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

GB 25583-2010

**The national food safety standards of food additives sodium
aluminosilicate
(English Translation)**

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Table of Contents

Foreword
1 Scope
2 Normative references
3 Molar ratio of components
4 Technical Requirements

Foreword

Appendix A of this standard is a normative appendix.

National Food Safety Standard Food additive sodium aluminosilicate

1 Scope

This standard applies to food additive sodium aluminosilicate Preparation of water glass.

2 Normative references

The standard file referenced in the application of this standard is essential. For dated references, only the edition date of the note Apply to this standard. For undated references, the latest edition (including any amendments) applies to this standard.

3 Molar ratio of components

The molar ratio (molar ratio) $\text{Na}_2\text{O}/\text{Al}_2\text{O}_3/\text{SiO}_2$ is approximately 1. 1. 13.

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 50mL beaker, observe the color and texture in natural light status. Organization amorphous state fine powder or beads

4.2

Physical indicators. to comply with Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method Silicon dioxide (SiO_2), w /% 66.0 ~ 76.0 Appendix A A.4 Aluminum oxide (Al_2O_3), w /% 9.0 ~ 13.0 A.5 Appendix A Sodium oxide (Na_2O), w /% 4.0 ~ 7.0 A.6 in Appendix A Lead (Pb)/(mg/kg) ≤ 5 Appendix A A.7 Arsenic (As)/(mg/kg) ≤ 3 Appendix A A.8 Heavy metals (Pb)/(mg/kg) ≤ 10 Appendix A A.9 Loss on drying, w /% ≤ 8.0 Appendix A A.10 Loss on ignition, w /% 8.0 ~ 13.0 Appendix A A.11 pH (20% slurry) 6.5 to 10.5 A.12 in Appendix A Appendix A (Normative) Testing method A.1 Warning the standard test methods required for use of some strong acid, when used, be careful to avoid splashing on the skin! As should be immediately splashed on the skin Rinsed with water, severe cases should be treated immediately. When using a volatile acid, to be carried out in a fume hood.

A.2 General Provisions the standard test methods used in the reagents and water in the absence of other specified requirements, refer to analytically pure reagents and GB/T 6682-2008 in Three water regulations. Test with the standard titration solution, impurity standard solution, preparations and products, did not indicate when the other requirements, according HG/T 3696.1, HG/T 3696.2, the provisions of HG/T 3696.3 of preparation.

A.3 Identification Test A.3.1 Identification of silicate the 0.5 g sample was mixed with 2.5 g of anhydrous potassium carbonate, on the electric heating in a platinum crucible to melt the mixture, cooled, 5 mL Water and let stand 3 min, the crucible plus micro heat, add 50 mL of water to dissolve. Completely transferred to a beaker, was added dropwise a solution of hydrochloric acid (11) to airless Bulbs, add 10 mL of hydrochloric acid, evaporated to dryness on a steam bath to cool. Was added 20 mL of water, filtered boiling, insoluble gel residue Used to identify silicon. A filtrate is used to identify the test solution of aluminum.

The gelatinous residue was taken platinum crucible, carefully add 5 mL of hydrofluoric acid. The precipitate was dissolved. Heating, placed in the vapor above the crucible A glass rod moistened with a drop of water, the water droplets become cloudy.

A.3.2 Identification of aluminum ions Was added dropwise in the test solutions A (A.3.1) in aqueous ammonia solution (11), a white gelatinous precipitate, addition of excess aqueous ammonia solution, no precipitate Dissolved. Was added dropwise a solution of sodium hydroxide (40 g/L) to give a white gelatinous precipitate, the precipitate dissolved when added in excess.

A.3.3 Identification of sodium ions Wetting platinum wire with hydrochloric acid, colorless to burn in the flame, then dipped a little in the test solution combustion flame, the flame that is dark yellow.

A.4 Determination of silica A.4.1 Method summary Silica in the sample with hydrofluoric acid forming volatile matter by burning volatile, by determining the mass difference before and after ignition calculated silica content.

A.4.2 Reagents and materials A.4.2.1 sulfuric acid.

A.4.2.2 hydrochloric acid.

A.4.2.3 hydrofluoric acid.

A.4.3 Instruments and Equipment High-temperature furnace. temperature can be maintained at $900\text{ }^{\circ}\text{C} \pm 25\text{ }^{\circ}\text{C}$.

