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

GB/T 13248-2008

Replacing GB/T 13248-1991

**Rubber and rubber latices -- Determination of manganese
content -- Sodium periodate photometric methods**

橡胶和胶乳 锰含量的测定 高碘酸钠光度法

(English Translation)

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Foreword

This standard is identical with ISO 7780:1998 "Rubber and latex manganese content - Sodium periodate photometric method" (in English).

This standard replaces GB/T 13248-1991 "vulcanized rubber Determination of manganese content of sodium periodate photometric method." for ease of use, this standard made the following editorial changes.

- a) "this International Standard" be replaced by "this standard";
- b) Delete the ISO foreword;
- c) use a decimal point instead of a decimal comma " , " . " , " ;
- d) The text of the "Warning" refer to the first body.

This standard compared with GB/T 13248-1991 main changes are as follows.

- Increasing the scope of application (Excerpts Chapter 1, Section 11991 edition);
- Increased four references (edition Chapter 2);
- Revised statement of principle of the method (Chapter 3 edition, 1991 Version 2.1; Excerpts 4.1,1991 Version 3.1);
- Increasing the preparation of stable aqueous test (this version 3.2.5; this version 4.2.6);
- Increase the preparation of standard solution of manganese (this version 3.2.7a);
- Increasing the sample preparation (edition 3.4; this version 4.4);
- Increasing the sample preparation and test solution preparation (Excerpts 3.5.1,3.5.2; edition 4.5);
- The sample weight of 2g to the original edition of gum 10g, latex 10g, compounds and vulcanizates of 10g (Excerpts 3.5.1.1,3.5.1.2 and 3.5.1.3,1991 Version 2.4.2; Excerpts 4.5,1991 Version 2.4.2);

--- Increase in the content of the test report (edition 3.7; 4.7 edition).

The standard proposed by China Petroleum and Chemical Industry Association.

This standard by the National Standards Commission rubber physical and chemical test methods Technical Committee (SAC/TC35/SC2) centralized.

1 Scope

This standard specifies the spectrophotometric determination of two use sodium periodate vulcanized rubber, raw rubber, latex compounds and manganese content, the two methods also Determination includes chlorine rubber.

The standard Chapter 3 provides a lot of influence from the filler contained, these fillers may be synthetic or natural silicate or different in the form of calcium carbonate, or synthetic ingredients, and under the experimental conditions used to generate the phosphate insoluble complexing agent.

Chapter 4 of this standard specifies the determination of raw rubber, synthetic natural rubber, isoprene rubber and latex containing a small amount of filler (no more than 10%). Inert the silicate filler or any of a complexing agent, such as. titanium dioxide, under the experimental conditions of forming an insoluble phosphate with the agent.

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 15340 natural, synthetic rubber raw sampling and sample preparation method (GB/T 15340-1994, idt ISO 1795:1992) ISO 123:2001 Rubber latex samples

124 ISO .1997 Determination of total solids content of the rubber latex of ISO 4793. 1980 Laboratory sintered (sintered frit) filter porosity classification categories and grades General Method 3

3.1 Principle

In the case of the presence of chlorine, sulfuric acid digestion backup, followed by reaction with nitric acid. This process takes place in the Kjeldahl flask; if silicate Exist, the sample was digested with sulfuric acid and hydrofluoric acid, the silicon will evaporate to form silicon tetrafluoride off. The case where chlorine does not exist, the rubber in a platinum crucible Ashed with fluorine sodium borate treatment. Behind the process, add boiling sodium periodate, manganese is oxidized to permanganate, manganese content by the

absorbance was measured at 525nm.

3.2 Reagents

During the analysis, as far as possible using analytical grade reagents suitable for the analysis of trace metals, and only with a stable water (see 3.2.5).

3.2.1 Sodium fluoroborate

Sodium fluoroborate if not analytically pure, may be prepared in the following test procedure. It was dissolved in 100mL hot water about 35 °C in 110g Industrial sodium fluoroborate, filtered through filter paper, the solution was cooled to room temperature with stirring was added 96% 100mL (volume fraction) in ethanol, with Buchner funnel with filter paper, the crystalline precipitate was filtered off on filter paper, the precipitate was transferred to a glass or porcelain dish, and dried under vacuum at 50 deg.] C.

3.2.3 Sulfuric acid, $\rho = 1.84\text{Mg/m}^3$

3 (GB/T 625).

3.2.4 Nitrate, $\rho = 1.42\text{Mg/m}^3$

3 (GB/T 626).

3.2.5 Stable water

About 1000mL of water, add a few drops of sulfuric acid and potassium permanganate solution of about 0.1g, the distillation apparatus by distilling the liquid, discard GB/T 13248-2008/ISO 7780:1998