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

GB/T 5158.2-2011

Replacing GB/T 5158-1999

**Metallic powders -- Determination of oxygen content by
reduction methods -- Part 2: Loss of mass on hydrogen
reduction (hydrogen loss)**

金属粉末 还原法测定氧含量 第2部分：氢还原时的质量损失（氢损）

(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 2.

This part identical with ISO 4491-2:1997 "metal powder reduction method to measure the oxygen content - Part 2. Quality loss when hydrogen reduction Loss (hydrogen loss). " 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 replaces GB/T 5158-1999 "metal powder mass loss in the hydrogen reduction (hydrogen loss) determination." this section compared with GB/T 5158-1999, the main changes are as follows.

- Remove the ISO foreword;
- Increasing the normative references;
- The original standard and ISO 4491-2:1997 differentially partly modified to be consistent.

Appendix A of this part is a normative appendix.

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

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

The powder in part by the Institute of Metallurgy, Central South University, Shandong moon Technology Co., Ltd., China Nonferrous Metals Industry standard quality research metrology Drafted.

1 Scope

This section GB/T 5158 provisions under certain conditions, the metal powder is heated in a dry pure hydrogen gas stream, the quality is relatively Determination of loss.

The purpose of this section is to assess chemical powder properties, chemical properties which are measured in the powder metallurgy industry is very important.

This part is not used as a method of measuring the content of a specific element (see Appendix A and GB/T 5158.1).

This section applies to listed in Table 1 of unalloyed, partially alloyed and fully alloyed metal powders. Not for containing the lubricant mixture of metal powder or a powder. Due to the presence of a reducing, oxidizing or volatile metals or compounds (see Appendix A), the results will be affected. For this type of powder, the application of the results need to be cautious, both parties recognize the results should agree.

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)

3 Reagents

3.1

hydrogen, oxygen content of not more than 0.005% (mass fraction), the dew point is not higher than -45 °C.

3.2

nitrogen (or argon), an oxygen content of not more than 0.005% (mass fraction), the dew point is not higher than -45 °C.

4.1 Balances

The balance should have sufficient range, weighing accuracy to 0.0001g.

4.2 Tubular furnace

Temperature tube furnace can be specified in Table 1 of continuous operation, temperature control system should maintain the temperature inside the tube portion boat in Table 1 Regulation Within the given temperature range. Test apparatus shown in Figure 1.

Note: When the test magnetic powder recommended wound furnace using non-inductive winding.

4.3 Airtight tube

Airtight tube is made of quartz or refractory material (e.g. a dense aluminum oxide). The inner diameter of the pipe between $\phi 25\text{mm}$ ~ $\phi 40\text{mm}$, length of the tube should be So that each end of the furnace extending 200mm.

When large amount of hydrogen loss measurement, as long as the tables meet a given temperature and time, and get results obtained with the recommended means Consistent results, you can use the larger of the furnace can be measured several samples simultaneously than specified in this section.