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

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Ammonium fluoride for industrial use

工业氟化铵

(English Translation)

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Foreword

This standard Chapter 7, Chapter 8 and Chapter 9 8.1,8.3,8.4 content is mandatory, the rest are recommended.

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

The standard proposed by China Petroleum and Chemical Industry Federation.

This standard by the National Standardization Technical Committee chemical inorganic chemicals branch (SAC/TC63/SC1).

This standard was drafted. Foshan City of Quality Supervision and Testing Center, Fujian Shao Wu City Wing Chemical Co., Ltd., Zhejiang three US Chemical Co., Ltd., Zhejiang fluorescent Chemical Co., Ltd., Shandong-fluoro-New Materials Co., Ltd., CNOOC Tianjin Chemical Research & Design Institute, Zhejiang Province Institute of Chemical Industry Co., Ltd Fluoride Chemicals Co., Ltd., Zhejiang Ying Peng Chemical Co., Ltd.

1 Scope

This standard specifies the requirements of industrial ammonium fluoride, test methods, inspection rules, signs, labels, packaging, transportation, storage, and security.

This standard applies primarily as industrial ammonium fluoride glass etchant, the metal surface of the chemical polishing or the like.

2 Normative references

The following documents for the application of this document is essential. For dated references, only applies to the version dated paper Pieces. For undated references, the latest edition (including any amendments) applies to this document.

GB 190-2009 dangerous goods packaging logo GB/T 191-2008 Packaging Pictorial signs
GB/T 6678 General Principles for Sampling Chemical Products GB/T 6682-2008
specifications and test methods for water analysis laboratory GB/T 8170 rounding off
means about rules and determining limiting values HG/T 3696.1 inorganic chemical
analysis of the product by standard chemical solution, Preparations Part 1. standard
titration Preparation of the solution HG/T 3696.2 Inorganic chemicals for chemical analysis
of standard solution, the second portion of Preparations. Standard impurities Preparation of
the solution HG/T 3696.3 Inorganic chemicals Chemical analysis of standard solution,
Preparations Part 3. Formulation and preparation Preparation products Molecular formula
and molecular weight 3 Molecular formula. NH_4F Molecular weight. 37.04 (according to
2007 international relative atomic mass)

4 Requirements

4.1

Appearance. white crystal.

4.2

Industrial ammonium fluoride according to the present standard test methods specified in Table 1 should detect the technical requirements.

Table 1 Technical Requirements

project

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First grade Qualified Ammonium fluoride w /% ≥ 95.0 93.0 the free acid (in terms of HF) w /% ≤ 1.0 1.0 Fluorosilicate $[\text{In } (\text{NH}_4)_2\text{SiF}_6 \text{ count}]$ w /% ≤ 0.5 1.0

5.1 Safety Tips

Ammonium fluoride this test method the samples taken toxic, deliquescent and strongly acidic aqueous solution in the air, part of the test used Also corrosive agent, an operator should be careful to avoid contact with the skin; the skin, such as contact immediately wash with water, shall immediately severe Medical treatment.

5.2 General Provisions

This standard reagent and water, in the absence of other requirements specified, are by analytical reagent and GB/T 6682-2008 specified Tertiary water used in the test standard titration solution, impurity standard solution, formulations and products, in the absence of other requirements specified, are by HG/T 3696.1, HG/T 3696.2, preparing a predetermined HG/T 3696.3 is.

5.3 Visual inspection

In natural light, white plastic plate is placed is determined by visual appearance.

5.4.1 Method summary

Samples dissolved in water, adding ammonium ions react with formaldehyde, hexamethylenetetramine generate and release an acid to phenolphthalein as an indicator, with sodium hydroxide Standard Solution titration, subtracting the result of free acids and fluoro-silicate content, obtain the content of ammonium fluoride.

5.4.2 Reagents

5.4.2.1

neutral formalin solution. 11. Mixed formaldehyde and other volumes of water, add 2 drops of phenolphthalein indicator, titrate with standard sodium hydroxide solution Titrated to a pale pink.

5.4.2.2

sodium hydroxide standard titration solution. $c(\text{NaOH}) \sim 0.5\text{mol/L}$.

5.4.2.3

phenolphthalein indicator solution. 10g/L.

5.4.3 Analysis of step

Weigh about 0.5g sample, accurate to 0.0002g, placed in a plastic cup, add 20mL water soluble, neutral formalin solution was added 40mL shake Uniform, placed 30min. Add 2 drops of phenolphthalein indicator solution, the solution was pink titrated with standard sodium hydroxide solution was titrated to, and does not fade holding 30s Color is the end.

5.4.4 Calculation results

Ammonium fluoride ammonium fluoride content (of NH_4F) w1 mass fraction basis, calculated according to formula (1).

$(V/1000) \text{ cM}$

$m \times 100\% - 1.851w_2 - 0.4158w_3$ (1) where.

Sodium hydroxide standard titration solution volume V --- titration test solution consumed value in milliliters (mL);

Accurate value of the concentration of the solution of sodium hydroxide standard titration --- C , in units of moles per liter (mol/L);

Value m --- mass of the sample in grams (G);

--- numerical molar mass M ammonium fluoride (NH_4F), in units of grams per mole (g/mol) ($M = 37.04$);

--- value w_2 of the free acid content of 5.5 determined;

W_3 --- fluoro silicate content by determination of the value 5.6;

--- 1.851 in terms of coefficient of hydrogen fluoride ammonium fluoride;

0.4158 --- ammonium fluorosilicate factor in terms of ammonium fluoride.

Parallel to the arithmetic average of the measurement results of the measurement result, the absolute difference determination results parallel to not more than 0.3%.

Determination of free acid content of 5.5

5.5.1 Method summary

Samples were dissolved in water, Bromocresol purple as an indicator, titrated with standard sodium hydroxide solution.

5.5.2 Instruments and equipment

Microburette. reference value 0.02mL.

5.5.3 Reagents and materials

5.5.3.1

sodium hydroxide standard titration solution. $c(\text{NaOH}) \sim 0.1\text{mol/L}$.

5.5.3.2

bromocresol purple indicator solution. 1g/L. Weigh 0.10g bromocresol purple, was dissolved in ethanol 100mL95%.

5.5.3.3

carbon dioxide-free water.