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GB/T 13747.7-2019

Replacing GB/T 13747.7-1992

Methods for chemical analysis of zirconium and zirconium alloys - Part 7: Determination of manganese content - Patassium periodate spectrometry and inductively coupled plasma atomic emission spectrometry

锆及锆合金化学分析方法 第7部分：锰量的测定 高碘酸钾分光光度法和电感耦合等离子体原子发射光谱法

Issued on: December 31, 2019 **Implemented on: November 1, 2020**

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Foreword

GB/T 13747 "Chemical analysis methods for zirconium and zirconium alloys" is planned to be divided into 27 parts.

--- Part 1. Determination of tin content potassium iodate titration method and phenylfluorone-polyethylene glycol octylphenyl ether spectrophotometry;

--- Part 2. Determination of iron content 1,10-diazaphenanthrene spectrophotometry and inductively coupled plasma atomic emission spectrometry;

--- Part 3. Determination of nickel content Butadione oxime spectrophotometry and inductively coupled plasma atomic emission spectrometry;

--- Part 4. Determination of chromium content Diphenylcarbazide spectrophotometry and inductively coupled plasma atomic emission spectrometry;

--- Part 5. Determination of aluminum content Chromazurol S-tetradecylpyridine chloride spectrophotometry;

--- Part 6. Determination of copper content 2,9-dimethyl-1,10-diazaphenanthrene spectrophotometry;

--- Part 7. Determination of manganese content potassium periodate spectrophotometry and inductively coupled plasma atomic emission spectrometry;

--- Part 8. Determination of the amount of drilled nitroso R salt spectrophotometric method;

--- Part 9. Determination of magnesium content by flame atomic absorption spectrometry;

--- Part 10. Determination of tungsten content thiocyanate spectrophotometric method;

--- Part 11. Determination of molybdenum content thiocyanate spectrophotometry;

--- Part 12. Determination of silicon content Molybdenum blue spectrophotometry;

--- Part 13. Polarographic determination of lead content;

1 Scope

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GB/T 13747.7-2019 is the Chinese national standard on methods for chemical analysis of zirconium and zirconium alloys - part 7: determination of manganese content - patassium periodate spectrometry and inductively coupled plasma atomic emission spectrometry, 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 December 2019 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 November 2020. 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 part of GB/T 13747 specifies the determination method of manganese content in zirconium and zirconium alloys. This section applies to the determination of manganese in sponge zirconium, zirconium and zirconium alloys. Method

2 Method 1 potassium periodate spectrophotometry

2.1 Principle The sample was dissolved with sulfuric acid and ammonium sulfate.In a sulfuric acid medium, Mn2 was oxidized to Mn4 with potassium periodate. The wavelength of the spectrophotometer was The absorbance was measured at 530 nm.

2.2 Reagents Unless otherwise stated, only reagents and laboratory secondary water identified as analytically pure were used in the analysis.

2.2.1 Potassium periodate.

2.2.2 Ammonium sulfate.

2.2.3 sulfuric acid (rho = 1.84g/mL).

2.2.4 Sodium nitrite solution (2g/L). Available now when used.

2.2.5 Manganese standard storage solution. Weigh 0.1000g metal manganese (wMn>=99.95%) into a 100mL beaker, add 10mL water, 10mL sulfuric acid (2.2.3), heat to dissolve, transfer to 1000mL volumetric flask after cooling, dilute to the mark with water and mix. 1mL of this solution Contains 100 μg of manganese.

2.2.6 Manganese standard solution. Transfer 10.00mL manganese standard storage solution (2.2.5) to a 100mL volumetric flask, dilute with water to the mark and mix. 1 mL of this solution contained 10 μg of manganese.

2.3 Instrument Spectrophotometer.

2.4 Sample The sample is processed into chips with a length of not more than 5 mm.

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2.5 Test procedure

2.5.1 Sample Take the sample (2.4) according to Table 1, accurate to 0.0001g.

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