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

GB 24567-2009

Sodium monofluorophosphate for tooth-paste industry

牙膏工业用单氟磷酸钠

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8.0	Loss on drying, /% $\leq$ 0.2
12.54	Free fluorine (as F), /% $\leq$
13.0	Arsenic (As), /% $\leq$ 0.0002 Heavy metals (Pb), /% $\leq$

Foreword

The standard Chapter 4 and Chapter 7 are mandatory content, the rest are recommended. The standard proposed by China Petroleum and Chemical Industry Association. This standard by the National Standardization Technical Committee chemical inorganic chemicals Club (SAC/TC63/SC1) centralized. This standard was drafted. Institute of

Physical and Chemical Engineering of Nuclear Industry China Nuclear New Technology Development Company, CNOOC Tianjin Chemical Research & Design Institute. The main drafters of this standard. Li Guangming, Zhou Hongyan, Gao Jian, Fan Wenjun. This standard is the first release. Toothpaste industrial monofluorophosphate

1 Scope

GB 24567-2009 is the Chinese national standard on sodium monofluorophosphate for tooth-paste industry, in the field of chemical technology. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 30 October 2009 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 June 2010. Classification: ICS 71.060.50, CCS G12. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This standard specifies the toothpaste industry monofluorophosphate requirements, test methods, inspection rules, marking, labeling, packaging, transportation and storage. This standard applies to industrial use toothpaste monofluorophosphate. The product is used as an anti-carries agents in toothpaste processing, desensitizing additive, also used for sterilization And preservatives.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 191-2008 Packaging - Pictorial signs (ISO 780.1997, MOD)

GB/T 610-2008 General method for determination of arsenic chemical reagents

GB/T 6678 General Principles for Sampling Chemical Products

GB/T 6682-2008 analytical laboratory use specifications and test methods (

ISO 3696. 1987, MOD) Preparation of standard titration solution of

HG/T 3696.1 inorganic chemical products, chemical analysis Preparation of

HG/T 3696.2 inorganic chemical products, chemical analysis of impurity standard solution

Preparations of

HG/T 3696.3 inorganic chemical products, chemical analysis

3 Formula and relative molecular mass

Molecular formula. $\text{Na}_2\text{PO}_3\text{F}$ Molecular weight. 143.95 (according to 2007 international relative atomic mass)

4 Requirements

4.1 Appearance. white powder.

4.2 Toothpaste industrial monofluorophosphate should meet the requirements of Table 1.
Table

5 Test methods

5.1 Safety Tips Reagents used in this test method are toxic or corrosive, be careful when operating! Such as water splashed on the skin should immediately Flushing, severe cases should be treated immediately.

5.2 General Provisions This standard reagents and water in the absence of other requirements specified, refers to three analytical reagent and GB/T 6682-2008 specified in water. 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, HG/T 3696.3 regulations in preparation.

5.3 Visual inspection In natural light, determined by visual appearance.

5.4 Determination of the content of sodium monofluorophosphate Monofluorophosphate content of sodium monofluorophosphate ($\text{Na}_2\text{PO}_3\text{F}$) mass fraction of 1 meter, expressed in%, according to equation (1). $A = 7.5772 (1)$ Where. 2

--- combined with fluorine content, expressed in%; 7.577

--- fluorine converted into sodium monofluorophosphate coefficients.

5.5 Determination of fluorine content in combination Combined with a fluorine content of fluorine (F) mass fraction 2 and its value is expressed in%, according to equation (2). $2 = 4-3 (2)$ Where. 3

--- free fluoride content, expressed in%; 4

--- total fluorine content, the value expressed in%.

5.6 Determination of free fluorine content

5.6.1 Method summary Sample in acid medium to fluoride ion selective electrode as indicator electrode, a saturated calomel electrode as the reference electrode, measurement test solution Liquid fluoride concentration.

5.6.2 Reagents and materials

5.6.2.1 sodium nitrate solution. 30g/L;

5.6.2.2 nitric acid solution. 1 + 150;

5.6.2.3 hexamethylenetetramine solution. 50g/L;

5.6.2.4 fluoro standard solution. 1mL solution containing fluorine (F) 1mg; Refining. two water in a plastic beaker with GB/T 6682-2008 predetermined dissolving sodium fluoride, make a saturated solution. Removed by filtration Insoluble materials, the filtrate was added ethanol to precipitate sodium fluoride. The resulting crystals were filtered and washed with absolute ethanol and crystallized placed 105 °C ~ Electric oven 110 °C, the drying to constant mass. Weigh 0.2210g NaF (refined) (accurate to 0.0002g), dissolved in water, all transferred to 100mL volumetric flask, dilute with water Release to the mark. Store in plastic bottle.

5.6.2.5 fluoro standard solution. 1mL solution containing fluorine (F) 0.1mg; Pipette Pipette 10mL fluoro standard solution (5.6.2.4), placed in 100mL flask, diluted with water to the mark. Storage Plastic bottle.

5.6.2.6 fluoro standard solution. 1mL solution containing fluorine (F) 0.01mg. Pipette Pipette 10mL fluoro standard solution (5.6.2.5) into 100mL volumetric flask, dilute to the mark, shake. Storage In a plastic bottle (the solution is valid for 10d).

5.6.3 Instruments and equipment

5.6.3.1 digital ion meter or pH meter. Accuracy $\pm 0.5\%$;

5.6.3.2 fluoride ion selective electrode;

5.6.3.3 calomel electrode;

5.6.3.4 magnetic stirrer.

5.6.4 Analysis of step

5.6.4.1 Preparation of test solution Weigh about 0.2g sample, accurate to 0.0002g, set 50mL volumetric flask, add 5mL dissolved in water, were added with a pipette 5mL diluted sodium nitrate solution and 5mL hexamethylenetetramine solution, plus 5mL nitric acid solution, add water to the mark.

5.6.4.2 Preparation of the calibration standard solution with fluorine Each pipette Pipette 25mL fluoro standard solution (5.6.2.5) and fluorine standard solution (5.6.2.6), were