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**Slag material - Measurement of melting temperature -High
temperature metallographic method**

渣类材料 熔化温度的测定 高温金相法

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Slag material - Measurement of melting temperature -High temperature metallographic method

1 Scope

This document specifies the method principle, instrument and sample preparation equipment, specimen preparation, test steps and test report for the determination of melting temperature of slag materials.

This document applies to the determination of smelting slag and continuous casting mold flux by high temperature metallographic method. This document can also be used for the determination of the melting temperature of ores with similar compositions as reference.

This document does not apply to slag-type materials that react with platinum flakes.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

YB/T 186, *Method of the test for melting temperature of continuous casting mold powder*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 melting temperature

The temperature at which the slag specimen melts to form a circular arc and begins to flow uniformly outward.

NOTE: The melting temperature of slag materials is mainly determined by the type and content of the composition.

4 Method principle

Use a high temperature microscope. Place the prepared cylindrical specimen on a

5.2.1 The crucible shall be an alumina crucible. Recommended crucible size: outer diameter is 9mm, inner diameter is 8mm, depth is 4mm, bottom thickness is 1mm.

5.2.2 Platinum gasket is used at the bottom of the crucible. The platinum gasket is 7mm in diameter and 0.05mm thick.

5.3 Forming mold

The forming mold is made by stacking three stainless steel sheets of the same size with a thickness of 3mm. Fix with screws. The upper two pieces have more than 3 holes with a diameter of 3mm. The holes of which the diameter is 1.5mm, 2mm or other can also be used in special cases. When the specimen is pressed, a small die steel bar of the same diameter shall be used.

6 Specimen preparation

6.1 Sampling

The sampling location shall be representative of the typical composition of the entire product.

6.2 Preprocessing

For mold slag containing volatile matter or mold slag containing expanded graphite, it shall be pre-fired in a muffle furnace at 600°C ~ 700°C for at least 2h.

6.3 Sample preparation

The specimen is pulverized into powder with a particle size of 0.074mm (200 mesh) or less. After mixing the powder and absolute ethanol in an agate mortar, take 5g~10g of the mixture in the molding die and compact it. Store in a desiccator. For individual samples that are difficult to compact, add a little dextrin. Use water to reconcile the specimen.

6.4 Specimen size and quantity

Unless otherwise specified, the specimen is generally 3mm in diameter and 3mm in height. There are no less than 3 specimens in each group.

7 Test steps

7.1 Turn on the device.

7.2 Place the specimen upright on the platinum sheet in the crucible. Then place the crucible on the sample rod in the furnace. Cover the stove.

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