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## **China - Peoples Republic of**

**Post:** Beijing

### **China Announces Standards for Pollen as WTO SPS Notification 1009**

**Report Categories:**

FAIRS Subject Report

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**Report Highlights:**

On November 19, 2015, China notified the WTO of the National Food Safety Standard of Pollen (an update of the GB/T 30359), issued by the National Health and Family Planning Commission (NHFPC) as SPS/N/CHN/1009. This standard applies to granule/particle - like bee pollen and broken bee pollen collected by worker bees, artificially collected pine pollen and pollen products which use pollen as single raw material, made through selection, drying and sterilization. This standard does not apply to wall-broken pollen. The deadline for submission of final comments to China is January 18, 2016. The proposed date of entry is yet to be determined. Comments can be sent to China's SPS Enquiry Point at [sps@aqsiq.gov.cn](mailto:sps@aqsiq.gov.cn). The following report contains an unofficial translation of this draft measure.

**General Information:**

**BEGIN TRANSLATION**

**National Food Safety Standard Pollen**

**Preface**

This standard replaces GB/T 30359-2013 "Bee Pollen", GH/T 1030-2004 "Pine Pollen"

Compared with GB/T 30359-2013, GH/T 1030-2004, this standard has the following changes:

- Changed the name of the standard to "National Food Safety Standard - Pollen";
- Revised the scope;
- Revised the definitions;
- Revised the physical and chemical indexes;
- Revised the microbial limit;
- Added the requirements of identification
- Revised Appendix A.

**National Food Safety Standard Pollen**

1 Scope

This standard applies to the pollen products made by collecting, drying and sterilizing the crumb- (granule-) like bee pollen or broken bee pollen collected and formed by the worker bees and the pine pollen and pollen manually collected as the single raw material.

This standard doesn't apply to the broken-wall pollen.

2 Terms and Definitions

2.1 Pollen

Phanerogamic male reproductive cells.

2.1.1 Bee Pollen

The pollen collected by the worker bees.

2.1.1.1 Single variety of bee pollen

The bee pollen formed by the pollen of one plant collected by the worker bees.

2.1.1.2 Miscellaneous pollen

The bee pollen formed by the pollen collected by the worker bees from two or more types of plants and the mixture of two or more of the above single type of bee pollen.

2.1.1.3 Broken Bee Pollen

The powders formed by the broken bee pollen crumbs.

### 2.1.2 Pine Pollen

The male reproductive cells of the *pinus massoniana* Lamb., *pinus tabulaeformis* Carr. or more types of the same *pinus* plants.

### 2.2 Broken-Wall Pollen

The pollen with wall broken by processing.

## 3 Requirements

### 3.1 Raw Material Requirements

The raw materials shall be in accordance with the corresponding food standards and the relevant regulations.

### 3.2 Sensory Requirements

It shall be in accordance with the requirements in Table 1.

Table 1 Sensory Requirements

Items	Requirements		Inspection Method
	Bee pollen	Pine pollen	
Color	It has the color as the	Yellowish	Take an appropriate sample, place it in a white porcelain plate to observe its color and status, check it for impurities under natural light, smell its odor, and then gargle with warm boiling water to taste its flavor
Taste, smell	It has the taste and smell as the bee pollen should have, without different taste and bad smell	It has the taste and smell as the pine pollen should have, without different taste and bad smell	
Status	Powder or irregular oblate crumb (granule), without insects and mildew, without normally visible foreign matters	Fine powder, lightweight, good fluidity, easy to fly, smooth by twisting with hand, without normally visible foreign matters	

### 3.3 Physical and Chemical Indexes

They shall be in accordance with the regulations in Table 2.

Table 2 Physical and Chemical Indexes

Items	Indexes		Inspection Method
	Bee	Pine	
Moisture/(g/100 g)	10.0	8.0	GB 5009.3(2 <sup>nd</sup> method)

Ash/(g/100 g)	5.0	4.5	GB 5009.4
Protein/(g/100 g)	15.0	9.0	GB 5009.5(1 <sup>st</sup> method)
Pollen rate of single type of bee pollen/(%)	85	-	Inspect according to the regulations in Appendix A
Acidity(expressed in pH value) ≥	4.4	-	Take 20g sample, add 100mL purified water, extract 1.5h in 75°C water bath and take the supernatant fluid after cooled, filtered and centrifuged for 20min; and then measure and record its pH value accurate to 0.02 according to the operating instructions of acidometer or pH meter, the result of pH value shall be expressed in the average of two measurements
Peroxide number (at	0.08	-	GB/T 5009.56

### 3.4 Contaminant Limit

The contaminant limit shall be in accordance with the regulations of GB 2762.

### 3.5 Microbial Limit

The microbial limit of the take-ready-to-eat approved and packaged products shall be in accordance with the regulations in Table 3.

