



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

GB 31604.5-2016

**Method for analysis of hygienic standard of polypropylene resin
for food packing**

食品安全国家标准 食品接触材料及制品 树脂中提取物的测定

(English Translation)

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Foreword

This Standard replaced the determination of normal hexane extract in GB/T 5009.58-

2003 Method for Analysis of Hygienic Standard of Polyethylene Resin for Food

Packaging; and GB/T 5009.59-2003 Method for Analysis of Hygienic Standard of Polystyrene Resin for Food Packaging, GB/T 5009.71-2003 Method for Analysis of Hygienic Standard of Polypropylene Resin for Food Packing; as well as the determination of extract in GB/T 5009.99-2003 Method for Analysis of Hygienic Standard of Polycarbonate Resin Used as Food Containers and Packagin, GB 13114-

1991 Hygienic Standard for Polyethylene Terephthalate Resin Used as Food

Containers and Packaging Materials.

Compared with GB/T 5009.58-2003, GB/T 5009.59-2003, GB/T 5009.71-2003, GB/T 5009.99-2003, GB 13114-1991, this Standard has the major changes as follows.

--- Modify the standard name into "National Food Safety Standard - Food Contact Materials and Products - Determination of Extract in Resin";

---Modify the standard scope;

--- Modify the determination method.

National Food Safety Standard -

Food Contact Materials and Products -

Determination of Extract in Resin

1 Scope

This Standard specifies the determination of extract in resin of food contact materials and products.

This Standard is applicable to the determination of extract in polyethylene, polystyrene, polypropylene, polycarbonate resin, polyethylene terephthalate resin of food contact materials and products.

2 Principle

The specimen is extracted through extracting solution; vaporize the extracting solution till it is dry; after the residues are dried, use weight method to determine the content of extract in the specimen.

3 Reagents and Materials (Extracting Solution)

Unless otherwise is specified, the reagents used in this Method shall be analytically pure; while water used shall be Class-II water specified in GB/T 6682.

3.2 Reagent preparation (extracting solution)

3.2.1 4% acetic acid solution (volume fraction). weigh 40mL of acetic acid, add 960mL of water, mix evenly.

5.1 Sampling method

Operate as per GB 5009.156.

5.2 Selection of extracting conditions on extracting solution of specimen

Operate as per the corresponding product standard.

5.3.1 Immersion extraction determination

Weigh and place 2g (accurate to 0.1mg) of membrane with cutting area of 6.45cm² into the beaker; add 200mL of extracting solution, place into 50°C (accurate to $\pm 1^\circ\text{C}$) water bath to heat, so that its temperature can reach 50°C (accurate to $\pm 1^\circ\text{C}$);

5.3.2 Reflux extraction determination

Weigh and place 2g (accurate to 0.1mg) of membrane with cutting area of 6.45cm² or resin particles into 500mL all-glass distiller's flask; add 200mL of extracting solution, connect with the condenser tube;

6.1 Analytical results shall be calculated as per mass fraction

The extract in the specimen shall be calculated as per Formula (1).

7 Precision

The absolute difference between the two independent measurement results obtained under repeatability condition shall not exceed 10% of the arithmetic mean.

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