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Magnesium sulfate for agricultural use

农业用硫酸镁

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Standardization Administration Committee.

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Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard was proposed by China Petroleum and Chemical Industry Federation.

This Standard shall be under the jurisdiction of National Technical Committee on Fertilizers and Soil Conditioning Agents of Standardization Administration of China (SAC/TC 105).

The drafting organization of this Standard: Yingkou Magnesite Chemical (Group) Co., Ltd.

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Magnesium sulfate for agricultural use

1 Scope

This Standard specifies the requirements, test methods, inspection rules, marks, packaging, transport and storage of magnesium sulfate for agricultural use.

This Standard is applicable to magnesium sulfate for agricultural use.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 534 *Industrial sulfuric acid*

GB/T 6003.1-1997 *Test sieves of metal wire cloth*

GB/T 6679 *General rules for sampling solid chemical products*

GB/T 8170-2008 *Rules of rounding off for numerical values & expression and judgement of limiting values*

GB 8569 *Packing of solid chemical fertilizers*

GB/T 8576 *Determination of free water for compound fertilizers - Vacuum oven method*

GB 18382 *Fertilizer marking - Presentation and declaration*

GB/T 19203-2003 *Determination of calcium, magnesium and sulphur content for compound fertilizer*

GB 20406-2006 *Potassium sulfate for agricultural use*

GB/T 20937-2007 *Potassium magnesium of sulphate fertilizer*

GB/T 23349 *Ecological index of arsenic cadmium lead chromium and mercury for fertilizers*

HG/T 2843 *Chemical fertilizer Products-standard volumetric, standard, reagent and indicator solutions for chemical analysis*

4.2 Ecological indicator requirements

The implementation shall be in accordance with the provisions of GB/T 23349.

4.3 Requirements for raw material sulfuric acid

If it uses sulfuric acid as raw material, it shall comply with requirements of GB/T 534.

5 Test methods

Reagents, preparations of water and solutions used in this Standard, in the absence of specifications and preparation methods, it shall be in accordance with HG/T 2843.

5.1 Determination of water-soluble magnesium content - Disodium ethylenediaminetetraacetic acid volumetric method

5.1.1 Method summary

Cover iron and aluminum ions with triethanolamine; cover calcium ion with EGTA; titrate magnesium ion with EDTA complex.

5.1.2 Reagents and solutions

5.1.2.1 Disodium edetate (EDTA) standard titration solution: c(EDTA)=0.01 mol/L.

5.1.2.2 Triethanolamine solution: 1+4.

5.1.2.3 Potassium hydroxide solution: 200 g / L.

5.1.2.4 Ethylene glycol diethyl ether diamine tetraacetic acid (EGTA) solution: 2.5 g / L.

Weigh 2.5 g of EGTA into a 400 mL beaker. Add 100 mL of water. Add potassium hydroxide solution in drops till the solution is clear and transparent. Use water to dilute to 1 L.

5.1.2.5 Ammonia-ammonium chloride buffer solution (pH = 10).

5.1.2.6 Acid chrome blue K-naphthol green B mixed indicator (referred to as K-B indicator).

5.1.3 Apparatus

General laboratory instruments.

Carry out according to the provisions of 5.7 in GB 20937-2007.

5.6 Determination of granularity - Screening method

Use the testing sieves of which the pore diameters are 2.0 mm, 4.00 mm in R 40/3 series of GB/T 6003.1-1997. The rest shall be performed in accordance with the provisions of 4.6 in GB/T 20406-2006.

5.7 Determination of pH value - Acidity meter method

5.7.1 Principle

Add water into sample. Dissolve it at room temperature. Use pH meter to determine.

5.7.2 Reagents and solutions

5.7.2.1 Phosphate standard buffer solution: $c(KH_2PO_4)$ = 0.025 mol/L, $c(Na_2HPO_4)$ = 0.025 mol/L; when it is at 25°C, pH value shall be 6.86.

5.7.2.2 Borate standard buffer solution: $c(Na_2B_4O_7)$ = 0.01 mol/L; when it is at 25°C, pH value shall be 9.18.

5.7.3 Apparatus

5.7.3.1 General laboratory instruments;

5.7.3.2 pH meter: sensitivity is 0.01 pH units.

5.7.4 Determination

5.7.4.1 Determination of magnesium sulfate monohydrate (powder) or magnesium sulfate monohydrate (granular)

Weigh 10 g of magnesium sulfate monohydrate sample in 6.4.2 into a 100 mL beaker. Add 50 mL of water without carbon dioxide. Intermittently stir it. Dissolve it at room temperature for 150 min. Immediately use pH meter to determine. Before determination, use standard buffer solution to verify the pH meter.

5.7.4.2 Determination of magnesium sulfate heptahydrate

Weigh 10 g of magnesium sulfate heptahydrate sample in 6.4.2 into a 100 mL beaker. Add 50 mL of water without carbon dioxide. Intermittently stir it. Dissolve it at room temperature for 30 min. Immediately use pH meter to determine. Before determination, use standard buffer solution to verify the pH meter.

5.7.5 Expression of analysis results

Take the arithmetic mean value of parallel measurement results of two samples

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