Table 3 Microbial Limit

Items	Sampling Plan <sup>a</sup> and Maximum Limit				Inspection Method
	n	c	m	M	
Total number of colonies /(CFU/g)	5	2	10 <sup>3</sup>	10 <sup>4</sup>	GB 4789.2
Coliform group /(MPN/g)	5	2	4.3	46	GB 4789.3
Mold number/(CFU/g) ≤	2x10 <sup>2</sup>				GB 4789.15
<sup>a</sup> The sampling and processing shall be implemented according to GB 4789.1.					

### 4 Others

For the single type of bee pollen, the type of bee pollen shall be identified in the label.

## Appendix A

### Determination of Pollen Rate of Single Type of Bee Pollen

#### A.1 Apparatuses

A.1.1 Microscope: x10 - x100.

A.1.2 Centrifuge: speed 10 000 r/min.

#### A.2 Reagent

A.2.1 Sulfuric acid and glacial acetic acid (V/V=1:9).

A.2.2 Glycerin (Analytic reagent).

#### A.3 Sample Processing

Take 1g -2g bee pollen and place it in a 15mL graduated centrifuge tube, and add 2 mL mixture of sulfuric acid and glacial acetic acid (1:9) to immerse the pollen. Use a glass rod to crush the pollen and put it into boiling water bath for 5 minutes. Cool it with constant volume of distilled water to 10 mL. Centrifuge it to discard the supernatant, and repeat the centrifuging and washing steps 3 times. Add a few drops of glycerin in the sludge to agitate and mix up. Take 1 drop of it with a glass rod to apply and distribute it on the glass slide, and cover it with a cover glass.

#### A.4 Counting

Take the well processed slide to observe under an x10 or x40 microscope lens. If the pollen cells on the smear is too dense leading to overlap that affects counting, prepare the smear again until the number of pollen cells is 30-100 in each field of vision. Select 5 field areas to count the total number of the pollen cells in the fields and identify the different varieties of pollen referring to the atlas pattern. The ratio of the number of one variety of pollen cells in 5 fields to the total number of all pollen cells in 5 fields is the pollen rate of a single variety of bee pollen. The parallel test should be carried out for each test.

#### A.5 Identification of Bee Pollen

##### A.5.1 Rape (*Brassica campestris*) Pollen

The pollen is yellow. The pollen cells are approximate prolate spheroidal, and are divided by morphological characteristics into turnip, brassica oleracea and mustard. There are three column sheet with 3 obvious germinal furrows in polar view; and they appear round or oval in equatorial view. The polar diameter is about 21  $\mu\text{m}$  and the equatorial diameter is about 20 $\mu\text{m}$ . See figure A.1.

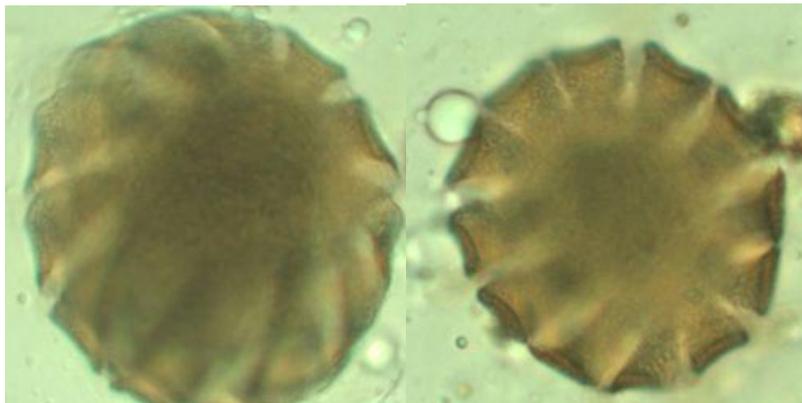


a) Rape pollen in equatorial view (x400) b) Rape pollen in polar view (x400)

Fig. A.1 View of rape pollen cell observed under microscope

#### A.5.2 Sesam (*Sesamum indicum*) Pollen

The pollen is white or brown. The pollen cells appear depressed globose (as a flat squash), and a few are spherical. It is broadly oval in equatorial view and round with 11 - 12 lobes in polar view. There are burl-shape glyphs on surface, viewed from the front as negative reticulum,  $35.3\mu\text{m} \times 40.1\mu\text{m}$ . It has 10-13 germinal furrows with wider gaps. The polar diameter is about  $65\mu\text{m}$ , the equatorial diameter is about  $45\mu\text{m}$ . See fig. A.2.



a) Sesam Pollen in equatorial view (x400) b) Sesam Pollen in polar view (x400)

Fig. A.2 Sesam Pollen Cell observed under microscope

#### A.5.3 Buckwheat (*Fagopyrum esculentum*) Pollen

The pollen is dark yellow. The pollen cell is prolate spheroidal, there are fine mesh glyphs on surface, the cell is oval in equatorial view and round with 3 lobes in polar view. There are 3 obvious germinal furrows observed on the polar plane. The polar diameter is about  $44\mu\text{m}$ . The equatorial diameter is about  $31\mu\text{m}$ . See fig. A.3

