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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 29450-2012

**The norm of energy consumption per unit product of glass
fibers**

玻璃纤维单位产品能源消耗限额

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Foreword

4.2 of this standard is mandatory, the rest are recommended. This standard was drafted in accordance with rules GB/T 1.1-2009 given. This standard savings by the National Development and Reform Commission Resources and Environmental Protection Division, Ministry of Industry and Information Technology Energy Saving and Comprehensive Utilization Department proposed. This standard by the National Energy Foundation and Management Standardization Technical Committee (SAC/TC20), China Building Materials Federation focal point. This standard was drafted. Nanjing Fiberglass Research and Design Institute Limited, the National Glass Fiber Product Quality Supervision and Inspection Center. The main drafters. Wang Yumei, Jiang Chao, the Chen Shang, Chen Jianming. Fiberglass energy consumption per unit product

1 Scope

GB 29450-2012 is the Chinese national standard on the norm of energy consumption per unit product of glass fibers, in the field of energy and heat transfer engineering. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 31 December 2012 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 October 2013. Classification: ICS 27.010, CCS F01. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This standard specifies the production of glass fiber yarn and glass ball of energy consumption per unit of product (referred to as energy consumption) technical requirements limit the statistical range And calculation methods and energy management measures. This standard applies to alkali or E-glass balls and manufacturers to produce E-glass tank furnace or crucible method, ECR glass, and alkali glass Energy consumption calculation fiber production enterprises, assessment, and control the energy consumption of new projects. This standard does not apply to high-strength fibers of glass, high silica glass fiber, a special alkali-resistant glass fibers, glass fiber manufacturer.

2 Normative references

The following documents for the application of this document is essential. For dated references, only applies to the version dated paper Pieces. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 2589 comprehensive energy consumption computing General

GB 17167 energy use per unit of energy measurement apparatus equipped and General Management

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Comprehensive energy consumption comprehensiveenergyconsumption Statistical reporting period for the production of energy or physical volume of glass fiber yarn glass balls actual consumption. Including production systems and auxiliary raw The sum of the energy production system.

3.2 Comprehensive energy consumption per unit of product comprehensiveenergyconsumptionforunitoutputofproduct Production statistics reporting period of the comprehensive energy consumption per ton of qualified fiberglass yarn or glass balls.

3.3 Production system productionsystem Production of glass fiber yarn or glass spheres process, system, apparatus, equipment and facilities of the organization. Comprising. a furnace, a bushing, a crucible, drawing Machine, drying apparatus, twisting machines, winders, and other balls.

3.4 Auxiliary production system productionassistingsystem Process for the production of system services, facilities and equipment, including. supply ingredients and raw materials preparation, formulation and delivery, water and electricity, and add Engineering, air conditioning, lighting, equipment maintenance, internal transportation, product testing and packaging, environmental protection and other safety devices and facilities. 4. Technical Requirements

4.1 comprehensive energy consumption per unit of product limit Existing glass fiber business unit comprehensive energy consumption limits in Table 1. Table 1 conventional fiberglass business unit energy consumption limit Step process for products Comprehensive energy consumption per unit of product kgce/t Tank furnace - E-glass fiber yarn (Fiber diameter of 9 m or less) ≤ 900 E (ECR) glass fiber yarn (Fiber diameter of greater than 9

m) ≤ 700 Alkali glass fiber yarn ≤ 650 Crucible method Ball Brushed E-glass ball ≤ 580 Alkali glass ball ≤ 400 Glass fiber yarn ≤ 430

4.2 comprehensive energy consumption per unit of product value access New fiberglass enterprises comprehensive energy consumption per unit of product access values in Table 2. Table

