

ICS 67.250
CCS G 31



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

GB/T 24396-2009

Test Method of Adsorption Resin for Food Industrial Use

食品工业用吸附树脂产品测定方法

(English Translation)

Issued on: September 30, 2009

Implemented on: December 1, 2009

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine**

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Foreword

Appendix A of this Standard is an informative appendix.

This Standard was proposed and managed by China National Institute of Standardization.

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Test Method of Adsorption Resin
for Food Industrial Use

1 Scope

This Standard specifies the test method of adsorption resin for food industrial use.

This Standard applies to the determination of appearance, heavy metals and organic residues in adsorption resin for food industrial use that is copolymerized under the action of initiator, of which, the polymeric monomer is styrene, divinylbenzene, acrylics, acrylonitrile, and the pore-foaming agent is toluene or

liquid paraffin.

2.1 Heavy metal detection

In the weak-acidic solution, sodium sulfide precipitates heavy metal ions into the corresponding sulfides; the resulting color is visually compared to the standard color.

2.2 Organic residue detection

The organic residue in the sample is ultrasonically extracted by absolute ethanol; it is injected into the gas chromatograph and carried by the carrier gas into the column for separation; the effluent is detected by a hydrogen flame ionization detector; the content of organic residue is calculated according to the external standard method.

3 Reagents and materials

WARNING. Some of the reagents which are used in this test method are toxic or corrosive; therefore, some test procedures may cause dangerous conditions, and the operator shall take appropriate safety and health measures.

4.10 Pipette. 1 μL ~ 10 μL , 10 μL ~ 100 μL , 100 μL ~ 1 000 μL and 0.5 mL ~ 5 mL.

5.1 Determination of appearance

Place the sample in a clean white porcelain dish; place it in a bright place, and visually inspect it under natural light.

5.2.1 Preparation of test solution

Weigh 2.0 g of sample (dry basis) which is dried at $105^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 2 h; accurate to 0.01 g; place it in the evaporating dish; carbonize it and then burn it at $500^{\circ}\text{C} \pm 25^{\circ}\text{C}$ until the complete ashing; cool it; then, add 2 mL of hydrochloric acid;

5.2.2 Preparation of lead (Pb) standard colorimetric solution

Transfer 2 mL of acetic acid solution into a 50 mL colorimetric tube (matching tube A); add 1.50 mL of lead standard solution; add water to 25 mL, which is the tube B.

5.3.1 Preparation of samples

Place 10 mL of the sample in a centrifuge tube; centrifuge at $2000\text{ r/min} \pm 200\text{ r/min}$ for 5 min. Take the upper layer of the sample from which the surface free water has been removed

5.3.2.1 Preparation of mixed standard solution mother solution

According to the order of styrene, o-xylene, m-xylene, p-xylene, chlorobenzene, toluene, methyl methacrylate, divinylbenzene, 1,2-dichloroethane, benzene, acrylonitrile, weight 0.1 g of each of the above standards (accurate to 0.000 1 g); place in a 100 mL brown volumetric flask; use absolute ethanol to dilute to the mark; shake well.

5.3.3 Determination of standard series solution

Turn on the gas chromatograph and set the chromatographic conditions according to Appendix A. After the baseline is stable, take the series standard solutions which are prepared in 5.3.2.2 for injection analysis; record the peak area of each time; draw the following standard curve.

5.3.4 Determination of the sample

Take the sample solution that is prepared in 5.3.1 for injection analysis; record the chromatographic peak area; according to the concentration range of each residue in the sample, substitute the appropriate standard curve to find the corresponding residue mass concentration ρ ($\mu\text{g/mL}$).

5.3.5 Calculation of analysis result

Calculate the content of residues in the sample according to Formula (1).

Appendix A

(Informative)

Organic residue determination reference gas chromatography operating conditions

According to the used gas chromatograph, adjust the appropriate temperature and flow rate to achieve the proper separation effect. Reference chromatographic conditions are shown as below.

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