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LY

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

LY/T 3156-2019

Activated carbon for air purification in car

车内空气净化用活性炭

(English Translation)

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Table of Contents

- Foreword
- 1 Scope
- 2 Normative references
- 3 Technical requirements
- 4 Test method
 - 4.1 Ash
 - 4.2 Moisture
 - 4.3 Iodine adsorption value
 - 4.4 Adsorption value
- 5 Test steps
- 6 Results calculation
 - 6.1 Calculation formula
 - 6.2 Representation of results
 - 6.3 Allowable error
- 7 Inspection rules
 - 7.1 Batch unit
 - 7.2 Sampling rules
 - 7.3 Decision rules
 - 7.4 Expression of judgment results
- 8 Marking, packaging, transportation, storage

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard was proposed and managed by the National Forestry Chemical Product Standardization Technical Committee (SAC/TC558).

This standard was drafted. Forest Products Chemical Industry Research Institute, Chinese Academy of Forestry, Fujian Xinsen Carbon Industry Co., Ltd., Shanghai San Shantan Industry Technology Co., Ltd., Jiangsu Tianlun Activated Carbon Co., Ltd., Jiangsu Pustar Environmental Protection Technology Co., Ltd., Shanghai Activated Carbon Factory Limited company.

1 Scope

This standard specifies the technical requirements, test methods, inspection rules, marking, packaging, transportation, and storage of activated carbon for air purification in vehicles.

This standard applies to activated carbon for car air purification prepared from wood and coal.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article. For undated references, the latest version (including all amendments) applies to this document.

GB/T 6678 General sampling rules for chemical products GB/T 6682 Analytical laboratory water specifications and test methods GB/T 12496.3 Test methods for wooden activated carbon-Determination of ash content GB/T 12496.4 Test methods for wooden activated carbon-Determination of moisture content GB/T 12496.8 Test method for wooden activated carbon-Determination of iodine adsorption value

3 Technical requirements

3.1

Appearance is black granular or powder, tasteless.

3.2

The quality index of activated carbon for vehicle air purification shall meet the requirements in Table 1.

Table 1 Quality indicators

Project indicators

Ash content%, ≤ 20

Moisture%, ≤ 15

Iodine adsorption value mg/g, ≥ 700 Benzene adsorption rate mg/g, ≥ 250 Toluene adsorption rate mg/g, ≥ 260 Xylene adsorption rate mg/g, ≥ 150 Ethylbenzene adsorption rate mg/g, ≥ 180 Styrene adsorption rate mg/g, ≥ 120 Formaldehyde adsorption rate mg/g, ≥ 150 Acetaldehyde adsorption rate mg/g, ≥ 240

4.1 Ash

Determined according to GB/T 12496.3.

4.2 Moisture

Determine according to GB/T 12496.4.

4.3 Iodine adsorption value

Determined according to GB/T 12496.8.

4.4.1 Method summary

Under the specified test conditions, place the sample in an adsorber filled with adsorbent vapor, and adsorb it at a constant temperature of $(25 \pm 1) ^\circ\text{C}$ for 24 h.

The adsorption value of the product is expressed in milligrams per gram of activated carbon (mg/g). The adsorbents are mainly benzene, toluene, xylene, ethylbenzene, Styrene, formaldehyde, acetaldehyde.

4.4.2 Reagents

Benzene (GB/T 690), analytical grade; toluene (GB/T 684), analytical grade; xylene (GB/T 16494), analytical grade; ethylbenzene, Analytical pure; styrene, analytically pure; formaldehyde (GB/T 685), analytically pure, formaldehyde content 37.0-40.0%; acetaldehyde, analytically pure.

4.4.3 Instrument

4.4.3.1

Adsorption apparatus. It is made of colorless glass, and its appearance requires no bubbles and other obvious defects. There should be no obvious fusion at the glass weld. Stacking and wrinkling, the adsorption instrument is connected to the grinding mouth.

The whole adsorption apparatus is a closed container, see Figure 1.

1. Adsorbent front view; 2. Top cover front view; 3. Grill top view

Figure 1 Adsorption apparatus

4.4.3.2

Incubator, temperature range $0 \sim 150 ^\circ\text{C}$, accuracy $\pm 0.5 ^\circ\text{C}$.

4.4.3.3

Tall weighing bottle, 25 mm x 40 mm.

4.4.3.4

Analytical balance with a sensitivity of 0.1 mg.

5 Test steps

Weigh 1 g of dry sample (accurate to 0.0001 g) and immediately put it into a high-type weighing bottle with a constant weight in advance.

Underside.

Measure 100 mL of benzene into the fume hood and add it to the analyzer. Place the tall weighing bottle containing the sample on the grid of the adsorber.

The adsorption instrument was placed in a thermostat at $(25 \pm 1) ^\circ\text{C}$ for 24 h. The high-type weighing bottle was capped, taken out and weighed.

6.1 Calculation formula

The adsorption rate is calculated by the following formula (1).

twenty one

In the formula.

X-adsorption rate, mg/g;

m1-mass of sample and weighing bottle before adsorption, g;

m2-mass of 24 h sample and weighing bottle, g;

m3-weighing bottle mass, g;

6.2 Representation of results

The adsorption value is the arithmetic mean of two parallel tests.

6.3 Allowable error

The absolute difference between two parallel test results of the adsorption value must not exceed 5%.

7.1 Batch unit

The mass of each batch does not exceed 1 kg.

7.2 Sampling rules

7.2.1

Number of samples per batch. implemented according to GB/T 6678. The rules for selecting the number of sampling units are shown in Table 2.