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

YS/T 1028.2-2015

**Methods for chemical analysis of lithium iron phosphate. Part 2:
Determination of lithium content. Flame photometry**

磷酸铁锂化学分析方法 第2部分：锂量的测定 火焰光度法

(English Translation)

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1 Scope

This part of YS/T 1028 specifies the method for determining the lithium content in lithium iron phosphate.

This part is applicable to the determination of lithium content in lithium iron phosphate.

Measurement range. 3%~5%.

2 Method summary

The sample is dissolved in hydrochloric acid, and after filtering out the insoluble carbon, the lithium content in lithium iron phosphate is determined using a flame photometer in a sulfuric acid medium.

3 Reagents

3.1

Hydrochloric acid (1+1).

3.2

Sulfuric acid (1+1).

3.3

Lithium standard stock solution (1000 µg/mL). It shall be purchased from a nationally recognized supplier of standard materials.

3.4 Lithium standard solution (100 µg/mL). Transfer 10.00 mL of lithium standard

stock solution (3.3) into a 100 mL volumetric flask, add 2 mL of sulfuric acid (3.2), dilute with water to the mark, and mix well.

4 Instruments and equipment

Flame photometer.

5 Samples

The particle size of the sample shall not exceed 0.10 mm.

6.1 Specimen

Weigh 0.20 g of the sample, accurate to 0.0001 g.

6.2 Number of measurements

Perform two independent measurements and take the average value.

6.3 Blank test

A blank test is performed along with the sample test.

6.4 Measurement

6.4.1

Place the specimen (6.1) in a 250 mL beaker, moisten it with a small amount of water, add 20 mL of hydrochloric acid (3.1), cover it with a watch glass, heat it to a gentle boil for 3 to 5 minutes, then remove it and cool it to room temperature; rinse the watch glass with a small amount of water, filter it with rapid filter paper, and wash the beaker and filter paper with water 5~7 times. Collect the filtrate in a 250 mL volumetric flask, dilute it with water to the mark, and shake well.

6.4.2

Transfer 25.00 mL of the test solution (6.4.1) to a 100 mL volumetric flask, add 2 mL of sulfuric acid (3.2), dilute to the mark with water, and shake well. Zero the flame photometer with water and determine the lithium concentration.

6.5 Drawing the working curve

6.5.1

Transfer 0 mL, 5.00 mL, 10.00 mL, 15.00 mL, and 20.00 mL of lithium standard solution (3.4) into a set of 100 mL volumetric flasks, add 2 mL of sulfuric acid (3.2), dilute with water

to the mark, and shake well.

6.5.2

Using a flame photometer, determine the excitation intensity of lithium in a series of standard solutions, and plot the working curve with lithium concentration as the abscissa and excitation intensity as the ordinate.

7 Calculation of analysis results

The lithium content is expressed as the mass fraction of lithium, w_{Li} , in % and is

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