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The norm of energy consumption per unit product of aluminium silicate wools and products

硅酸铝纤维及制品 单位产品能源消耗限额

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1 Scope

This document specifies the norm grades, technical requirements, statistical scope and calculation method of energy consumption per unit product of aluminium silicate wools and products.

This document applies to the calculation and assessment of energy consumption of aluminium silicate wools and products, as well as the energy consumption control of newly built (rebuilt, expanded) projects.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. For dated references, only the version corresponding to that date is applicable to this document; for undated references, the latest version (including all amendments) is applicable to this document.

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

GB/T 3003, Refractory fibres and the products

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

GB/T 16400, Aluminium silicate wool and its products for thermal insulation

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

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

3 Terms and definitions

Terms and definitions determined by GB/T 2589, GB/T 12723 and GB/T 16400, and the following ones are applicable to this document.

consumed and exported from the construction of infrastructure, technological transformation and other projects.

6.1.1.2 Various energy sources shall be uniformly converted into standard coal according to their calorific value. If there are actual measurement conditions, the calorific value measured by the enterprise during the statistical period shall prevail. If there is no actual measurement condition, use the energy conversion coefficient given in GB/T 2589 to convert into standard coal.

6.1.1.3 The statistical period is a natural year

6.1.2 Classification

6.1.2.1 Aluminium silicate wools

The energy consumption of aluminium silicate wools shall include the energy consumption of all production systems, auxiliary production systems and subsidiary production systems involved in the process from the raw materials entering the conveying and batching stage to the warehousing of cellucotton. The spinning process shall include: melting furnace, flow port, air compressor, fan, water pump, spinning, cotton collecting box mesh belt and dust removal. The injection process shall include: melting furnace, flow port, air compressor, fan, water pump, cotton collecting box mesh belt and dust removal.

6.1.2.2 Needled aluminium silicate wool blanket

The energy consumption of needled aluminium silicate wool blanket shall include the energy consumption of all production systems, auxiliary production systems, and subsidiary production systems involved in the process from the cellucotton entering the needling stage to the warehousing of finished products, including: cooling fan, carpet roll, needle punch, dust removal, heating furnace (including electric heating and natural gas heating) and mesh belt.

6.1.2.3 Aluminium silicate wool wet-processed products (continuous mechanism)

The energy consumption of aluminium silicate wool wet-processed products (continuous mechanism) shall include the energy consumption of all production systems, auxiliary production systems and subsidiary production systems involved in the process from the cellucotton entering the conveying and batching stage, to beating, slag removal, slurry preparation, storage, fourdrinier wire forming, and drying, cutting, to warehousing of the finished products.

6.1.2.4 Aluminium silicate wool wet-processed products (vacuum suction filtration)

The energy consumption of aluminium silicate wool wet-processed products (vacuum suction filtration) shall include the energy consumption of all production systems, auxiliary production systems and subsidiary production systems involved in the process from the cellucotton entering the conveying and batching stage, to beating, slag removal, slurry preparation, vacuum suction filtration, and drying, cutting to warehousing of finished products.

6.2 Statistical method

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

6.3 Calculation methods

6.3.1 Principle

The calculation of the comprehensive energy consumption of aluminium silicate wools and products shall comply with the provisions of GB/T 2589 on the calculation principle and calculation range.

6.3.2 Calculation of comprehensive energy consumption of products

The comprehensive energy consumption of aluminium silicate wools or products shall be calculated according to Formula (1):

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

Where:

E – the comprehensive energy consumption of a certain type of aluminium silicate wool or its products during the statistical period, in kilograms of standard coal (kgce);

e_i – the physical quantity of the i^{th} energy (including the energy consumed by the energy-consumed medium) consumed in the production of a certain type of aluminium silicate wool or its products during the statistical period;

k_i – the conversion factor of the i^{th} energy consumed in the production of a certain type of aluminium silicate wool or its products during the statistical period.

6.3.3 Calculation of comprehensive energy consumption per unit product

The comprehensive energy consumption per unit product of aluminium silicate wools or products shall be calculated according to Formula (2):

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