

**SN**

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

**SN/T 1888.4-2007**

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**Hygienic standard for export and import irradiated food  
containers and packaging materials - Part 4: Products of  
polyethylene**

进出口辐照食品包装容器及材料卫生标准 第4部分：聚乙烯成型品

**(English Translation)**

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### 1 Scope

This part of SN/T 2763 specifies a method for the determination of total iron content in nickel laterite ore by the titanium (III) chloride reduction method.

This section applies to the determination of total iron content in nickel laterite ore.  
Measuring range (mass fraction) is: 9% ~ 50%.

### 2 Normative references

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

GB/T 6379.2 Accuracy (trueness and precision) of measurement methods and results - Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method (ISO 5725-2)

GB/T 6682 Water for analytical laboratory use - Specification and test methods

GB/T 12805 Laboratory glassware - Burettes

GB/T 12806 Laboratory glassware - One-mark volumetric flasks

GB/T 12808 Laboratory glassware - One-mark pipettes

### 3 Principles

The specimen is melted with sodium peroxide at 800 °C and leached with hydrochloric acid. After the stannous chloride is reduced, sodium tungstate is used as an indicator and titanium trichloride is used to reduce the remaining high-valent iron to a low price to produce "tungsten blue"; then potassium dichromate is used to oxidize until the blue disappears; sulfur and phosphorus

At the same time, weigh the sample and determine the wet moisture content in accordance with Appendix A.

#### 7.3.1 Decomposition of sample

Place the sample (7.2) in a 30 mL corundum crucible. Add 4 g of sodium peroxide (4.1). Mix it uniformly. Cover it. Bake it on an electric stove until the sodium peroxide turns black. Then place it in a high-temperature furnace at

800 °C to melt for 15 minutes. Take it out to cool it. Place it in a 400 mL beaker.

Add 40 mL of warm water to soak the crucible. Add 30 mL of hydrochloric acid (4.3). Boil it slightly for about 5 minutes to drive off the hydrogen peroxide. Cool it down. Heat at low temperature to dissolve the sample. Use hot water to wash out the crucible. Adjust the volume of the solution to 150 mL. Add stannous chloride (4.8) dropwise to light yellow. Remove it. Use running water to cool it to room temperature.

#### 7.3.2 Titration

Add 15 drops of sodium tungstate (4.9). Use titanium trichloride (4.11) to titrate it until it turns blue. Then add potassium dichromate standard solution (4.14) until colorless. Immediately add 10 mL of sulfur phosphorus mixed acid (4.10),

3 drops of sodium diphenylamine sulfonate solution (4.12). When the content is 9% ~ 30%, use potassium dichromate standard solution (4.14) to titrate to a stable purple. When the content is 30% ~ 50%, use potassium dichromate standard solution (4.15) to titrate to a stable purple.

Since the specimen contains a certain amount of chromium, the tungsten blue will fade and show a light green background. When adjusting the tungsten blue, it shall carefully observe the fading situation of the tungsten blue; pay attention to distinguish the background color from the fading of tungsten blue.

#### 7.4 Blank test

Use the same amount of reagent (no sample added) to decompose the blank test in accordance with 7.3.1. The titration is carried out according to 7.3.2.

Before adding the sulfur-phosphorus mixed acid, add 10 mL of ferrous ammonium sulfate solution (4.13). After the titration, record the consumption of potassium dichromate solution in milliliters (A); then add 10 mL of ammonium ferrous sulfate solution (4.13). After titration, record the consumption of potassium dichromate solution in milliliters (B), then  $V_0 = A - B$  is the blank value.

The concentration of the potassium dichromate standard solution shall be consistent with the concentration of the standard solution used in the determination of samples according to 7.3.2.

## Appendix A (Normative)

### Determination of wet moisture content in nickel laterite ore - Gravimetric method

#### A.1 Scope

This Appendix specifies the gravimetric method for the determination of wet moisture content in analytical samples of nickel laterite ore.

This Appendix is applicable to the determination of moisture content of analytical samples of nickel laterite ore.

#### A.2 Principles

The sample that has been air-dried under laboratory conditions is dried to a constant weight in a drying oven at 105 °C ~ 110 °C. The mass change before and after drying is the mass of the wet moisture.

#### A.3 Instrument

A.3.1 Weighing bottle, the diameter is not less than 5 cm; it is equipped with a tightly sealed ground cap.

A.3.2 Drying box, which can maintain the temperature in the range of 105 °C ~ 110 °C.

##### A.4.1 Sample

Pre-dry the weighing bottle (A.3.1) in a drying oven (A.3.2) at 105 °C ~ 110 °C.

Weigh it. Weigh 1 g of the sample that has been pre-dried in the air into the weighing bottle, accurate to 0.0002 g. Spread it flat in the weighing bottle.

##### A.4.2 Determination

Place the open weighing bottle containing the sample (A.4.1) and bottle cap in a drying oven (A.3.2) that has been stabilized at 105 °C ~ 110 °C. Dry it for 1 hour. Take it out.

Immediately cover the ground cap. Put it in a desiccator to cool for 20 min ~ 30 min. Take out the weighing bottle from the desiccator.

Gently open the ground cap. Then quickly close it. Weigh it.

Repeat the drying (30 min each time), cooling and weighing operations, until the difference between two consecutive weighing does not exceed 0.005 g. If

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