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

GB/T 4698.15-2011

Replacing GB/T 4698.15-1996

**Methods for chemical analysis of titanium sponge, titanium and
titanium alloys -- Determination of hydrogen content**

海绵钛、钛及钛合金化学分析方法 氢量的测定

(English Translation)

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Foreword

This Part replaces GB/T 4698.15-1996 "Sponge titanium, and titanium alloy vacuum heating chemical analysis by gas chromatography the amount of hydrogen. " this portion of the GB/T 4698.15-1996 compared to the main changes are as follows.

- By gas chromatography to thermal conductivity/infrared detection;
- Measured by the scope of 0.0010 percent to 0.030 percent to 0.0006% - 0.0260%;
- Increasing the precision of the terms, complements the quality assurance and control provisions;

The non-ferrous metal part by the National Standardization Technical Committee (SAC/TC243) centralized.

This section is drafted. Baoji Titanium Group Ltd., Hunan Golden days cast titanium Co., Northwest Nonferrous Metal Research Institute, Sichuan Heng to produce Titanium Technology Co., Zunyi Titanium Co., Ltd.

1 Scope

This section provides the inert gas fusion - thermal conductivity/measured Sponge titanium, and titanium alloy hydrogen content in infrared detection.

This section applies to sponge titanium, and titanium alloys - Determination of hydrogen content. Measurement range. 0.0006% - 0.0260%.

2 Principle of the method

A sample was tin flux, placed in a graphite crucible, heated and melted under an inert atmosphere, and hydrogen is released into the molecular carrier gas stream.

Molecular hydrogen with other evolved gases (e.g., carbon monoxide, etc.) in TCD separated pools; or hydrogen with the carrier gas molecules by thermal oxidation After the copper is converted to water, in particular the detection of infrared cell. This method is applicable to the use of automated material hydrogen analyzer using standard known hydrogen content Substance/sample calibration.

3 Reagents and materials

3.1

acetone.

3.2

high soda asbestos.

3.3

argon, nitrogen or helium. purity $\geq 99.99\%$.

3.4

tin flux. flake or granular, hydrogen content $\leq 0.0005\%$.

3.5

anhydrous magnesium perchlorate.

3.6

sieve.

3.7

Schutz reagent.

3.8

rare earth copper oxide.

3.9

copper wire.

3.10

graphite crucible. pure spectrum.

3.11

Titanium standard material/samples.

4 Instrument

The inert gas fusion - thermal conductivity/infrared detector hydrogen analyzer. (Including one electrode furnace or an induction furnace, purification and analysis of a carrier gas stream conversion system Systems, hydrogen detecting thermal conductivity or infrared detection pool water, computer and software control systems.)

5 Sample

Sample cut or car to 0.10g/blocks ~ 0.30g/block, the process to avoid overheating. If necessary, use a clean rasp setback to the surface dirt Was washed with acetone, air dry.

6.1 Instrument Preparation

According to the instruction to open water, electricity, gas and other external auxiliary facilities, check each device path connecting piece and see how your various reagents consumption Consumption goods state, to ensure the effective reagent.

6.2 Warm up

To fully preheated before instrumental analysis, so that the indicators of the instrument reaches the set value.