



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

GB 25577-2010

**National food safety standards of food additives titanium
dioxide**

(English Translation)

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Foreword

Appendix A of this Standard is normative.

National food safety standard -

Food additives - Titanium dioxide

1 Scope

This Standard is applicable for the food additive titanium dioxide which is prepared from the raw materials such as titanite iron ore and sulfuric acid OR is prepared with rutile ore (or enriched titanite iron ore) by using chlorination.

2 Normative references

The referenced documents in this Standard are essential to the application of this Standard. For the dated documents, only the versions with the dates indicated are applicable to this Standard; for the undated documents, only the latest version (including all the amendments) are applicable to this Standard.

3.1 Molecular formula

TiO₂

4.1 Sensory requirements

Sensory requirements shall comply with the requirements of Table 1.

Appendix A

(Normative)

Testing method

A.1 Warnings

Some reagents used in this Standard's test method are toxic or corrosive. It must be careful when performing the operation! If it is splashed onto the skin, the skin shall be washed with water immediately. Severe cases shall be treated immediately.

A.3 Identification test

Take approximate 0.5g of the sample. Add 5mL of the sulfuric acid. Perform heating slowly until the sulfuric acid appears smog; cool it down. Carefully dilute it to 100mL with water AND; filter it. Then take approximate 5mL of the filter liquor. Add a few drops of the test solution -- hydrogen peroxide. The filter liquor appears orange red.

A.4 Determination of titanium dioxide - Aluminum reduction method

Weigh $0.20g \pm 0.01g$ of the sample which has been dried, according to A.5. The accuracy is $0.0001g$. Other operations are the same as the 7.1 of GB/T 1706-2006.

A.5 Determination of the loss on drying

Same as the 7.2 of GB/T 1706-2006. Dry for 3 hours.

A.6 Determination of the loss on ignition

A.6.1 Instruments and equipment

High temperature furnace. it can be controlled at $800^{\circ}C \pm 25^{\circ}C$.

A.6.2 Analytical procedures

Weigh approximate 2g of the sample which has been dried, according to A.5. The accuracy is $0.0001g$. Place it into the porcelain crucible which can be ignited to the constant mass. Ignite it to the constant mass at $800^{\circ}C \pm 25^{\circ}C$ in the high temperature furnace.

A.7 Determination of hydrochloric acid lysate

A.7.1 Reagents and materials

Hydrochloric acid solution. 1+19.

A.7.2 Analytical procedures

Weigh approximate 5g of the sample. The accuracy is $0.01g$. Place it into the 250mL beaker.

Add 100mL of the hydrochloric acid solution. Mix it evenly. Perform heating on the water bath for 30min. Filter it. Wash the filter residue for 3 times with the hydrochloric acid solution;

use 10mL for each time. Place the filter liquor and the washing solution into the crucible which can perform ignition until the constant mass under $800^{\circ}\text{C}\pm 25^{\circ}\text{C}$. Evaporate it till dryness. And then, ignite it till the constant mass under $800^{\circ}\text{C}\pm 25^{\circ}\text{C}$.

Same as the 7.3 of GB/T 1706-2006.

A.9 Determination of heavy metals

A.9.1 Reagents and materials

A.9.1.1 Hydrochloric acid solution. 1+19.

A.9.1.2 Others are the same as the Chapter 3 of GB/T 5009.74-2003.

A.9.2 Instruments and equipment

Same as the Chapter 4 of GB/T 5009.74-2003.

A.10 Determination of arsenic

Remove 4.00mL of the sample solution A (A.9.3) and 2mL of the arsenic standard solution (1mL of the solution contains 0.001mg of As) for the determination. Other operations shall be the same as GB/T 5009.76-2003.

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