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**Technical specification of mechanical sample preparation for
measuring coke reactivity index and coke strength after
reaction**

焦炭反应性及反应后强度机械制样技术规范

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Technical specification of mechanical sample preparation for measuring coke reactivity index and coke strength after reaction

1 Scope

This standard specifies the mechanical preparation instruments and equipment of specimen, specimen preparation methods, equipment installation and maintenance requirements, for the measuring the coke reactivity index and coke strength after reaction.

This standard applies to the preparation of specimens for measuring the coke reactivity index and coke strength after reaction.

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 1997 Coke - Sampling and preparation of samples

GB/T 4000 Coke - Determination of reactivity and strength after reaction

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Crushing and screening machine for coke particles

A device, which uses the principle of impact crushing, where the hammer head of the crusher rotates at a certain speed, so that the coke is continuously impacted, rubbed, ground, broken by the hammer head in the crusher cavity, thereby producing the spherical-similar coke particles, which meet requirements.

3.2

Chamfering machine of coke particles

A device, which uses the principle of rolling shear, to grind and cut the coke surface, thereby obtaining the spherical coke particles of standard size.

4 Instruments and equipment

4.1 Crushing and screening machine for coke particles

4.1.1 Crushing and screening machine for coke particles is composed of a hammer head, a motor, a reducer, a reciprocating sieve, etc. Figure 1 is a schematic diagram of a typical crushing and screening machine for coke particles.

4.1.2 Hammer head components: a total of 4 pieces, which are made of 45 steel (surface quenching: HRC50 ~ HRC55). The schematic diagram of the hammer head assembly is as shown in Figure 2.

4.1.3 The material of the shaping sieve is 65Mn; the thickness is ≥ 10 mm. The aperture is $\Phi 26$ mm ~ $\Phi 29$ mm. The schematic diagram of the unfolding of the shaping sieve is as shown in Figure 3.

4.1.4 The mesh size of the reciprocating sieve: $\Phi 20$ mm ~ $\Phi 23$ mm.

4.1.5 Loading particle size: < 100 mm.

4.1.6 Discharge particle size: ≥ 23 mm.

4.1.7 Rated power: 5.5 kW.

4.2 Chamfering machine of coke particles

4.2.1 The chamfering machine of coke particle is composed of a trommel sieve, a motor, a reducer, etc. Figure 4 is a schematic diagram of a typical chamfering machine of coke particle.

4.2.2 The trommel sieve is made of 45 steel. The schematic diagram of the trommel sieve is as shown in Figure 5.

4.2.3 Grinding wheel: The particle size is 24#; the size is as shown in Figure 6.

4.2.4 Loading mass: < 5000 g.

4.2.5 Loading particle size: ≥ 23 mm.

4.2.6 Discharge particle size: $\Phi 23$ mm ~ $\Phi 25$ mm, spherical.

5.2.3 The crushing and screening machine for coke particles crushes and sieves the coke; takes out the coke, which is larger than 23 mm; loads it into the trommel sieve of the chamfering machine of coke particle, for the purposes of chamfering.

5.2.4 Turn on the chamfering machine of coke particle. The spherical coke and coke powder of $\Phi 23$ mm ~ $\Phi 25$ mm are automatically discharged from the trommel sieve. Pick out the obvious oval coke, from the coke particles.

5.2.5 For spherical coke of $\Phi 23$ mm ~ $\Phi 25$ mm, use a divider to separate 500 g of coke, which is sent to the laboratory; the rest can be kept as a reserved sample.

5.3 Granularity requirements

The particle size of coke samples shall meet the requirements of GB/T 4000. The test sieve and spherical coke particle treatment, which are used in this standard, shall meet the requirements of the specified standard for the specimen.

Note: Other mechanical specimen preparation methods are allowed; the particle size shall meet the requirements of GB/T 4000. In case of disputes, the mechanical specimen preparation method of this standard shall prevail.

5.4 Deviation of specimen particle size

The particle size deviation of the specimen is ≤ 0.5 mm.

6 Equipment installation and maintenance

6.1 Crushing and screening machine for coke particles

6.1.1 Install the machine on the level ground; find the level; fix the feet.

6.1.2 The bearing seat and reducer shall be filled with oil in time AND checked regularly.

6.1.3 Regularly check whether the bolts of the motor, reducer, bearing seat are loose; if it is loose, tighten it.

6.1.4 Regularly check the oil cup. Fill in oil in time, when the oil level reaches the lower limit.

6.1.5 Regularly check the sieve and hammer head. If the diameter of the hammer head is less than $\Phi 113$ mm, replace the hammer head in time. Any hole, which has a diameter exceeding 29.5 mm, is deemed as a waste hole. When the waste hole rate of the sieve exceeds 10% OR the thickness of the bottom of the sieve is less than 5 mm, it is necessary to replace the sieve in time.

6.1.6 The equipment shall be equipped with dust removal facilities.

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