



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

GB/T 14202-1993

ores (sinter and pellets) - Determination of bulk density

铁矿石（烧结矿、球团矿） 容积密度测定方法

(English Translation)

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1 Theme Contents and Applicable Scope

This Standard specifies two measurement methods to determine the bulk density of natural and artificial iron ores.

Method-1 is suitable for iron ore with a maximum particle size of 40.0 mm or less.

Method-2 is applicable to iron ores with any maximum particle size.

NOTE: The bulk density measured here does not necessarily represent the actual bulk density of natural or artificial ores in a compact state or in a stacked state.

2 Normative Reference

GB 2007 General Rules for the Sampling and Sample Preparation of Minerals in Bulk GB 10122 Iron Ores (Sinter and Pellets)-Sampling and Sample Preparation for Physical Testing

3.1 Maximum particle size

The particle size is expressed by the sieve size (mm); when the residual amount on the sieve is about 5% (mass percentage) of the total sieved ore, then the sieve size of the sieve grade shall be the maximum particle size.

5 Specimen

The specimen shall be representative and consistent with the procedures agreed between the supplier and the purchaser.

5.1

The number of specimens shall guarantee the amount of three bulk density tests;

that is, the mass of three times the volume of the container with some surplus. In addition,

there are specimens for measuring the supplying moisture and particle size;
these two factors are the main factors affecting bulk density.

5.2

In the case of Method-1 with a volume of 0.05m³, the smallest sample is 600kg; of which three 150kg are used for bulk density test; and the other 150kg specimen is used for measuring moisture and particle size distribution.

5.3

In the case of Method-2, the minimum specimen weight is 35t; and the recommended quantity is 50t.

Depending on the type and composition of iron ore, the volume of a 30t specimen is about 14~24m³.

6 Test Procedure

No matter which of the two methods is used in the bulk density test, double specimens (that is, two tests) must be prepared; meanwhile, the ore moisture and particle size distribution must be determined in accordance with the relevant provisions of GB 2007 and other standards.

6.1 Method-1

The test may use the delivered sample, or the naturally dried specimen, or the oven-dried specimen. The oven-dried specimen needs to be dried to constant weight at 105±5 °C. Dry specimens need to be cooled to room temperature before testing.

6.1.1 Weigh the dry container (4.1.1), write down its mass as m₀; weigh and accurate

to 0.2kg.

6.1.2 Fill the container with the delivered specimen, the naturally dried specimen or the oven-dried specimen. When loading, use the No.50 sampling shovel for the volume of 0.05m³, and use the No.10 sampling shovel (4.1.4) for the volume of 0.01m³. The discharge height (the height from the material surface in the container) is kept at about 50mm. Care should be taken during loading and unloading to avoid material segregation. When the material is full and there is overflow, use a ruler to smooth the material surface.