ICS 73.060.10
CCS D 31

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 6730.52-2018

Replacing GB/T 6730.52-2004

Iron ores -- Determination of cobalt content -- Flame atomic absorption spectrometric method

Issued on: May 14, 2018 **Implemented on: February 1, 2019**

Issued by: State Administration for Market Regulation, China National Standardization Administration

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Foreword

GB/T 6730 "Iron Ore" is divided into dozens of parts.

This part is part 52 of GB/T 6730.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 6730.52-2004 "Iron Ore Determination of Cobalt Content by Flame Atomic Absorption Spectrometry", this part and

Compared with GB/T 6730.52-2004, except for editorial changes, the main technical changes are as follows.

--- The determination range of cobalt content was changed from "0.0006% to 0.0700%" to "0.0007% to 0.06%";

--- "Cobalt standard stock solution" added "or directly using the certified standard substances in the effective period for preparation";

--- Modify "repetition and allowable difference" to "precision" and modify the representation of precision;

--- Modified the calculation formula for the acceptance C value of the analytical value.

This section uses the redrafting method to modify the use of ISO 11533.2009 "iron ore cobalt determination flame atomic absorption spectrometry".

Compared with ISO 11533.2009, this section has the following structural adjustments.

--- The order of the reagents in Chapter 4 of ISO 11533.2009 was adjusted, and the "4.9 cobalt standard solution" was adjusted to this part.

"4.9 cobalt standard stock solution" "4.10 cobalt standard solution A" and "4.11 cobalt standard solution B";

--- Adjust ISO 5.3533.2009 5.3 to 5.5 of this section, and increase 5.3 and 5.4;

--- Adjust the "warning" of ISO 11533.2009 5.3 to Chapter 7 of this section;

--- ISO 11533. 7.3 of.2009 corresponds to 7.3 of this part, but adds 7.3.1 and 7.3.2.

Compared with ISO 11533.2009, the main technical changes in this section are as follows.

---About the normative reference documents, this part has made technical adjustments to adapt to China's technical conditions, adjustments

The situation is reflected in Chapter 2, "Regulatory References", and the specific adjustments are as follows.

* Added references to GB/T 6379.1, GB/T 6379.2, GB/T 7728, GB/T 8170, GB/T 12807,

GB/T 12808;

* Removed ISO 648;

* Replace ISO 3696 with GB/T 6682 modified to international standards;

* Replace ISO 7764 with GB/T 6730.1 equivalent to the international standard;

* Replace ISO 3082 with GB/T 10322.1 equivalent to the international standard;

* Replace ISO 1042 with GB/T 12806, which is not equivalent to the international standard.

--- "Cobalt Standard Stock Solution" has been added "or directly formulated with certified reference materials within the validity period".

--- Added "Teflon beaker" and "analytical balance" to the instrument.

--- Modified the representation of precision.

--- Modified the calculation formula for the acceptance C value of the analytical value.

--- Modified the representation of the final result calculation.

The following editorial changes have been made in this section.

---Modified standard name;

--- Removed the warnings and notes in the ISO 11533.2009 5.3 Atomic Absorption Spectrometer and Note 2 in Appendix B;

--- Deleted the international standard of information appendix C "International Analysis Test Precision Data".

This part was proposed by the China Iron and Steel Association.

This part is under the jurisdiction of the National Iron Ore and Direct Reduced Iron Standardization Technical Committee (SAC/TC317).

This section is mainly drafted by. Hebei Entry-Exit Inspection and Quarantine Bureau of the People's Republic of China.

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The previous versions of the standards replaced by this section are.

---GB/T 6730.52-2004.

Determination of cobalt content in iron ore

Flame atomic absorption spectrometry

Caution - Personnel using this section should have hands-on experience in formal laboratory work. This section does not point out all possible security questions.

question. It is the responsibility of the user to take appropriate safety and health measures and to ensure compliance with the conditions set by the relevant national regulations.

1 Scope

This part of GB/T 6730 specifies the determination of cobalt in iron ore by flame atomic absorption spectrometry.

This section applies to the determination of cobalt content in iron ore, iron concentrate, sinter and pellets. Measuring range (mass fraction).

0.0007%~0.06%.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 6379.1 Accuracy of measurement methods and results (accuracy and precision) Part 1. General and definition

GB/T 6379.2 Accuracy of measurement methods and results (accuracy and precision) Part 2. Determining the weight of standard measurement methods

Basic method of renaturation and reproducibility

GB/T 6682 Analytical laboratory water specifications and test methods (GB/T 6682-2008, ISO 3696.1987, MOD)

GB/T 6730.1 Preparation of pre-dried samples for iron ore analysis (GB/T 6730.1-2016, ISO 7764.2006, IDT)

GB/T 7728 Metallurgical products - Chemical analysis - General rules for flame atomic

absorption spectrometry

GB/T 8170 Numerical Rounding Rules and Representation and Determination of Limit Values

GB/T 10322.1 Iron ore sampling and sample preparation method (GB/T 10322.1-2014, ISO 3082.2009, IDT)

GB/T 12806 laboratory glass instrument single standard line capacity bottle (GB/T 12806-2011, ISO 1042.1998, NEQ)

GB/T 12807 laboratory glass instrument indexing pipette

GB/T 12808 laboratory glass instrument single line pipette

3 Principle

The sample was decomposed with hydrochloric acid, nitric acid, sulfuric acid and hydrofluoric acid, evaporated to near dryness, dissolved and filtered. After the residue is burned, the hydrofluoric acid is used to remove the second

Silica and evaporate to near dryness. The residue was melted with sodium carbonate, and after cooling, the melt was leached with hydrochloric acid, and the residue leaching solution was combined with the main liquid.

The test solution was extracted with isobutyl acetate to separate iron. The volume of the test solution was adjusted by evaporation, acidified with nitric acid and diluted.

On the atomic absorption spectrometer, the test solution is sprayed into an air-acetylene flame to measure the absorption of cobalt at a wavelength of 240.7 nm or 252.2 nm.

Luminosity, the mass fraction of cobalt is calculated on the calibration curve.

4 reagents and materials

In the analysis, unless otherwise stated, only approved analytical reagents and secondary water in accordance with GB/T 6682 or equivalent in purity are used.

Water.