



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

GB 1886.240-2016

**National Food Safety Standard -- Food Additives --
Monopotassium**

食品安全国家标准 食品添加剂 甘草酸一钾

(English Translation)

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Table of Contents

- 1 Scope
- 2 Molecular formula, structural formula and relative molecular mass
 - 2.1 Molecular formula
 - 2.2 Structural formula
 - 2.3 Relative molecular mass
- 3 Technical requirements
 - 3.1 Sensory requirements
 - 3.2 Physical and chemical indicators

1 Scope

This standard applies to licorice (*Radixglycyrrhizae*) as raw material, the extraction and purification of food additives derived from licorinate potassium.

2.1 Molecular formula

C₄₂H₆₁O₁₆K

2.3 Relative molecular mass

861.02 (according to the 2007 international relative atomic mass)

3.1 Sensory requirements

Sensory requirements shall comply with the requirements of Table 1.

Table 1 sensory requirements

The project requires a test method Color status odor taste White or light yellow powder no smell, slightly licorice flavor Sweet Take the appropriate amount of sample in a 50 mL beaker Then light to observe the color and state, smell the smell and Taste its taste

3.2 Physical and chemical indicators

Physical and chemical indicators should be consistent with the provisions of Table 2.

Table 2 Physical and chemical indicators

Item Index Test Method Content (by dry product), w /% $\geq$ 90.0 Appendix A A.3 Dry reduction, w /% $\leq$ 8.0 Appendix A, A.4 Residue on ignition, w /% 8.5 to 10.5 Appendix A,

A.5 Arsenic (As)/(mg/kg) ≤ 3.0 GB 5009.76 Heavy metals (Pb)/(mg/kg) ≤ 10 GB 5009.74 Specific rotation $40.0^{\circ} \sim 50.0^{\circ}$ Appendix A A.6 Potassium (K), w /% 3.8 to 4.8 Appendix A, A.7 Appendix A Testing method A.1 General provisions the reagents and water used in this standard, when not specified in other requirements, refer to the analysis of pure reagents and GB/T 6682 in line with the provisions of the three water.

The standard solution, impurity standard solution, preparation and preparation used in the test shall be classified according to GB/T 601, GB/T 602, GB/T 603. The solution used in the test refers to the aqueous solution when it is not specified in the formulation of the solvent.

A.2 Identification test A.2.1 Solubility Soluble in water, dissolved in dilute alcohol, ethanol in ethanol, slightly soluble in ether.

A.2.2 Identification of Glycyrrhizic Acid Weigh 0.5mg $\sim$ 1.0mg sample dissolved in 0.5mL ethanol, dropping 0.5% vanillin sulfuric acid solution 1mL $\sim$ 2mL, solution Was yellow to purple, add about 2mL of water, resulting in blue floc.

A.2.3 Potassium ion identification Take platinum wire, with hydrochloric acid infiltration, dipped in the sample, in the colorless flame burning, through the blue cobalt glass, the flame that was purple.

A.3 Determination of content (by dry product) A.3.1 Methodology the sample was dissolved in ethanol solution and had a maximum absorbance at the wavelength of $248 \text{ nm} \pm 2 \text{ nm}$.

A.3.2 Reagents and materials Ethanol solution. 8 2.

A.3.3 Instruments and equipment A.3.3.1 1cm quartz cuvette.

A.3.3.2 Spectrophotometer.

A.3.4 Analysis steps Weigh the sample 80mg (accurate to 0.0001g), placed in 100mL volumetric flask, add ethanol solution dissolved, diluted to the mark, shake uniform. Accurately measure 2mL placed in 50mL volumetric flask, add ethanol solution diluted to the mark, shake. Is the sample solution.

The sample solution was taken in a 1 cm quartz cuvette and the absorbance was measured at a wavelength of $248 \text{ nm} \pm 2 \text{ nm}$ of the spectrophotometer.

A.3.5 Calculation of results the mass fraction w_1 of potassium monoglycrate is calculated according to formula (A.1) $w_1 = 0.04 \times 132 \times m_1 \times 100\%$ (A.1) where.

A - the absorbance of the sample solution;

0.04 --- dilution factor of sample;

132 --- glycyrrhizic acid potassium standard absorption coefficient E1 m value;

m_1 --- the quality of the sample, in grams (g).

The results of the test are based on the arithmetic mean of the parallel measurement results (2 decimal places are reserved). Two independent tests obtained under repetitive conditions the difference between the results is not more than 0.1%.

A.4 Determination of dry reduction A.4.1 Analysis steps 2 g of the sample (accurate to 0.0002 g) was weighed in a constant weight weighing flask and placed in an oven at a temperature of $110^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

A.4.2 Result calculation the mass fraction w_2 of the drying reduction is calculated according to the formula (A.2) $w_2 = \frac{m_2 - m_3}{m_2 - m_4} \times 100\%$ (A.2) where.

m_2 --- the quality of the flask and the sample before drying, in grams (g);

m_3 --- Weighing bottle and the quality of the sample after drying, in grams (g);

m_4 --- Weigh the quality of the bottle, in grams (g).

The results of the test are based on the arithmetic mean of the parallel measurement results (2 decimal places are reserved). Two independent tests obtained under repetitive conditions the difference between the results is not more than 0.01%.

A.5 Determination of burning residue A.5.1 Analysis steps Weigh the sample 1g (accurate to 0.0002g), placed in the constant weight of the crucible, first with a small charcoal, and then heated to carbonization completely, and then move to a high temperature furnace at $750^{\circ}\text{C} \sim 800^{\circ}\text{C}$ to burn until completely ashed and called constant weight.

A.5.2 Calculation of results the mass fraction w_3 of the burning residue is calculated according to equation (A.3) $w_3 = \frac{m_5 - m_6}{m_7 - m_6} \times 100\%$ (A.3) where.

m_5 --- crucible and the quality of the burning residue, in grams (g);

m_6 --- crucible quality, in grams (g);

m_7 --- crucible and the quality of the sample, in grams (g).

The results of the test are based on the arithmetic mean of the parallel measurement results (2 decimal places are reserved). Two independent tests obtained under repetitive conditions the difference between the results is not more than 0.02%.

A.6 Determination of specific rotation A.6.1 Reagents and materials Ethanol solution. 8 2.

A.6.2 Instruments and equipment Polarimeter.

A.6.3 Analysis steps Weighed 1g (accurate to 0.0001g) after drying reduction, add ethanol solution in 100mL volumetric flask, dilute to scale, shake uniform. That is, the sample solution, the solution containing 10mg per milliliter.

The sample solution was placed in a polarimeter and the optical rotation was measured in a tube at $20^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ and 10 cm.

A.7 Determination of potassium (K) A.7.1 Reagents and materials Potassium chloride standard solution. 8 $\mu\text{g/mL}$. Weighed at 105 °C to dry weight of potassium chloride 15.4mg, dissolved in water, placed 1000mL volumetric flask, diluted with water to the mark, shake.

A.7.2 Instruments and equipment Flame photometer.

A.7.3 Analysis steps Weigh 10mg (accurate to 0.0001g) after drying reduction, dissolve in water, move into 1000mL volumetric flask, dilute to scale, Shake, that is, sample solution.

Measured with a flame photometer. Air pressure stable at 0.5kPa, with distilled water to adjust the number of zero, potassium chloride standard solution full scale, the sample solution was measured and the measurement data was recorded.