mercury (Hg)/(mg/kg)	≤	1.0	GB 5009.17

Appendix

Testing Methods

A.1 General rules

The reagents and water used in this standard refer to the third-level water specified in the pure reagent and GB/T 6682 if no other specific requirements are mentioned.

Standard titration solution, standard solution, preparations, and products used in impurity experiments shall be prepared according to standards GB/T 601, GB/T 602 and GB/T 603 when other requirements are not indicated. The solution used in the experiment refers to the aqueous solution when not otherwise specified.

A.2 Determination tests

A.2.1 Dissolved tests

A.2.1.1 Instrument and equipment

A.2.1.1.1 Beaker

A.2.1.1.2 Funnel

A.2.1.1.3 Slow qualitative filter paper

A.2.1.1.4 Microporous membrane: 0.2 μm pore diameter

A.2.1.2 Analysis steps

Take 0.1 g of sample, one sample is added to water, and the other is added to 100 mL of the hexane; shake and put aside for 10 minutes to create sample solutions. Use filter paper and membrane to filter the above sample solutions in turn. The filtered fluid should be colorless.

A.2.2 Beaker

A.2.2.1 Instrument and equipment

A.2.2.1.1 Alcohol lamp

A.2.2.1.2 Combustion spoon

A.2.2.2 Analysis steps

The combustion spoon is loaded with a half spoon sample, put combustion spoon on the alcohol lamp to use the outer flames to slowly heat it about 5 minutes, the sample solution will turn into red slowly and not produce flames.

A.3 Determination of carbon content (with dry base)

A.3.1 Instrument and equipment

A.3.1.1 Porcelain

A.3.1.2 High-temperature electric furnace

A.3.2 Analysis steps

Place 1 g (accurate to 0.0001 g) of sample that is heated to $120\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ and dried for 4 hours to a porcelain that is heated to $625\text{ }^{\circ}\text{C} \pm 20\text{ }^{\circ}\text{C}$, then put the porcelain to the high-temperature electric furnace whose temperature is not more than $300\text{ }^{\circ}\text{C}$. Open the porcelain lid to heat the porcelain gradually, burned to ashes on a constant weight at $625\text{ }^{\circ}\text{C} \pm 20\text{ }^{\circ}\text{C}$, repeat heating processes until the differences of the two weights are no more than 0.5 mg.

A.3.3 Results calculation

The mass fraction of carbon content w_1 (with a dry base) is calculated according to the formula (A.1):

$$w_1 = \frac{m - m_1}{m} \times 100 \quad (\text{A.1})$$

m : the quality of the sample, the unit is gram (g),

m_1 : the quality of the ash content (A5.3), the unit is gram (g).

The experimental results are based on the arithmetic mean value of the parallel measurement results (expressed in tenths/.x). The ratio of the absolute difference and the average arithmetic value of measurement results is not more than 5% under repetitive conditions.

A.4 Determination of drying reduction

A.4.1 Instrument and equipment

A.4.1.1 Weighing bottle

A.4.1.2 Thermostatic oven

A.4.1.3 Drying machine

A.4.2 Analysis steps

Take a sample of 2 g (accurate to 0.0001 g) and place it in a weighing bottle that has been dried to a constant weight in a thermostatic oven.

Dry for 4 hours in the thermostatic oven at $120\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$, take out the sample, and cool it in the room temperature in the drying machine.

A.4.3 Results calculation

The mass fraction of weight loss during drying is calculated according to formula (A.2):

$$w_2 = \frac{m_2 - m_3}{m_2} \times 100\% \quad (\text{A.2})$$

m_2 : the quality before the sample is dried, the unit is gram (g),

m_3 : the quality after the sample is dried, the unit is gram (g).

The experimental results are based on the arithmetic average of the parallel measurement results (expressed in hundredths/.xx). The ratio of the absolute difference and the average arithmetic value of the measurement results is not more than 5% under repetitive conditions.

