



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

**GB 23200.93-2016**

Replacing SN/T 0123-2010

---

**Food safety national standard -- Determination of  
organophosphorus pesticide residues in foodstuffs by gas  
chromatography-mass spectrometry**

食品中有机磷农药残留量的测定 气相色谱-质谱法

**(English Translation)**

**Issued on: December 18, 2016**

**Implemented on: June 18, 2017**

---

**Issued by: National Health and Family Planning Commission of the  
People 's Republic of China**

## Table of Contents

|                                        |  |
|----------------------------------------|--|
| Foreword                               |  |
| 1 Scope                                |  |
| 2 Normative reference documents        |  |
| 3 Principle                            |  |
| 4 Reagents and materials               |  |
| 4.1 Reagents                           |  |
| 4.2 Solution preparation               |  |
| 4.3 Standards                          |  |
| 4.4 Standard solution preparation      |  |
| 4.5 Materials                          |  |
| 5 Instruments and equipment            |  |
| 6 Preparation and storage of samples   |  |
| 6.1 Preparation of the sample          |  |
| 6.2 Sample storage                     |  |
| 7 Analysis steps                       |  |
| 7.1 Extraction                         |  |
| 7.2 Purification                       |  |
| 7.3 Determination                      |  |
| 8 Results are calculated and expressed |  |
| 9 Precision                            |  |
| 10.1 Quantitation limits               |  |
| 10.2 Recovery rate                     |  |

### Foreword

This standard replaces SN/T 0123-2010 "Determination of organophosphorus pesticide residues in foodstuffs for import and export of animals by gas chromatography-mass spectrometry".

Compared with SN/T 0123-2010, the main changes are as follows.

- Standard text format is modified to national standard text format for food safety;
- the name and scope of the "export food" to "food";

- increase the "other food reference implementation" in the standard range.

This standard replaced the previous version of the standard release.

-SN/T 0123-2010.

National standards for food safety Determination of organophosphorus pesticide residues in foodstuffs by gas chromatography - mass spectrometry

## 1 Scope

This standard provides for the import and export of animal food in the 10 kinds of organophosphorus pesticide residues (dichlorvos, diazine phosphorus, dolphin phosphorus, fenitrothion, Maltophos, chlorpyrifos, fenthion, parathion, ethionophos, and phosphorus) were determined by gas chromatography-mass spectrometry.

This standard applies to the determination and confirmation of organophosphorus pesticide residues in canned beef, pork, chicken, beef and fish.

Goods can refer to the implementation.

## 2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the latest edition (including all modifications) applies to this document.

GB 2763 National Standard for Food Safety - Maximum Residue Limit of Pesticides in Foodstuffs GB/T 6682 Analytical laboratory water specifications and test methods

## 3 Principle

The samples were extracted with water-acetone solution homogenized, dichloromethane liquid-liquid distribution, gel column purification, and then by graphite carbon black solid phase extraction column Purification, gas chromatography - mass spectrometry, external standard method.

## 4 Reagents and materials

Unless otherwise specified, the reagents used are analytical pure, water for the GB/T 6682-1992 prescribed a water.

### 4.1 Reagents

#### 4.1.1

Acetone (C<sub>3</sub>H<sub>6</sub>O). Residue level.

**4.1.2**

dichloromethane (CH<sub>2</sub>Cl<sub>2</sub>). residual grade.

**4.1.3**

Cyclohexane (C<sub>6</sub>H<sub>12</sub>). Residue level.

**4.1.4**

ethyl acetate (C<sub>4</sub>H<sub>8</sub>O<sub>2</sub>). residual grade.

**4.1.5**

n-hexane (C<sub>6</sub>H<sub>14</sub>). residual grade.

**4.1.6**

Sodium chloride (NaCl).

**4.2 Solution preparation**

**4.2.1**

anhydrous sodium sulfate. 650 °C burning 4 h, stored in a sealed container in reserve.

**4.2.2**

Sodium chloride aqueous solution (5%). Weigh 5.0 g of sodium chloride, dissolve in water and set to 100 mL.

**4.2.3**

Ethyl acetate - n-hexane (1 1, V/V). Take 100 mL of ethyl acetate and 100 mL of n-hexane.

**4.2.4**

Cyclohexane-ethyl acetate (1 1, V/V). Measure 100 mL of cyclohexane and 100 mL of n-hexane.

**4.3 Standards**

4.3.1 10 kinds of organophosphorus pesticide standards. purity  $\geq$  95%.

**4.4 Standard solution preparation**

**4.4.1**

Standard stock solution. Accurately weigh the appropriate amount of each pesticide standard (see Appendix A), with acetone were prepared into the concentration of 100-1000 g/mL standard stock solution.

**4.4.2**

mixed standard working solution. according to the need to further use acetone diluted to the

appropriate concentration of a series of mixed standard working solution. Save on 4 °C inside the refrigerator.

## **4.5 Materials**

### **4.5.1**

Fluoresa Silica Solid Phase Extraction Column. Florisil, 500 mg, 6 mL, or equivalent.

### **4.5.2**

Graphitized Carbon Black Solid Phase Extraction Column. ENVI-Carb, 250 mg, 6 mL, or equivalent, prior to use with 6 mL of ethyl acetate Pre-leaching.

### **4.5.3**

Organic phase microporous membrane. 0.45 m.

### **4.5.4**

graphitized carbon black. 60-80 mesh.

## **5 Instruments and equipment**

### **5.1**

Gas Chromatography-Mass Spectrometer. Equipped with an electron impact source (EI).

### **5.2**

Electronic balance. 0.01 g and 0.0001 g.

### **5.3**

Gel Chromatograph. equipped with unit pump, fraction collector.

### **5.4**

Homogenizer.

### **5.5**

Rotary evaporator.

### **5.6**

stoppered conical flask. 250 mL.

### **5.7**

separatory funnel. 250 mL.

### **5.8**

Concentrated bottles. 250 mL.