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YS

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

YS/T 281.14-2011

Replacing YS/T 281.15-1994; YS/T 281.16-1994

**Methods for chemical analysis of cobalt. Part 14: Determination
of carbon content. Infra-red absorption method after high
frequency induction furnace combustion**

钴化学分析方法 第14部分：碳量的测定
(English Translation)

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Foreword

YS/T 281 "cobalt chemical analysis method" is divided into the following 20 sections.

- Part 1. Determination of iron content sulfonic acid spectrophotometry
- Part 2. Determination of the amount of chrome aluminum Azure S Spectrophotometry
- Part 3. Determination of silicon content - Molybdenum blue spectrophotometric method
- Part 4. Determination of arsenic content - Molybdenum blue spectrophotometric method
- Part 5. Determination of phosphorus content - Molybdenum blue spectrophotometric method
- Part 6. Determination of magnesium content - Flame atomic absorption spectrometry
- Part 7. Determination of zinc content - Flame atomic absorption spectrometry
- Part 8. Determination of cadmium content by flame atomic absorption spectrometry
- Part 9. Determination of lead content - flame atomic absorption spectrometry
- Part 10. Determination of nickel content by flame atomic absorption spectrometry
- Part 11. Flame atomic copper, manganese content absorption spectrometry
- Part 12. arsenic, antimony, bismuth, tin, lead and determining the amount of electrothermal atomic absorption spectrometry
- Part 13. Determination of sulfur content high frequency induction furnace combustion infrared absorption method
- Part 14. Determination of the amount of carbon high-frequency induction furnace combustion infrared absorption method

--- Part 15. arsenic, antimony, bismuth contents - Hydride Generation - Atomic Fluorescence Spectrometry

--- Part 16. Determination of DC arc atomic arsenic, cadmium, copper, zinc, lead, bismuth, tin, antimony, silicon, manganese, iron, nickel, aluminum, magnesium content of the emitted light Spectroscopy

--- Part 17. aluminum, manganese, nickel, copper, zinc, cadmium, tin, antimony, lead, bismuth content - Inductively Coupled Plasma Mass Spectrometry

--- Part 18. Determination of sodium content by flame atomic absorption spectrometry

--- Part 19. calcium, magnesium, manganese, iron, cadmium, zinc content - Inductively coupled plasma atomic emission spectrometry

--- Part 20. Determination of oxygen content - Impulse - infrared absorption method this section YS/T 281 Part 14.

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

The partial replacement of YS/T 281.15-1994 "cobalt chemical analysis of high frequency induction furnace combustion infrared absorption method for the determination of carbon content" and YS/T 281.16-1994 "Methods for chemical analysis of cobalt combustion - coulometric method for the determination of carbon content." And YS/T 281.15-1994 and YS/T 281.16-1994 compared, this section has the following changes.

--- Determination of unified high-frequency induction furnace combustion infrared absorption method;

--- Text format has been modified, supplemented with quality assurance and control provisions, increase the repeatability limit and reproducibility limit;

--- Complement the test reporting requirements.

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

1 Scope

This section YS/T 281 provides for determination of carbon content of cobalt.

This section applies to the determination of cobalt in carbon content. Measurement range. 0.0040% to 0.20%.

2 Method summary

In the presence of flux, high-frequency induction furnace and the oxygen flow, so that the sample burned at high temperatures, to generate carbon dioxide gas into the red External

absorption cell, after which the instrument automatically measure the absorption of infrared energy to calculate and display the results.

3.1 Scavenger and catalyst

3.1.1

Anhydrous magnesium perchlorate.

3.1.2

caustic soda asbestos.

3.1.3

glass wool.

3.1.4

cotton.

3.1.5

platinized silica gel.

3.2 Flux. carbon tungsten, tin, iron. W Sn Fe = 1g (0.2 ~ 0.25) g 0.1g.

3.3 Crucible. Ceramic crucible (diameter 24mm x 24mm), before use in an oxygen flow greater than 1100 °C burning 1h ~ 1.5h, removed Placed in the dryer cooling backup (valid for two days).

3.4 Standard sample

3.4.1

Use the sample content and similar cobalt standard sample. No standard sample such as cobalt, can also be used instead of standard samples of steel.

3.4.2

Standard samples cobalt or iron or steel standard sample standard sample. carbon is about 0.002%.

4 Instruments and working conditions

High-frequency infrared gas analyzer (attached electronic exchange regulator).

--- High-frequency furnace power. 1.0kW ~ 2.5kW.

--- Frequency. > 6.0MHz.

--- Detector sensitivity. $\leq 1\mu\text{g/g}$.