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Chromite sand for foundry

铸造用铬铁矿砂

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Chromite sand for foundry

1 Scope

This standard specifies the terms and definitions, grouping, grading and designations, technical requirements, test methods, inspection rules and signs, packaging, transportation and storage of chromite sand for foundry.

This standard applies to chromite sand used in casting and core making of foundry.

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) is applicable to this standard.

GB/T 2684 Test methods for foundry sands and molding mixtures

GB/T 5611 Foundry terminology

GB/T 6682 Water for analytical laboratory use - Specification and test methods

GB/T 9442 Foundry silica sand

GB/T 24220 Chromium ores - Determination of hygroscopic moisture content in analytical samples - Gravimetric method

GB/T 24221 Chromium ores - Determination of calcium and magnesium contents - EDTA titrimetric method

GB/T 24227 Chromium ores and concentrates - Determination of silicon content - Spectrophotometric method and gravimetric method

GB/T 24230 Chromium ores and concentrates - Determination of chromium content - Titrimetric method

3 Terms and definitions

The terms and definitions as defined in GB/T 5611 as well as the following terms and definitions apply to this document.

7 Inspection rules

7.1 All test sampling methods of chromite sand for foundry shall be implemented in accordance with GB/T 2684.

7.2 The mass of each batch of chromite sand for foundry shall be determined according to the supply situation, each batch shall generally not exceed 70 t. In special circumstances, it shall be resolved through negotiation between the supplier and the buyer.

7.3 Each batch of chromite sand for foundry supplied by the supplier shall be inspected in accordance with the technical requirements specified in this standard and the items agreed between the supplier and the buyer, meanwhile the inspection results and designations shall be written into the product certificate.

7.4 The purchaser can carry out quality inspection of chromite sand for foundry according to this standard. If any index in the inspection result does not meet the requirements of this standard, it shall double the samples from the same batch of products for re-inspection. If the result of the re-inspection still does not meet the requirements of this standard, the supplier and the buyer shall negotiate to resolve or entrust a qualified third-party arbitration institution selected by both parties to conduct arbitration.

8 Marking, packaging, transportation and storage

8.1 The packaging of chromite sand for foundry shall have a firm and clear mark, which shall indicate the words, designation, batch number, net weight, full name of the supplier of the chromite sand for foundry.

8.2 Chromite sand for foundry shall be packed in woven bags lined with plastic bags. The packaging must be tight, clean and moisture-proof. It can be divided into 25 kg woven bag and 1 t container bag. Or otherwise, the supplier and buyer shall agree separately according to the actual situation.

8.3 Chromite sands for foundry of different designations shall be shipped and stored separately; it must be protected from moisture and sun exposure during transportation and storage.

Appendix B

(Normative)

Determination of the total iron content (ΣFe) in chromite ore for foundry

B.1 Principle

The sample is melted by sodium peroxide; the frit is leached by water. The iron hydroxide is precipitated by ammonia water; the precipitate is separated, then the precipitate is dissolved in hydrochloric acid. Evaporate the solution; use stannous chloride to reduce most of the trivalent iron to divalent iron; use sodium tungstate as an indicator; use titanium trichloride to reduce the remaining trivalent iron to divalent iron; use potassium dichromate to oxidize the excessive titanium trichloride.

B.2 Reagents

Unless otherwise specified in the analysis, only use approved analytical reagents and distilled water or water of equivalent purity, which meets the requirements of GB/T 6682.

The hot water or hot solution listed in the analysis means its temperature is 60 °C ~ 80 °C.

B.2.1 Sodium peroxide (Na_2O_2), dry powder.

Note: Sodium peroxide shall be as dry as possible; once it agglomerates, it cannot be used.

B.2.2 Hydrochloric acid (ρ = 1.19 g/mL).

B.2.3 Hydrochloric acid (1 + 2).

B.2.4 Hydrochloric acid (1 + 9).

B.2.5 Hydrochloric acid (1 + 100).

B.2.6 Sulfuric acid (ρ = 1.84 g/mL).

B.2.7 Sulfuric acid (1 + 20).

B.2.8 Phosphoric acid (ρ = 1.70 g/mL).

B.2.9 Ammonia (ρ =0.91 g/mL).

B.2.10 Thiophosphate mixed acid: While stirring, inject 150 mL of phosphoric

B.4.1 Laboratory samples

The sample for analysis is divided into quarters, to obtain finally about 20 g of the specimen, which is ground to make it all pass 106 μm (140 mesh sieve).

B.4.2 Preparation of pre-dried specimen

According to the requirements of GB/T 24220, the specimen is dried at a temperature of 105 °C ~ 110 °C.

B.5 Analytical procedures

B.5.1 Number of determinations

For the same pre-dried specimen, perform at least 2 independent determinations.

B.5.2 Sample amount

Weigh 0.20 g of the pre-dried specimen (B.4), accurate to 0.0001 g.

B.5.3 Blank test and verification test

While measuring the sample, determine the blank value of the reagent. Before iron reduction (B.5.5), add 1.0 mL of ferrous ammonium sulfate solution (B.2.15) as a calibration test for adding iron (II); meanwhile analyze the same type of standard samples for verification tests.

B.5.4 Decomposition of sample

Put 5 g of sodium peroxide (B.2.1) in a 30 mL ~ 50 mL corundum crucible; mix it with the sample (B.5.2) uniformly; cover 1 g ~ 2 g of sodium peroxide (B.2.1). Heat it at 500 °C ~ 600 °C, until the contents of the crucible are completely melted; then heat it at about 700 °C for 5 min, until a uniform frit is obtained.

Cool the crucible; place the crucible in a 600 mL beaker; add 300 mL of hot water; cover with a watch glass. After the violent reaction stops, add 20 mL of ammonium chloride solution (B.2.11); then boil it for 5 min.

Take out the crucible; use hot water to rinse it. Allow the residue to settle for a few minutes; use a double-layer medium-speed filter paper to filter it. Use hot water to rinse the residue on the beaker and filter paper 3 ~ 4 times.

Use hot hydrochloric acid (B.2.4) to flush the residue into the original beaker.

Use hot hydrochloric acid (B.2.4) to rinse the filter paper 6 ~ 8 times; collect the rinsing liquid in the same beaker.

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