A.4.4 Analysis step

Weigh was $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ bake a sample of about 0.5 g 2 h, to the nearest 0.000 2 g, into a 200 mL beaker with a small amount of water will Wash the beaker wall. Added 30 mL and 15 mL of sulfuric acid, hydrochloric acid, in a hood on a hot plate heated until white smoke is generated, added 15 mL After cooling Hydrochloric acid, heated again to generate white smoke. Evaporated to about 10 mL solution was left and cooled, was added 70 mL of water, filtered using filter paper, and dried Hot water and sediment filter.

The filter paper and transferred to precipitate a platinum crucible, burning to constant mass at $900\text{ }^{\circ}\text{C} \pm 25\text{ }^{\circ}\text{C}$, saying its quality. Residue was moistened with water, 8 drops of sulfuric acid was added followed by 15 mL of hydrofluoric acid, heated on a hot plate to produce white smoke. Steam until nearly dry, add 5 mL of water. After cooling, 3 Drops of sulfuric acid and 10 mL of hydrofluoric acid, hot plate evaporation to near dryness on a hot plate heated to white smoke rush the net. The crucible in $900\text{ }^{\circ}\text{C} \pm 25\text{ }^{\circ}\text{C}$ to constant burning quality. The mass loss after hydrofluoric acid is added to the sample quality silica (SiO_2) taken.

A.4.5 Calculation Results Silica content of silicon dioxide (SiO_2) mass fraction w_1 and its value is expressed in%, according to formula (A.1) Calculated.

$$0.211 \times \frac{m}{m_1 - m_2} = w_1$$

mmw (A.1)

Where.

m_1 - for the first time after a constant burning quality to value the quality of the crucible and precipitate in grams (g);

m_2 - the second (after adding the hydrofluoric acid treatment) value to the quality of constant quality after burning crucible and precipitate in grams (g);

m - mass of the sample value in units of grams (g).

Take the arithmetic mean of the parallel determination results of the measurement results, the results of two parallel determination of the absolute difference is not more than 0.1%.

A.5 Determination of aluminum oxide A.5.1 Method summary the samples were processed, an excess of disodium edetate solution in the test solution, and aluminum complex, with

xyleneol orange as indicator Zinc chloride standard titration solution titrate excess of disodium edetate solution.

A.5.2 Reagents and materials A.5.2.1 perchloric acid.

A.5.2.2 hydrofluoric acid.

A.5.2.3 hydrochloric acid.

A.5.2.4 ammonia.

A.5.2.5 hydrochloric acid solution. 11.

A.5.2.6 disodium EDTA standard titration solution. $c(\text{EDTA}) = 0.01 \text{ mol/L}$.

A.5.2.7 zinc chloride standard titration solution. $c(\text{ZnCl}_2) = 0.01 \text{ mol/L}$.

A.5.2.8 xyleneol orange indicator solution. 5 g/L.

A.5.3 Analysis step

Weigh was $105^\circ\text{C} \pm 2^\circ\text{C}$ bake a sample of about 0.3 g 2 h, to the nearest 0.0002 g, into a platinum crucible, with 8 to 10 drops of water dripping Run wet. Perchloric acid was added 15 mL and 10 mL of hydrofluoric acid, in a hood on a hotplate until generate a large amount of perchloric acid white smoke, steam to near Dry After cooling 10 mL of hydrofluoric acid and heated to generate dense white smoke again evaporated to near dryness, added 4 mL of hydrochloric acid was dissolved by heating, After cooling completely transferred to a 250 mL volumetric flask, wash with hot water in a platinum crucible and the lotion into the volumetric flask and dilute to the mark with water, shake uniform.

Pipette 50.00 mL of the solution into 250 mL conical flask, add water to 100 mL, was added 20.00 mL disodium edetate Standard Solution, add 3 to 4 drops drops xyleneol orange indicator solution, the solution was adjusted with ammonia reddish. 1min boiling on a hot plate, remove the cold but (if the excess ammonia, the solution was adjusted with hydrochloric acid solution was bright yellow, then the excess two drops). Titration with zinc chloride standard titration solution to the solution from Yellow to reddish color is the end. While the same treatment the blank test solution.

In addition to the blank test without the sample, the type and amount of addition of reagents and other operating and measured in the same test.

A.5.4 Calculation Results Aluminum oxide content of aluminum oxide (Al_2O_3) mass fraction w_2 and its value is expressed in%, according to formula (A.2) Calculated.

c_{MVVw}

Where.

Numerical zinc chloride standard titration solution volume consumed V_0 -- blank test, in milliliters (mL);