

ICS 67.220.20
CCS C 54;X40



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

GB 25533-2010

**National food safety standards of food additives pectin
(English Translation)**

Issued on: December 21, 2010

Implemented on: February 21, 2011

Issued by: Ministry of Health of the People's Republic of China

Table of Contents

Foreword

1 Scope

2 Normative references

3 Technical requirements

Foreword

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

National Food Safety Standard Pectin food additives

1 Scope

This standard applies to grapefruit, lemons, oranges, apples and other fruit peel or pomace and other suitable edible plants Raw materials, extraction, refining derived food additives pectin. Commercially available pectin products contain sugars for standardization purposes and with to control the pH buffer salts.

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 Technical requirements

3.1

Sensory requirements. comply with Table 1.

Table 1 Sensory requirements

Project requires test methods Color white, yellow, light gray or light brown proper amount of sample is placed in a clean, dry white porcelain dish, natural to light, to observe its color and appearance. Organization Status powder

3.2

Physical indicators. to comply with Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method Loss on drying, w /% ≤ 12 GB 5009.3 a direct drying Sulfur dioxide/(mg/kg) ≤ 50 GB/T 5009.34 Acid insoluble ash, w /% ≤ 1 Appendix A A.3 the total galacturonic acid, w /% ≥ 65 Appendix A A.4 Amidation degree (only amidated pectin), w /% ≤ 25 Appendix A A.4 Lead (Pb)/(mg/kg) ≤ 5 GB 5009.12 (Methanol, ethanol, isopropanol) b, w /% ≤ 1.0 Appendix B a drying temperature and time are 105 °C and 2h. b limited to non-ethanol processing products.

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 Weigh 1g sample, add 40mL water, stirring constantly, after heating and cooling, should form viscous liquid or gel.

A.2.2 draw 5mL sample solution (mass fraction of 1%), sodium hydroxide solution was added 1mL (2g sodium hydroxide was dissolved in 25mL of water), Stand for 15 min, should form translucent to opaque gel or semi-gel precipitation occurs.

A.2.3 added 1mL hydrochloric acid solution (11) in a gel or semi-gel precipitation A.2.2 above, the formation of a colorless gel is formed when boiling Flocculent precipitate.

A.3 Determination of acid insoluble ash A.3.1 Reagents and materials Hydrochloric acid solution. Measure 240mL of hydrochloric acid, diluted with water to 1000mL.

A.3.2 Analysis step

Weigh 1g ~ 4g sample (accurate to 0.01g), low heat and gradually heated to completely carbonized, placed in a high temperature furnace, burning at 550 °C ~ 600 °C Till constant weight. The residue on ignition transferred to 50 mL beaker was slowly added 20 mL of hydrochloric acid solution, boil 5min, with a constant weight of the sand core leak Bucket was filtered and washed with hot water until the filtrate no chlorine ions, and then placed in 105 °C ± 2 °C oven drying to constant weight.

A.3.3 Calculation Results Acid insoluble ash content in accordance with the formula (A.1) Calculated.

twenty three

X% (A.1)

Where.

X1-- sample acid insoluble ash content,%;

Quality m3-- funnel acid insoluble ash in grams (g);

m2-- funnel mass in grams (g);

m1-- 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 10% of the arithmetic mean.

A.4 Determination of total galacturonic acid amide and degree of A.4.1 Reagents and materials

a) ethanol;

b) hydrochloric acid standard titration solution. 0.5mol/L and 0.1mol/L;

c) sodium hydroxide standard titration solution. 0.1mol/L and 0.05 mol/L;

d) hydrochloric acid - ethanol. 5mL hydrochloric acid solution (2.7mol/L) and 100mL ethanol solution (32) were mixed;

e) ethanol. 32;

f) sodium hydroxide solution. 0.5mol/L and 0.125mol/L;

g) sodium hydroxide solution. 100g/L;

h) Clark solution. Weigh 100g magnesium sulfate ($\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$) in the beaker, add 0.8mL of sulfuric acid, water was added to total to 180mL;

i) methyl red indicator. 1g/L;

j) Phenolphthalein indicator. 10 g/L.