A.5 Measurement of ash content

A.5.1 Instrument and equipment

A.5.1.1 Porcelain

A.5.1.2 High-temperature electric furnace

A.5.2 Analysis steps

Take about 1 g of sample (accurate to 0.0001 g) and place it in a porcelain that has been heated to a constant weight at $625\text{ }^{\circ}\text{C} \pm 20\text{ }^{\circ}\text{C}$. Put the porcelain into a high-temperature electric furnace with temperature no more than $300\text{ }^{\circ}\text{C}$, open the lid and gradually increase the

temperature until it becomes ash at $625^{\circ}\text{C} \pm 20^{\circ}\text{C}$ and maintains constant weight. Repeat the heating processes until the difference of weights for the two measurements is not more than 0.5 mg.

A.5.3 Results calculation

The mass fraction of ash is w_3 , calculated according to formula (A.3):

$$w_3 = \frac{m_1}{m_4} \times 100\% \quad (\text{A.3})$$

m_1 : the quality of ash, the unit is gram (g),

m_4 : the quality of the sample, the unit is gram (g).

The experimental results are based on the arithmetic average of the parallel measurement results (expressed in hundredths/.xx). The ratio of the absolute difference and the average arithmetic value of the measurement results is not more than 5% under repetitive conditions.

A.6 Measurement of alkaline-soluble color substances

A.6.1 Reagent and materials

Sodium hydroxide solution: 40 g/L

A.6.2 Analysis steps

Take about 2g of sample (accurate to 0.0001g), place it in a 100 mL cone bottle, add 20 mL of sodium hydroxide solution, slowly heat the bottle until the solution is boiling. After cooling, use filter paper to filter until the solution becomes colorless.

A.7 Measurement of high-grade aromatics

A.7.1 Reagent and material

A.7.1.1 Cyclohexane

A.7.1.2 Sulfuric acid solution (3+1000)

A.7.2 Reagent preparation

Cyclohexane standard solution I (1 mg/mL): take 1.048g of cyclohexane standard solution, place it in a 1,000 mL volumetric flask, dissolved in the sulfate acid solution, diluted with sulfate acid solution to the scale, and shake it. The solution weighing 1 mL contains 1 mg of sulfate.

Cyclohexane standard solution II (0.01 mg/mL): take 1 mL cyclohexane standard solution I with a transfer pipet, place it in a 100 mL volumetric flask, dilute it to the scale with sulfate acid solution, and shake well.

Cyclohexane standard reference solution (0.1 $\mu\text{g/mL}$): take 1 mL cyclohexane standard solution II with a transfer pipet, place it in a 100 mL volumetric flask, dilute it to the scale with sulfate acid solution, and shake well.

A.7.3 Instrument and equipment

A.7.3.1 Electronic scale

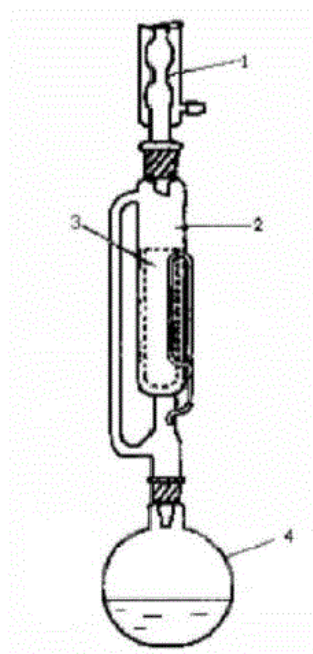
A.7.3.2 Color tube

A.7.3.3 Constant temperature water bath pot

A.7.3.4 UV light: 365 nm

A.7.3.5 Soxhlet extractor: the device is shown in the picture A.1

Picture A.1: Soxhlet extractor device diagram



1: Condensation tube

2: Soxhlet extractor

3: Filter paper

4: Beaker (60mL)

A.7.4 Analysis steps

A.7.4.1 Take about 4g of sample (accurate to 0.0001g), wrap it tightly with clean filter paper, place it in soxhlet extractor, add 40 mL of cyclohexane into the beaker, connect to the device, place the beaker in the water bath continuously at temperature of 90 °C-97 °C for 4 hours for extraction. The extracted solution should be colorless. Combine the extraction solution. After cooling, transfer 10 mL of the solution to the color tube.

A.7.4.2 Place 10 mL of Cyclohexane standard reference solution in another color tube.

A.7.4.3 Observe under UV light (365 nm), if the fluorescent displayed by the sample solution is no more than the fluorescent in the reference solution, it is determined that the sample is qualified by the experiment.

END TRANSLATION

Attachments:

No Attachments.