GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

ICS 27.010

F 01

GB 30526-2019

Replacing GB 30526-2014

The norm of energy consumptions for unit product of sintering wall materials and cellular glass

烧结墙体材料和泡沫玻璃单位产品 能源消耗限额

Issued on: October 14, 2019 **Implemented on: May 01, 2020**

Issued by: State Administration for Market Regulation;
Standardization Administration of the People's Republic of China.

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The norm of energy consumptions for unit product of sintering wall materials and cellular glass

1 Scope

This Standard specifies the norm grade, technical requirements, statistical range and calculation method of energy consumption for unit product (hereinafter referred to as energy consumption) of sintering wall materials and cellular glass.

This Standard applies to the calculation and assessment of energy consumption of fired perforated brick and block, fired hollow brick and block, fired heat preservation brick and block, sintered solid products and thermal insulation cellular glass production enterprises, as well as the energy consumption control of the new (rebuilt, expanded) enterprises or production lines.

2 Normative references

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

GB/T 384, Determination of calorific value of petroleum products

GB/T 2589, General principles for calculation of the comprehensive energy consumption

GB/T 4132, Definitions of terms relating to thermal insulating materials

GB/T 5101, Fired common bricks

GB/T 12723, General principles for establishing allowance of energy consumption per unit throughput

GB/T 13544, Fired perforated brick and block

GB/T 13545, Fired hollow bricks and blocks

GB 17167, General principle for equipping and managing of the measuring instrument of energy in organization of energy using

GB/T 21149, Fired roofing tiles

GB/T 24851, Specification for equipping and managing of measuring instrument of energy in building material industry

GB/T 26001, Fired paving units

GB/T 26538, Fired heat preservation brick and block

JC/T 647, Cellular glass product for thermal insulation

3 Terms and definitions

Terms and definitions determined by GB/T 2589, GB/T 4132, GB/T 12723 and the following ones are applicable to this document.

3.1 The comprehensive energy consumption for unit qualified product of sintering wall materials

The sum of various energy sources that are used for the production of unit qualified product of sintering wall materials in the statistical period, which is converted according to the prescribed calculation methods.

3.2 The comprehensive energy consumption of cellular glass

The total amount of various energies that are actually consumed in the production of cellular glass during the report period.

3.3 The comprehensive energy consumption per unit product of cellular glass

The energy consumption, that is converted into tons, of the total energy consumption in the production process of cellular glass, which is based on the output of qualified products in the report period.

3.4 Fused glass

A solid material that is obtained by mixing materials such as quartz sand, wax stone, soda ash and so on in a certain proportion, and clarifying into a glass liquid by melting in a kiln, and cooling through a cooling pool.

Note: fused glass is a raw material for the production of cellular glass.

4 Energy consumption norm grade

4.1 Sintering wall materials

See Table 1 for the energy consumption norm grade for unit product of sintering wall materials, where grade 1 has the lowest energy consumption.

The energy consumption limit value for unit product of the existing cellular glass production enterprises shall be in accordance with the grade 3 requirements in Table 2.

5.2 Energy consumption access value for unit product of sintering wall materials and cellular glass

The energy consumption access value for unit product of the new (rebuilt, expanded) sintering wall material production enterprises shall be in accordance with the grade 2 requirements in Table 1.

The energy consumption access value for unit product of the new (rebuilt, expanded) cellular glass production enterprises shall be in accordance with the grade 2 requirements in Table 2.

6 Statistical range and calculation method

6.1 Sintering wall materials

6.1.1 Statistical range

The comprehensive energy consumption statistical range of sintering wall materials includes various energy consumptions in the whole production process from raw material preparation to finished product stacking, excluding living energy consumption.

6.1.2 Statistical method

When measuring and counting the consumed energy consumption amount and the product output during the statistical period, the energy measuring instruments that meet the requirements of GB 17167 shall be equipped; neither recalculation nor missing calculation is allowed. Specifically, in the statistics, various energy sources are converted into standard coal; various energy-converted standard coal reference coefficients and the average converted heat of energy-consuming working materials are shown in Appendix A.

6.1.3 Calculation method

6.1.3.1 Overview

The calculation of comprehensive energy consumption of products shall comply with the provisions of GB/T 2589.

6.1.3.2 Calculation of comprehensive energy consumption of products

The statistical comprehensive energy consumption of sintering wall material products shall be calculated according to Formula (1):

6.2.1.3 Use measuring instrument of energy to measure and count the amount of energy consumption during the report period; do not recalculate or miss calculation. The measuring instrument of energy shall comply with the relevant provisions of GB 17167 and GB/T 24851.

6.2.2 Calculation method

6.2.2.1 Calculation of comprehensive energy consumption of products

The comprehensive energy consumption of cellular glass shall be calculated according to Formula (6):

$$E = \sum_{i=1}^{n} (e_i \times p_i) \qquad \cdots\cdots (6)$$

Where:

E -- the comprehensive energy consumption, in kilograms of standard coal (kgce);

e_i -- the physical quantity of the i^{th} energy that is consumed in production activity, in physical unit;

p_i -- the i^{th} energy source-converted standard coal coefficient; it is converted according to the equivalent value of energy;

n -- the number of energy types that are consumed by the enterprise.

6.2.2.2 Calculation of unit comprehensive energy consumption of products

The comprehensive energy consumption per unit product of cellular glass shall be calculated according to Formula (7):

$$e = \frac{E}{P} \qquad \cdots\cdots (7)$$

Where:

e -- the comprehensive energy consumption per unit product, in kilograms of standard coal per ton (kgce/t);

P -- the output of qualified products during the report period, in tons (t).

6.2.2.3 Conversion of standard coal

The various energy sources that are consumed shall be converted into standard coal according to the calorific value. The calorific value of the fuel is based on the average low (order) calorific value of the fuel that is measured by the

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