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**NONFERROUS METALS INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

YS/T 1075.1-2015

**Methods for chemical analysis of vanadium-aluminium and
molybdenum-aluminium master alloys - Part 1: Determination of
iron content - 1, 10-Phenanthroline spectrophotometry**

钒铝、钼铝中间合金化学分析方法 第1部分：铁量的测定 1，10-二氮杂菲分光光度法

(English Translation)

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Foreword

YS/T 1075 "aluminum vanadium, molybdenum intermediate aluminum alloy chemical analysis method" including a total of 8 sections.

- Part 1. Determination of iron content - 1,10-phenanthroline spectrophotometry;
- Part 2. Determination of molybdenum content of lead molybdate gravimetric method;
- Part 3. Determination of silicon content - Molybdenum blue spectrophotometric method;
- Part 4. vanadium content - Inductively coupled plasma atomic emission spectrometry and ferrous ammonium sulfate titration;
- Part 5. Determination of aluminum content EDTA titration;
- Part 6. Determination of carbon content in the high-frequency combustion - infrared absorption method;
- Part 7. Determination of the amount of oxygen in the inert gas fusion - infrared method;
- Part 8. molybdenum, aluminum X- determining the amount of fluorescence spectroscopy.

This section YS/T 1075 Part 1.

This section drafted in accordance with GB/T 1.1-2009 given rules.

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

This section is drafted. Northwest Nonferrous Metal Research Institute, Chengde Vanadium big industry limited liability company, Western Metal Materials Co., Ltd., Baoji Titanium Group Ltd., Shangluo Amano Advanced Materials Co., Ltd., Beijing Nonferrous Metal Research Institute, Donggang East high-tech metal material Limited, Ltd. Dalian Rong Gaudet kinds of materials.

1 Scope

YS/T 1075 This section provides the aluminum vanadium, molybdenum determination of aluminum alloy with iron content.

This section applies to aluminum vanadium, molybdenum, aluminum master alloys Determination of iron content. Measurement range. 0.010% to 0.50%.

2 Method summary

Samples with sulfuric acid, nitric acid dissolved. Weakly acidic medium at pH 4 to 6, the iron (II) with 1,10-phenanthroline to generate an orange-red complex it was, in the spectrophotometer at a wavelength of 510nm absorbance is measured.

3 Reagents

3.1

sulfate (11).

3.2

nitric acid (11).

3.3

hydrochloride (11).

3.4

hydroxylamine hydrochloride solution (100g/L).

3.5

acetic acid - ammonium acetate buffer solution. Weigh 500g ammonium acetate dissolved in water, was added 20mL of glacial acetic acid, diluted with water to 1000mL, Mix well.

3.6 1,10-phenanthroline solution (2g/L). Weigh 2g 1,10- phenanthroline reagent dissolved in 100mL anhydrous ethanol and transferred to 1000mL Volumetric flask and diluted with water to volume, and mix.

3.7

iron standard stock solution. Weigh 0.1000g metallic iron ($w_{Fe} \geq 99.99\%$) in 200mL beaker, add 30mL hydrochloric acid (3.3), to complete the decomposition temperature heating, was added 5mL of nitric acid (3.2) ferric oxide, nitrogen purge and heating continued oxides. Remove the cooling, the solution was Transferred into 1000mL volumetric flask, dilute with water to volume, and mix. This solution 1mL containing 100 μ g iron.

3.8

iron standard solution. Pipette 10.00mL iron standard stock solution (3.7) in 100mL volumetric flask, dilute with water to volume, and mix.

This solution 1mL containing 10 μ g iron.

4 Instrument

Spectrophotometer.

5 Sample

The specimen shall crush a particle size less than 500 μ m.