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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 13240-2018

Replacing GB/T 13240-1991

Iron ore pellets for blast furnace feedstocks -- Determination of the free-swelling index

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 13240-1991 "Measurement method for relative free expansion index of iron ore pellets".

Comparing GB/T 13240-1991, except for editorial changes, the main technical changes are as follows.

--- Added "Warning" and "Confirmation of 7 Equipment";

---In the "reduction" in the "inert gas" to "nitrogen"; After the reduction, the cooling end temperature is lower than 100 °C" instead of "cooling to room temperature (small

At 50°C)";

--- Modified Appendix A from the "repeatability and test times" to "sample analysis results acceptance program";

--- Deleted Appendix C "Calculation of reduction RIs".

This standard uses the redrafted method to amend ISO 4698.2007 "Measurement of free expansion index of blast furnace iron pellets".

Compared with ISO 4698.2007, this standard has the following structural adjustments.

--- Adjust 6.3 and 6.4 of ISO 4698.2007 to 6.4 and 6.3 of this standard respectively;

--- Adjust Chapter 11 of ISO 4698.2007 to Chapter 7 of this standard;

--- Adjust Chapter 7 of ISO 4698.2007 to Chapter 8 of this standard;

--- Adjust Chapter 8 of ISO 4698.2007 to Chapter 9 of this standard;

--- Adjust Chapter 9 of ISO 4698.2007 to Chapter 10 of this standard;

--- Adjust Chapter 10 of ISO 4698.2007 to Chapter 11 of this standard.

The technical differences between this standard and ISO 4698.2007 and its causes are as follows.

--- With regard to normative references, this standard has made adjustments with technical differences to adapt to China's technical conditions and adjustments.

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

* Replaced ISO 3082.2000 with GB/T 10322.1 that is equivalent to the international standard;

* Replaced ISO 11323.2002 with GB/T 20565 equivalent to the international standard.

--- The purity of the reducing gas consists of. "The impurities in the reducing gas should not exceed H20.2% (volume fraction), CO20.2% (volume fraction),

O20.1% (volume fraction), H2O0.2% (volume fraction)" is modified to "reduced gas purity CO99.9% (volume fraction)

Number), N299.99% (volume fraction), to meet the actual situation in China.

---In the "reduction" to increase the "temperature at this time the furnace shall not exceed.200 °C" and "heating rate shall not exceed 10 °C/min"

Seeking to make the operation more standardized.

--- In Appendix B, the "B.1 Mercury Capacity Meter Method" and "B.3 Mercury Infiltration Method" have been deleted to comply with the actual situation in China.

This standard is proposed by the China Iron and Steel Industry Association.

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

This standard was drafted by the People's Republic of China. China Entry-Exit Inspection and Quarantine Bureau, Shaoxing Shangyu Hongxing Machinery Instrument Manufacturing Co., Ltd.

the company.

1 Scope

This standard specifies the method for the determination of the free expansion index of pellets in the free reduction process of blast furnaces.

This standard applies to blast furnace iron pellets.

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 version (including all amendments) applies to this document.

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

GB/T 20565 Iron Ore and Direct Reduced Iron Terms (GB/T 20565-2006, ISO 11323.2002, IDT)

3 Terms and Definitions

The terms and definitions defined in GB/T 20565 apply to this document.

4 Principle

The volume of the test pellets at room temperature was measured using a volumetric device. The test sample is placed at 900°C under isothermal conditions

The fixed bed is free-reduced, reduced with a reducing gas containing carbon monoxide and nitrogen, reduced for 60 min, cooled to room temperature, measured after reduction

volume of. The free expansion index (expressed as a percentage) is calculated as the difference between the volumes before and after reduction.

5.1 Sampling and Sample Preparation

Sampling and sample preparation according to GB/T 10322.1, random selection of dry pellets with a total particle size of at least 1 kg, pellets

The particle size range should be 10.0mm~12.5mm. Before preparing the test sample, the sample should be dried to a constant weight in an oven at 105°C+/-5°C.

And cooled to room temperature.

Note. If the mass change of two consecutive dry samples does not exceed 0.05% of the original mass of the sample, the sample is considered to have a constant weight.

5.2 Preparation of Test Samples

At least 4 test samples were prepared, and each test sample consisted of 18 pellets that were randomly obtained from the sample and obtained as pellets.