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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 15076.12-2008

Methods for chemical analysis of tantalum and niobium - Determination of phosphorus content in tantalum

钽铌化学分析方法 钽中磷量的测定

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1 Scope

GB/T 15076.12-2008 is the Chinese national standard on methods for chemical analysis of tantalum and niobium - determination of phosphorus content in tantalum, in the field of metallurgy. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 31 March 2008 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 September 2008. Classification: ICS 77.120.99, CCS H14. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This section provides the determination of phosphorus in tantalum. This section applies to the determination of phosphorus content of the tantalum. Measurement range. 0.0010% to 0.020%.

2 Principle of the method

Samples were dissolved with nitric acid and hydrofluoric acid, potassium permanganate oxidation of the positive pentavalent phosphorus in 1mol/L HNO3 medium was added ammonium molybdate solution Liquid form phosphomolybdic yellow, isolated by extraction with ethyl acetate and the body, with stannous chloride to restore phosphorus molybdenum blue at 620nm wavelength spectrophotometer Measured absorbance.

3 Reagents

Unless otherwise indicated in the analysis using only recognized as analytical grade reagents and distilled water or equivalent purity.

3.1 nitrate (rho1.42g/mL), pure class distinctions.

3.2 nitric acid solution (14 + 1).

3.3 Hydrofluoric acid (rho1.14g/mL), MOS level.

3.4 hydrochloric acid (rho1.18g/mL), pure class distinctions.

3.5 ethyl acetate.

3.6 potassium permanganate solution (40g/L), pure class distinctions.

3.7 sodium nitrite solution (50g/L).

3.8 ammonium molybdate solution (100g/L), high purity.

3.9 stannous chloride solution (20g/L). Weigh 2.38g of stannous chloride ($SnCl_2 \cdot 2H_2O$), heating 34mL hydrochloric acid (3.4) dissolved in Diluted with water to 100mL, shake.

3.10 P standard stock solution. Weigh 0.4394g pre-bake at 105 °C 1h placed in the dryer and cooled to room temperature, potassium dihydrogen phosphate (Reference Reagent) into 200mL beaker, add 50mL dissolved in water and transferred to 500mL volumetric flask, dilute with water to volume, and mix. this 1mL solution containing 200μg phosphorus.

3.11 Phosphorus standard solution. Pipette 10.00mL phosphate standard stock solution (3.10) in 200mL volumetric flask, dilute to volume with water and mix. This solution 1mL containing 10μg phosphorus.

4 Instrument

Spectrophotometer. Step

5 Analysis

5.1 Sample Weigh 0.10g sample, accurate to 0.0001g.

5.2 Determination of the number of Independently measured twice and averaged.