2 New glass fiber access business unit product energy consumption value Process for process and product classification Comprehensive energy consumption per unit of product kgce/t Tank furnace E-glass fiber yarn (Fiber diameter of 9 m or less) ≤ 750 E (ECR) glass fiber yarn (Fiber diameter of greater than 9

m) ≤ 550 Comprehensive energy consumption per unit of product advanced

4.3 value Glass fiber enterprises comprehensive energy consumption per unit of product advanced values in Table 3. Table 3 advanced energy consumption per unit of product value Step process for products Comprehensive energy consumption per unit of product kgce/t Tank furnace - E-glass fiber yarn (Fiber diameter of 9 m or less) ≤ 750 E (ECR) glass fiber yarn (Fiber diameter of greater than 9

m) ≤ 550 Alkali glass fiber yarn ≤ 550 Crucible method Ball Brushed E-glass ball ≤ 400 Alkali glass ball ≤ 300 Glass fiber yarn ≤ 300 Statistical methods and calculation range 5

5.1 statistical range

5.1.1 energy type, energy and working substance energy unit of measurement, an amount of coal of various energy conversion methods Energy and working substance energy unit of measurement, various energy conversion method according to the amount of coal GB/T 2589 requirements. Energy metering should break The co-GB 17167 requirements. Various energy meter may not leak or weight. When calculating the overall energy consumption, energy converted into a variety of primary energy units It is standard coal equivalent. When you can not obtain a low (bits) Found heat energy and working substance energy consumption per unit energy of various kinds, according to Appendix A, and Appendix B coefficients are calculated.

5.2.1 Calculation energy glass spheres

5.2.1.1 glass balls comprehensive energy consumption calculation Overall energy consumption equal to the glass ball glass ball production process, including a variety of

production systems and reduce the total energy production system auxiliary input
Outwardly to the total output energy of various kinds, according to the formula (1). $Q_m = \sum_{i=1}^n \sigma_{i,j} \sigma_{i,k} (1)$ Where. Q_m

--- glass balls comprehensive energy consumption, tonnes of coal equivalent (tce); The i-th energy or energy refrigerant physical quantity E_i

--- glass spheres input during production, tonnes (t) or cubic meters (M_3); K_i

--- i-th energy or energy of the working fluid the ball off coefficient of the glass production process of coal entered, tonnes of coal per ton (T_{ce}/t) per cubic meter or tce (tce/m^3); J th physical quantity of energy E_J glass ball

--- Production process output, tonnes (t) or cubic meters (M_3); J th coefficient of coal off energy k_J glass ball

--- Production process output, tonnes of coal per ton (tce/t) or standard t Per cubic meter of coal equivalent (tce/m^3). If both companies produce E-glass ball, and glass production base ball, press each ball of glass production apportioned.

5.2.1.2 glass balls comprehensive energy consumption per unit of product calculation Glass balls comprehensive energy consumption per unit of product according to equation (2) is calculated. $E_m = 1000Q_m G_m (2)$ Where.

--- E_m overall energy consumption per unit of glass balls in kilograms per tonne of coal ($kgce/t$); Q_m

--- glass balls comprehensive energy consumption, tonnes of coal equivalent (tce); G_m

--- qualified glass ball production, tonnes (t). If both the production of E-glass ball enterprises, but also the production of alkali glass balls, glass balls press type were calculated.

5.2.2 Calculation of glass fiber yarn consumption

5.2.2.1 Calculation of glass fiber yarn production 5.2.2.1.1 tank furnace For the production of simple roving (fiber diameter of greater than 9

m) of the furnaces, the count of glass fiber yarn production to actual production. Simple production of spun tank furnace (fiber diameter of 9 m or less) respectively in accordance with a diameter greater than $5\mu m$ fiber and a fiber diameter of less than Equal to the actual production of yarn $5\mu m$, according to formula (3) conversion yield is calculated. $G_{yz9} = G_{y9} 1.5G_{y5} (3)$ Where. G_{yz9}

--- qualified glass fiber spun yarn production conversion, tonnes (t); G_{y9}

--- qualified fiber diameter greater than the actual output of $5\mu m$ Glass fiber spun yarn, tonnes (T); G_{Y5}