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Replacing GB 50408-2007

Code for design of sintering plant

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1 General

1.0.1 This specification is formulated to ensure the design quality of sintering engineering, realize advanced technology, reasonable economy, safety and applicability, energy saving and emission reduction, and recycling.

1.0.2 This code is applicable to the new construction and reconstruction design of various types of iron ore sintering plants.

1.0.3 The design of the sintering plant shall not only comply with this specification, but also comply with the current relevant national standards.

2.0.1 Raw materials

Refers to iron-containing raw materials, which is the general term for iron powder ore, iron concentrate and other iron-containing materials used in sintering.

2.0.2 Flux flux

Limestone, dolomite, serpentine, quicklime, slaked lime, lightly burned dolomite powder, magnesite and other alkaline substances and silica sand and other silicon-enhancing fluxes.

2.0.3 fuel

The general term for coke powder, anthracite and gas. Coke powder and anthracite are also called solid fuels.

2.0.4 blending yard

The place where raw materials are prepared, stacked, mixed and stored.

2.0.5 Blended ores

Raw materials with different physical and chemical properties are pre-mixed, stacked and mixed to achieve the expected uniform physical and chemical properties.

2.0.6 Sintering sintering

Iron-containing raw materials are added with flux and solid fuel, mixed according to the required ratio, mixed with water and granulated, then spread flat on the sintering machine trolley, and sintered into blocks by ignition and ventilation.

2.0.7 Utilization coefficient sintering machine productivity

The hourly output of finished sintered ore per unit sintering area, expressed in t/(m2.h).

2.0.8 Automatic weight proportioning

The method for automatically adjusting the given amount of various materials according to the weight ratio of the required iron-containing raw materials, flux, solid fuel, etc.

2.0.9 fuel points plus divided fuel addition

The method in which solid fuel is added to the mixture separately in the batching chamber and after granulation.

2.0.10 Mixture

Ferrous material, flux, solid fuel and added water are mixed and pelletized.

2.0.11 hearth layer

A layer of underlayment that is laid before sintering the trolley cloth.

2.0.12 bed depth

During production, the sum of the thickness of the mixture on the sintering machine trolley and the thickness of the bottom layer.

2.0.13 Permeability of material layer

The mixed material spread on the sintering machine, under the condition of certain material layer thickness and negative pressure, the air volume passing per minute per unit sintering area.

2.0.14 minipellet sintering

A method of sintering the mixed material into pellets larger than 3mm and accounting for more than 75%.

2.0.15 Low temperature sintering

Sintering at a temperature lower than 1280°C produces a sintering method in which acicular calcium ferrite with high strength and good reducibility is the main binder phase.

2.0.16 hot air sintering hot gas sintering

The method of introducing the hot waste gas of the cooling machine into the sealing cover of the sintering machine behind the ignition furnace for sintering.

2.0.17 sinter cake

The material formed after sintering is completed.

2.0.18 hot return fines

After the sintered cake is crushed and sieved by hot ore, the undersize with a particle size of less than 5mm is obtained.

2.0.19 off-strand cooling

After the sinter cake is broken, it is cooled in the cooler outside the sintering machine.

2.0.20 on-strand cooling

The cooling of the sintered cake on the sintering machine.

2.0.21 Whole grain sinter sizing of sintered ore

After the sinter is cooled, it is screened and granulated, and the finished sinter, the bottom material for sintering and the process of returning ore are separated into the finished sinter

within the particle size range required by the blast furnace.

2.0.22 cold return fines

After the sinter is cooled, the returned ore with a particle size of less than 5mm is separated by screening and sizing.

2.0.23 High basicity sinter high basicity sinter

Sintered ore with an alkalinity (CaO/SiO2) of 1.7 or higher.

2.0.24 burden design

The composition of the iron-containing charge loaded into the blast furnace during blast furnace ironmaking, that is, the combination of various charge materials such as lump ore, sintered ore and pellet ore.

2.0.25 main electrical building

Set up workshops for power transformation and distribution equipment and automatic control equipment.

2.0.26 main control room

The center for centralized operation, monitoring, production organization and command and control of production process and equipment.

2.0.27 waste heat recovery

The process of recycling the hot waste gas and other heat generated in the sintering and cooling process.

2.0.28 Sintering process of flue gas re-circulation

A sintering process that returns part of the hot flue gas generated during the sintering production process to the sintering material surface for reuse.

3 Basic Regulations

3.0.1 The design of the sintering plant should have sufficient design basis and complete design basic data and environmental impact assessment report.

3.0.2 The site of the sintering plant should be selected within the iron and steel company and close to the blast furnace and the raw material mixing yard, and the topography, engineering geology, hydrology, earthquake, environmental protection and historical flood elevation, meteorology, nature, ecology and society should be considered Factors such as