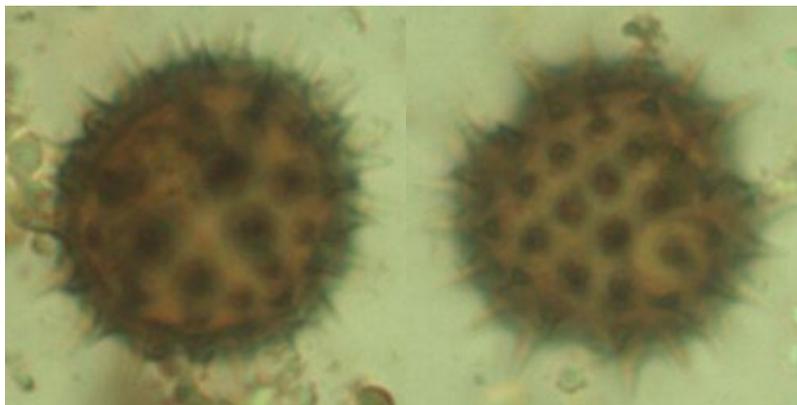


a) Buckwheat pollen observed in equatorial view (x400)      b) Buckwheat pollen observed in polar view (x400)

Fig. A.3 Buckwheat pollen cell observed under microscope

#### A.5.4 Sunflower (*Helianthus annuus*) Pollen

The pollen is orange. The pollen cell appears spherical, it is oval in equatorial view and round with 3 lobes in polar view, its diameter is about 35  $\mu\text{m}$ . There are spines of 3  $\mu\text{m}$  - 5  $\mu\text{m}$  long in outer wall. There is a 3-hole groove in surface with an interval of 5 $\mu\text{m}$  - 10 $\mu\text{m}$ . See fig. A.4.



a) Sunflower pollen observed in equatorial view (x400)      b) Sunflower pollen observed in polar view (x400)

Fig. A.4 Sunflower pollen cell observed under microscope

#### A.5.5 Maize (*Zea mays*) Pollen

The pollen is yellowish. The pollen cell appears approximately spherical with a diameter of about 80 $\mu\text{m}$ . The outer wall is smooth with a round germinal aperture. See Fig A.5.

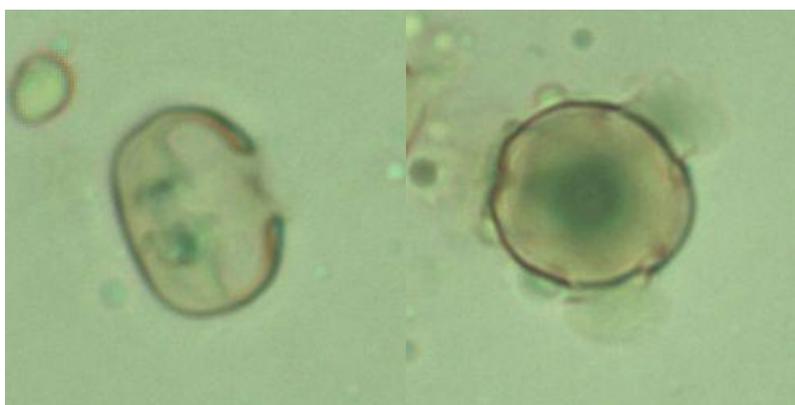


a) Maize pollen observed in equatorial view (x400)      b) Maize pollen observed in polar view (x400)

Fig. A.5 Maize pollen cell observed under microscope

#### A.5.6 Milk Vetch (*Astragalus sinicus*) Pollen

The pollen is reddish orange. The pollen cell appears prolate spheroidal, and is oblong oval observed in equatorial view and obtuse triangle or three lobe-like in polar view. The polar diameter is about 30 $\mu$ m and the equatorial diameter is about 15  $\mu$ m. There are fine mesh glyphs on surface with a 3-hole groove. See figure A.6



a) Milk vetch pollen observed in equatorial view (x400)      b) Milk vetch pollen observed in polar view (x400)

Fig. A.6 Milk vetch pollen cell observed under microscope

#### A.5.7 Broomcorn (*Sorghum bicolor*) Pollen

The pollen is yellowish. The pollen cell appears spherical, and is round in equatorial view and obtuse triangle or three lobe-like in polar view. The polar diameter is about 30 $\mu$ m and the equatorial diameter is about 30 $\mu$ m. There are fine mesh glyphs on surface with a 3-hole groove. See figure A.7.



a) Broomcorn pollen observed in equatorial view (x400)      b) Broomcorn pollen observed in polar view (x400)

Fig. A.7 Broomcorn pollen cell observed under microscope

#### A.6 Calculation of Results

The test results are calculated in equation (1).

$$\text{Pollen rate of single variety of bee pollen (\%)} = \frac{\text{Number of cells of this variety of bee pollen}}{\text{Total number of cells of sample bee pollen}} \times 100\% \dots\dots\dots(1)$$

END OF TRANSLATION