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Methods for chemical analysis of silicon metal—Part 4: Determination of elements content inductively coupled plasma atomic emission spectrometric method

工业硅化学分析方法 第 4 部分：电感耦合等离子体原子发射光谱法测定素含量

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Contents

Foreword

GB/T 14849 *Methods for Chemical Analysis of Silicon Metal* is divided into four parts:

——Part 1: Determination of iron content - 1, 10-phenanthroline spectrophotometric method;

——Part 2: Determination of aluminum content - chrome azurol-S spectrophotometric method;

——Part 3: Determination of calcium content - flame atomic absorption spectrometry, chlorophosphonazo I spectrophotometric method;

——Part 4: Inductively coupled plasma-atomic emission spectrometry to determine element content.

This Part is Part 4.

Appendix A of this Part is informative appendix.

This Part is proposed by China Nonferrous Metals Industry Association.

This Part is under the jurisdiction of the National Technical Committee on Nonferrous Metals of Standardization.

This Part is drafted by the unit of: Zhengzhou Research Institute of CHALCO, Quality Research Institute of China Nonferrous Metals Industry Standard and Measurement.

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Methods for chemical analysis of silicon metal—Part 4: Determination of elements content inductively coupled plasma atomic emission spectrometric method

1 Scope

This Part species the determination method for iron, aluminum, calcium, titanium, manganese, nickel content in silicon metal

This Part applies to the determination of iron, aluminum, calcium, titanium, manganese, nickel content in silicon metal, scope of determination see Table 1.

Table 1

Element	Quality fraction /%	Element	Quality fraction /%
Iron	0.020-1.00	Nickel	0.0050-0.50
Aluminum	0.020-0.50	Manganese	0.0050-0.50
Calcium	0.020-1.00	Titanium	0.0050-0.10

2 Method summary

The specimen is decomposed by hydrofluoric acid and nitric acid, perchloric acid smoking is used to remove silicone, fluorine, etc., and residue is dissolved by hydrochloric acid. Introduce plasma –speetrometer for test solution, measure the content of each element in the test solution under selected optimal determination conditions.

3 Reagents

3.1 Perchloric acid (ρ1.67g/mL), Guarantee reagent.

3.2 Hydrofluoric acid (ρ1.14 g/mL), Guarantee reagent.

3.3 Nitric acid (1+ 1), Guarantee reagent.

3.4 Hydrochloric acid (1+1), Guarantee reagent.

3.5 Standard storage solution: Preparation of each analytical element standard storage solution is shown as Appendix A, national standard substance (solution) of certified series can also be applied.

3.6 Standard solution

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