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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 10322.3-2024

**Iron ores - Experimental methods for checking the precision of
sampling**

铁矿石 校核取样精密度的实验方法

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting is required:

This document is Part 3 of GB/T 10322: GB/T 10322 has been published in the following parts:

- Iron ore sampling and sample preparation methods;
- Experimental method for assessing quality fluctuations of iron ore;
- Experimental method for checking the sampling precision of iron ore;
- Experimental method for checking sampling deviation of iron ore;
- Determination of moisture content in iron ore delivery batches;
- Determination of thermal cracking index of iron ore for blast furnace charge;
- Sieving determination of particle size distribution of iron ore and direct reduced iron;
- Single-point measurement of specific surface area of iron ore by nitrogen adsorption method;
- Determination of specific surface area of iron ore by Blaine permeability method:

This document replaces GB/T 10322.3-2000 "Experimental method for checking the precision of iron ore sampling":

Compared with GB/T 10322.3-2000, the main technical content changes are as follows:

- a) The scope has been changed (see Chapter 1, Chapter 1 of the:2000 edition);

- b) Added the provision that "when an odd number n_1 of increments is used for the test, the number of increments should be increased so that the number of the constituent increments is equal" (see 5.1:3);
- c) The sample preparation and measurement requirements have been changed (see 5.2, 5:2 of the:2000 edition);
- d) Added the calculation method for the time interval of regular sampling (see 6.1:1:3);
- e) The content of secondary sampling has been deleted (see 6.1:3 of the:2000 edition);
- f) The calculation of the range has been deleted (see 7.1:5 and 7:2:5 of the:2000 edition);
- g) Added control limits for the range R control chart (see 7.2:6);
- h) The method for processing data exceeding the upper control limit has been changed (see 7.2:7, 7:3:7, 7:4:4, and 7:1:6, 7:2:6, 7:3:3 of the:2000 edition);
- i) Added the treatment method when the settlement results of sampling variance and sample preparation variance are negative (see 7.2:8 and 7:3:8);
- j) Added the calculation method of total precision (see 7.2:10 and 7:3:10);
- k) The calculation of the average value of the range has been deleted (see 7.3:1 and 7:3:4 of the:2000 edition);
- l) The calculation method of total precision for 2n replicates has been changed (see 7.4:2, 7:3:1 and 7:3:4 of the:2000 edition);
- m) Changed the upper control limit of the R chart (see 7.4:3, 7:3:2 of the:2000 edition)
- n) The description of results has been changed (see 8.1, Chapter 8 of the:2000 edition);
- o) Modified the changes in the inspection quality fluctuation (see 8.2:1, 8:1 of the:2000 edition);
- p) Added methods for verifying sample preparation and measurement procedures (see 8.2:4):

This document is equivalent to ISO 3085:2019 "Experimental methods for sampling, sample preparation and measurement precision of iron ore":

The following editorial changes were made to this document:

--- Change the name of the standard to "Experimental method for checking the precision of iron ore sampling":

Introduction

Iron ore is the main raw material for the steel industry: In the steel industry standard system, there are a series of standards for iron ore sampling, sample preparation, and

physical test methods:

Standards are a very important part of it and play an important role in ensuring the quality of iron ore products: This series of methods and standards serve the production, trade and application, providing technical support for the high-quality development of my country's steel industry:

GB/T 10322 series of standards respectively stipulates the sampling and sample preparation methods, the experimental methods for evaluating quality fluctuations, and the methods for verifying the sampling precision:

Experimental methods, experimental methods for checking sampling deviation, determination of moisture content of delivery batches, determination method of hot cracking index, sieving test for particle size distribution Method for determining specific surface area:

In:2000, GB/T 10322 first issued five national standards for iron ore sampling and preparation:

The current series of standards have been formed through the formulation and revision of standards based on actual production needs: GB/T 10322 is planned to consist of 9 parts:

- Iron ore sampling and sample preparation methods;
- Experimental method for assessing quality fluctuations of iron ore;
- Experimental method for checking the sampling precision of iron ore;
- Experimental method for checking sampling deviation of iron ore;
- Determination of moisture content in iron ore delivery batches;
- Determination of thermal cracking index of iron ore for blast furnace charge;
- Sieving determination of particle size distribution of iron ore and direct reduced iron;
- Single point determination of specific surface area of iron ore by nitrogen adsorption method;
- Determination of specific surface area of iron ore by Blaine permeability method:

Experimental Method for Verifying the Precision of Iron Ore Sampling

1 Scope

This document specifies the procedures for sampling, sample preparation, measurement and calibration according to the methods specified in ISO 3082 and related iron ore measurement standards:

Experimental methods for density:

This document can also be used to individually check sampling precision, sample

preparation precision and measurement precision:

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document:

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document:

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Note: GB/T 10322.1-2023 Iron ore sampling and sample preparation methods (ISO 3082:2017, IDT) of quality variation) **Note:** GB/T 10322.2-2000 Test method for evaluating quality fluctuation of iron ore (ISO 3084:1998, IDT) **Note:** GB/T 20565-2022 Terminology of iron ore and direct reduced iron (ISO 11323:2010, IDT)

3 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO 11323 apply:

4 Principle

From 20 or more delivery lots, take two times the number of samples specified in ISO 3082 and alternate them in order to form two large batches:

If this is not possible, precision testing may be combined with routine sampling using the normal number of increments specified in ISO 3082:

Each bulk sample is individually prepared into test specimens and the relevant quality characteristics are measured:

Analyze the data obtained from the experiment and calculate the estimated sampling precision, sample preparation precision and measurement precision for each selected quality characteristic:

Valuation:

Compare the estimated precision with the specified value in Table 1 of ISO 3082:2017: If the estimated precision does not reach the specified value, Adjustment measures should be taken:

5 General conditions