NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 14201-2018

Iron ore pellets for blast furnace and direct reduction feedstocks -- Determination of the crushing strength

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Foreword

This Standard was drafted as per the rules specified in GB/T 1.1-2009.

This Standard replaced GB/T 14201-1993 Ore Pellets - Determination of Crushing Strength. Compared with GB/T 14201-1993, this Standard has the major technical changes as follows besides the editorial modifications:

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

--- Add "load drops to 50% of the recorded maximum load value, or appear load higher than the recorded maximum value" in the test end conditions of "analysis procedures";

--- Add "when the crushing strength of individual pellets is lower than 10daN, it shall be excluded when calculating the final result" in the "analysis procedures";

--- Modify the content of information that "test report" shall include.

This Standard uses redrafting method to modify and adopt ISO 4700:2015 Iron Ore Pellets for Blast Furnace and Direct Reduction Feedstocks - Determination of the Crushing Strength.

Compared with ISO 4700:2015, this Standard has the structural adjustments as follows:

--- Adjust the Clause 10 of ISO 4700:2015 into Clause 7 of this Standard;

--- Adjust the Clause 7 of ISO 4700:2015 into Clause 8 of this Standard;

--- Adjust the Clause 8 of ISO 4700:2015 into Clause 9 of this Standard;

--- Adjust the Clause 9 of ISO 4700:2015 into Clause 10 of this Standard.

The technical differences and the causes between this Standard and ISO 4700:2015 are as follows:

--- With regard to Normative References, this Standard has adjusted the technical differences to meet the technical conditions of China. The adjustments are reflected in Clause 2 "Normative References". The specific adjustments are as follows:

* Replace ISO 3082 by GB/T 10322.1 that equivalently adopts international standards;

* Replaced ISO 11323 by GB/T 20565 that equivalently adopts international standards.

Iron Ore Pellets for Blast Furnace and Direct Reduction Feedstocks - Determination of the Crushing Strength

Warning: Personnel using this standard shall have practical experience working in formal laboratory. This standard does not point out all possible safety issues. It is the user's responsibility to take appropriate safety and health measures and to ensure compliance with the conditions prescribed by the relevant national regulations.

1 Scope

This Standard specifies the method for determining the crushing strength of iron ore pellets for blast furnace and direct reduction feedstocks.

This Standard is applicable to iron ore pellets for blast furnaces and direct reduction feedstocks.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.

GB/T 10322.1 Iron Ores - Sampling and Sample Preparation Procedures (GB/T 10322.1-2014, ISO 3082:2019, IDT)

GB/T 20565 Iron Ores and Direct Reduced Iron - Vocabulary (GB/T 20565-2006, ISO 11323:2002, IDT)

3 Terms and Definitions

For the purpose of this document, the terms and definitions given in GB/T 20565 apply.

6.1 Overview

The test equipment shall include the following parts:

a) Conventional test equipment, such as ovens, hand tools and safety devices, etc.;

b) Iron pellet pressure testing machine, including load device, load transmission system, load indicator or recorder.

6.2 Load device

It is composed of two flat steel pressure plates, which are horizontal and parallel to each other. The part of the plate surface that is in contact with the specimen shall be made of hardened steel sheet. It shall be possible to ensure that during the whole test period, the lifting speed of the pressure plate device is adjusted to a certain fixed speed within the range of 10mm/min~20mm/min.

NOTE: If the speed of the pressure plate is not fixed during the test, the results may be different;

it depends on the used different equipment. Pressing machine that increases the load at a constant speed may achieve more uniform and stable results.

6.3 Load transmission system

It may be a load cell or lever. The transmission capacity of the load cell shall be at least 10kN.

6.4 Load indicator or recorder

The load-sensing electric indicators (recording instruments, pointer instruments or other suitable equipment), or lever-type mechanical indicators (pointer gauges or other suitable instruments) may be used. When using a load cell, the full-scale deflection time of the pen tip of the recording instrument shall be within 1s. The minimum scale is 1/100 of full scale. Pressing devices shall be checked regularly.

7 Confirmation of Equipment

In order to ensure the reliability of the test results, it is necessary to regularly check and confirm the equipment. The frequency of inspection is determined by each laboratory.

The inspection items shall include:

--- Pressure plate;

--- Load device;

--- Load transmission system;

--- Load indicator;

--- Recorder.

It is recommended to prepare internal reference materials for periodic inspection of test repeatability.

Records of the above verification activities shall be kept.

8.1 The number of tests

To complete the test, 60 or more pellets are required (see 5.2).

8.2 Applied load

Put a specimen (single pellet) at the center of the hard surface part of the lower pressure plate; apply the load at a constant speed (a fixed speed within the range of