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

**GB 25535-2010**

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**National food safety standards of food additives gellan gum  
(English Translation)**

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### Foreword

Appendix A of this standard is a normative appendix, Appendix B is an informative annex.

National Food Safety Standard Food Additives gellan gum

### 1 Scope

This standard applies to the *Elodea aeruginosa* (*Pseudomonas elodea*) of carbohydrates pure culture fermentation, by adding Food Additives workers made gellan gum.

### 2 Normative references

The standard file referenced in the application of this standard is essential. For cited documents with dates, only the date of Version applies to this standard. For undated references, the latest edition (including any amendments) applies to this standard.

#### 3.1 Molecular Structure

The basic unit consists of one molecule of glucuronic acid molecule rhamnose and two molecules of glucose repeating polymeric composition.

#### 3.2 Relative molecular mass

$4 \times 10^5 \sim 6 \times 10^5$  (according to 2007 international relative atomic mass)

### 4 Technical Requirements

#### 4.1

Sensory requirements. comply with Table 1.

## Table 1 Sensory requirements

Project requires test methods Color white take appropriate sample is placed in a clean, dry white porcelain dish, in natural light Under observe its color and texture. Organization Status powder

### 4.2

Physical indicators. to comply with Table 2.

Table 2. Physical and chemical indicators

### 4.3

microbial indicators. to comply with Table 3.

Item Index Test Method Gellan gum, w /% 85.0 ~ 108.0 Appendix A A.3 Loss on drying, w /%  $\leq 15.0$  GB 5009.3-2010 a direct drying Lead (Pb)/(mg/kg)  $\leq 2$  GB 5009.12 Isopropanol b/(mg/kg)  $\leq 750$  Appendix B a drying temperature and time are 105 °C and 2.5h.

b limited to non-ethanol processing gellan gum products.

Table 3 microbiological indicators

Item Index Test Method Cfu/(CFU/g)  $\leq 10000$  GB 4789.2 Coliform/(MPN/100g)  $\leq 30$  GB 4789.3 Salmonella 0/25g GB 4789.4 Molds and yeasts/(CFU/g)  $\leq 400$  GB 4789.15 Appendix A (Normative) Testing method A.1 General Provisions Unless otherwise indicated in the analysis using only recognized as analytical reagents and GB/T 6682-2008 specified in the water. In the analysis Standard titration solution, impurities measured by standard solution, preparations and products, did not indicate when the other requirements, according to GB/T 601, GB/T 602, the provisions of preparation GB/T 603's. This solution was used in the test does not indicate what is formulated with solvent, it refers to an aqueous solution.

A.2 Identification Test A.2.1 Solubility Test Dissolved in water, forming a viscous solution; insoluble in ethanol.

A.2.2 calcium gel test 1g samples were dissolved in 99mL water, formulated as a 1% solution. With a mechanical stirrer and a propeller-shaped stirring blades, stirring the Solution 2h (left portion of the solution when used in A.2.3), with a wide bore pipette to take a small amount of the solution, which was moved CaCl<sub>2</sub> solution (100g/L), and made I.e. form a gel.

A.2.3 sodium gel test A.2.2 formulated to 1% of the sample was added 0.5g NaCl, and the solution is heated to 80 °C, with constant stirring and at 80 °C condition 1min, to stop heating and stirring, cooled to room temperature to form a hard gel.

A.3 Determination of cold glue knot A.3.1 Reagents and materials

a) diatomaceous earth. chromatography.

b) ethanol.

c) ethanol. 7822.

#### A.3.2 Instruments and Equipment

a) glass filter.

b) a dryer (180 mm).

#### A.3.3 Analysis step

Weigh about 1.0g HPLC grade diatomaceous earth, placed in a glass filter, uniform paving, 105 °C dried 5h, in a desiccator Accurately weighed after cooling. It weighs about 0.2g after drying (105 °C, 2.5h) sample (accurate to 0.001g), add 50mL of water at about 80 °C Water bath and stirred to dissolve 30min. Added 200mL pre-heated to 60 °C ~ 70 °C absolute ethanol, mixed, allowed to stand for 12h, spend Said glass containing celite filter, and the filter residue was washed 5 times with ethanol, washed 3 times before each dosage 20mL, twice with the amount of each wash 10 mL. The residue at 105 °C drying 5h, accurately weighed after cooling in a desiccator.

A.3.4 Calculation Results Gellan gum content X1 according to formula (A.1) Calculated.

$mX\%$  (A.1)

Where.

X1-- gellan gum content,%;

m1-- residue mass in grams (g);

m0-- sample mass, in grams (g).

The results parallel arithmetic mean of the measurement results shall prevail. Twice in the same condition absolutely independent determination results the difference is not more than 2% of the arithmetic mean.

#### Appendix B

(Informative)

#### Determination of isopropanol B.1 Reagents and materials

a) isopropanol. chromatography.

b) tert-butanol. HPLC grade.

#### B.2 instruments and equipment

a) Gas chromatograph. with hydrogen flame ionization detector.

b) Column. 1.8m x 2.3mm (id) stainless steel column or an equivalent efficacy column filled 0.2mm ~ 0.15 mm of Porapak QS Fillers or other equivalents.

#### B.3 reference chromatographic conditions

a) carrier gas. helium.

b) flow rate. 80 mL/min.

c) Inlet temperature. 200 °C.

e) Column temperature. 165 °C.

f) Detector temperature. 200 °C.

g) Injection volume. 5µL.

h) isopropanol retention time of approximately 2min, t-butanol retention time of approximately 3min.

#### B.4 analysis step

##### B.4.1 Preparation of standard solutions B.4.1.1 isopropanol (IPA) standard solution

Accurately weigh 500.0 mg of isopropanol, transferred to a 50mL volumetric flask, and diluted with water to volume, and mix. Draw 10mL the solution was transferred to a 100mL volumetric flask, and diluted with water to volume, and mix.

B.4.1.2 t-butanol (TBA) standard solution Accurately weigh 500.0 mg of tert-butanol and transferred to a 50mL volumetric flask, and diluted with water to volume, and mix. Draw 10mL the solution was transferred to a 100mL volumetric flask, and diluted with water to volume, and mix.

B.4.1.3 mixed standard solution Pipette 4mL isopropyl alcohol (IPA) and tert-butyl alcohol (TBA) standard solution was transferred to a 125 mL Erlenmeyer flask, add water to dilute Diluted to about 100mL, and mix. Each ml of this solution contains about 40 µg and 40 µg of isopropanol tert-butanol.

B.4.2 samples were prepared in 200 mL of water containing 1000 mL round-bottomed distillation flask, 1mL Suitable defoamers (such as Dow-Corning G-10 or equivalent Thereof), and dispersed. Join accurately weighed sample of about 5g gellan gum, shaking 1h. The bottle was connected to a distillation column, adjust the temperature, So that the foam can not enter the column, then the distillate of about 100mL. Added 4.0mL of tert-butanol in the distillate (TBA) standard solution to prepare test Sample solution.

##### B.4.3 Determination

5µL injection mixed standard solution was measured at reference chromatographic conditions, record isopropanol peak areas AIPA, tert-butyl alcohol Peak areas ATBA, calculate the relative correction factor f ( $f = AIPA/ATBA$ ).