A.4.2 Analysis step

A.4.2.1 Weigh 5g sample (accurate to 0.0001g), placed in a beaker, was added 100mL of hydrochloric acid - ethanol solution, stirred for 10min. use Dried to constant weight (M0) a G3 frit funnel filtration, drained after the vacuum suction with hydrochloric acid - ethanol solution was washed 6 times with 15mL, then Rinsed with ethanol several times until no chlorine ions were filtered off, 20mL of absolute ethanol and finally rinsed, drained, dried at 105 deg.] C 2h, After cooling, weigh (m1).

A.4.2.2 accurately weighed sample taken after 1/10 was dried and transferred to a 250mL stoppered Erlenmeyer flask with 2mL ethanol moist. plus Into 100mL freshly boiled and cooled water, with cork, turn from time to time to completely dissolve the sample, add 5

drops of phenolphthalein indicator, with 0.1mol/L Sodium hydroxide standard titration solution, titration, to pink 30s does not fade as the end point, 0.1mol/L sodium hydroxide standard record consumption Quasi titrant volume V1 (initial titer). Added 20.0mL 0.5mol/L sodium hydroxide solution, with stopper, shake vigorously after static Set 15min, was added 20.0mL 0.5mol/L hydrochloric acid standard titration solution, and shake until the pink color disappears, and then use the 0.1mol/L sodium hydroxide standard Quasi titration solution, shake vigorously to slightly pink 30s does not fade as the end point. 0.1mol/L sodium hydroxide consumed under standard recording droplets A given volume of solution V2 (saponification titer). Quantitative shift the contents of the flask to 500mL Kjeldahl distillation and water-cooled condenser with a ball Flask, condenser tube extends export remove carbon dioxide containing 150mL of water and 20mL 0.1mol mixing/L hydrochloric acid standard titration solution Level liquid receiving flask under. In a distillation flask was added 20mL of sodium hydroxide solution (100g/L), seal the connections. First carefully heated to to avoid excessive foaming, heating was continued to collect 80mL ~ 120mL distillate far. To a receiving flask was added a few drops of methyl red finger Illustrated agent, followed by 0.1mol/L sodium hydroxide standard titration solution titrate the excess acid, titrated to a bright yellow 30s does not fade as the end point, recording 0.1mol/L sodium hydroxide standard titration solution volume consumed under S. With 20.0mL 0.1mol/L hydrochloric acid standard solution titration blank test Set, record the used 0.1mol/L hydrochloric acid standard titration solution volume B. Record the amide titre (BS) is V3.

A.4.2.3 The dried sample was accurately weighed 1/10 in 50mL beaker, 2mL ethanol moist, add 25mL 0.125mol/L hydrogen Sodium hydroxide solution to dissolve. Stand for 1h, stirred at room temperature, this sample is saponified to move 50mL volumetric flask, constant volume of water. measure 20mL this dilution in the distillation unit, Clark added a solution of 20mL (retort steam generator is connected with a round bottom flask and connected there Condenser, and the flask equipped with a steam generator heating means). First heating the distillation flask containing the sample, with the initial 15mL graduated cylinder to collect the distillate A liquid, and then continue to steam distillation and collect the distillate with 200mL 150mL beaker. Quantitative distillate was mixed two times with 0.05mol/L Sodium hydroxide standard titration solution was titrated to pH 8.5, the volume of records consumed 0.05mol/L sodium hydroxide standard titration solution A. with when 20mL water as blank, with 0.05mol/L sodium hydroxide standard solution was titrated to pH 8.5, the recording consumed 0.05mol/L Sodium hydroxide standard titration solution volume A0. Record acetate titer (A -A0) to V4.

A.4.3 Calculation Results X2 A.4.3.1 total content of galacturonic acid by the formula (A.2) calculations, non-amidated pectin V3, V4 zero.

100) (41.19 43212 x - x = m VVVVX% (A.2) where.

The total content X2-- galacturonic acid,%;

V1-- initial titer in milliliters (mL);