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

GB/T 5158.3-2011

**Metallic powders -- Determination of oxygen content by
reduction methods -- Part 3: Hydrogen-reducible oxygen**

金属粉末 还原法测定氧含量 第3部分：可被氢还原的氧

(English Translation)

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Foreword

GB/T 5158 "Determination of the oxygen content of the metal powder reduction method" is divided into four parts.

- Part 1. General;
- Part 2. Loss of mass (hydrogen loss) during the hydrogen reduction;
- Part 3. hydrogen reducible oxygen;
- Part 4. Restore - Determination of total oxygen extraction.

This section GB/T 5158 Part 3.

This part identical with ISO 4491-3:1997 "Determination of oxygen content - Part 3 metal powder reduction method. can be hydrogen reduction of oxygen." for ease of use, this section made the following editorial changes.

- a) "this International Standard" be replaced by "this section";
- b) use a decimal point instead of a decimal comma " , " . " , " ;
- c) Remove the preface to international standards.

This part is proposed by the China Nonferrous Metals Industry Association.

The non-ferrous metal part by the National Standardization Technical Committee.

This section is Shenzhen, Hong Hai Industrial Co., Ltd., Shandong moon Technology Co., Ltd., China Nonferrous Metals Industry standard quality research metrology Drafted.

1 Scope

GB/T 5158 provisions of this part of the metal powder may be hydrogen reduction method for measuring oxygen content, oxygen content in the range of 0.05% 3% (mass fraction).

This section applies to all kinds of metal, mixed partially alloyed or fully alloyed metal

powders, carbides (carbide) and metal bonding Blendstock. This method is not suitable for powder contains a lubricant or an organic binder.

This section is also applicable to special carbon powder preparation of the catalytic device.

This section should be combined with GB/T 5158.1 and ISO 760 use.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 5158.1 Determination of the oxygen content of the metal powder reduction method - Part 1. General (ISO 4491-1. 1989, IDT) ISO 760. 1978 Determination of water KarlFischer method (general method)

3 PRINCIPLE OF THE METHOD

Dry nitrogen or argon for the following sample pretreated at a low temperature (170 °C). It should be clean and dry at a given temperature Hydrogen reduction. Water formed by the reaction of hydrogen and oxide is absorbed methanol. With KarlFischer reagent titrated by visual color Changes or both electrodes (constant endpoint) to determine the potential of the endpoint.

For the carbon powder, nickel catalyst at 380 °C carbon monoxide and carbon dioxide into methane and water.

4 Reagents

In the analysis using only recognized as analytical grade reagents and distilled water or equivalent purity.

Warning. KarlFischer reagent containing four kinds of toxic compounds. iodine, sulfur dioxide, pyridine and methanol. To avoid direct contact therewith Touch, in particular to avoid inhalation. If you accidentally spill shall be flush with plenty of water.

4.1

anhydrous methanol.

4.2

KarlFischer reagents, equivalent to 1 mg of oxygen per milliliter.

Determining titer KarlFischer reagents used any of the following methods.

a) titration to 20mg ~ 30mg vial was added water, weighed to the nearest 0.1mg.

b) adding 100mg ~ 200mg of sodium tartrate dihydrate [which theoretically contains 15.66% water standard material equivalent 13.92% oxygen], weighed to the nearest 0.1mg. Sodium tartrate dihydrate should be pre-ground to a fine powder, and dried at 5 °C 105 °C ± Dry to constant weight.