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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 26281-2021

Replacing GB/T 26281-2010

Methods for the calculation of heat balance, heat efficiency and comprehensive energy consumption of cement rotary kiln

水泥回转窑热平衡、热效率、综合能耗计算方法

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Foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules of Standardization Documents" drafted: This document replaces GB/T 26281-2010 "Calculation Method for Thermal Balance, Thermal Efficiency and Comprehensive Energy Consumption of Cement Rotary Kiln", and Compared with GB/T 26281-2010, in addition to structural adjustment and editorial changes, the main technical changes are as follows:

a) Changed the terms and definitions of the comprehensive energy consumption of cement clinker burning and the heat consumption of clinker burning, and increased the heat utilization rate of the burning system and the cement clinker burning: Definitions of terms of comprehensive fuel consumption for fuel burning (see 3:1~3:4, 3:1~3:3 of the:2010 edition);

b) Changed the material balance range (see 5:1:1, 5:1:2, 5:1:1, 5:1:2 of the:2010 edition);

c) Changed the calculation of fuel consumption in material balance (see 5:1:2:1, 5:1:2:1 of the:2010 edition);

d) Changed the calculation of the heat of fuel combustion and the heat of clinker formation in the heat balance calculation, and revised the heat of pulverized coal entering the kiln in the calculation of the heat of fuel combustion The requirements for the determination of the value of the clinker are added, and the calculation of the heat generated by the clinker and the waste heat of the cooling machine when the alternative raw materials such as carbide slag are added is added: calculation method (see 5:2:2:1, 5:2:3:1, 5:2:3:8, 5:2:2:1, 5:2:3:1 of the:2010 edition);

e) Changed the calculation of the thermal efficiency of cement rotary kiln, and added the calculation of the thermal utilization rate of the firing system and the fuel substitution rate (see 5:3,:2010 5:2:4 of the year edition);

f) Changed the calculation content of the heat expenditure item in the heat balance calculation of the cooler, and added the calculation of the waste heat of the cooler to be taken out by the wind (see 6:1:2, 2010 version 6:1:2);

g) Changed the calculation range and method of comprehensive energy consumption of

cement clinker firing (see 7:2:1, 6:2 of the:2010 edition), added Calculation of the comprehensive fuel consumption for burning the fuel (see 7:2:2): Please note that some content of this document may be patented: The issuing agency of this document assumes no responsibility for identifying patents: This document is proposed by China Building Materials Federation: This document is under the jurisdiction of the National Cement Standardization Technical Committee (SAC/TC184): This document is drafted by: Tianjin Cement Industry Design and Research Institute Co:, Ltd:, Beijing University of Technology, China Resources Cement Technology Research and Development (Guangxi) Co:, Ltd: Co:, Ltd:, Beijing General Research Institute of Building Materials Co:, Ltd:, Zhengzhou Jianwen Special Materials Technology Co:, Ltd:, Guizhou Province Building Materials Product Quality Inspection Testing Institute: The main drafters of this document: Di Dongren, Cui Suping, Tao Congxi, Wang Zhaojia, Zhang Shijie, Wang Yali, Ma Jiaomei, Li Bo, Chen Zhihui, Chen Yue, Hao Liwei, Liu Xuyue, Lan Mingzhang, Zeng Rong, Liang Qian, Liu Xiaofen, Di Hemin, Liu Ruizhi: This document was first published in:2010 and this is the first revision: Cement rotary kiln thermal balance, thermal efficiency, Comprehensive energy consumption calculation method

1 Scope

GB/T 26281-2021 is the Chinese national standard on methods for the calculation of heat balance, heat efficiency and comprehensive energy consumption of cement rotary kiln, in the field of construction materials and building. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 31 December 2021 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 July 2022. Classification: ICS 91.100.10, CCS Q92. 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 document specifies the calculation of heat balance, thermal efficiency and comprehensive energy consumption of rotary kilns (including preheating, firing and cooling systems) for the production of cement clinker: Calculation method, including calculation basis and calculation benchmark, calculation of heat balance and thermal efficiency of rotary kiln system, calculation of heat balance and thermal efficiency of cooler, etc: content: This document is applicable to the heat balance, thermal efficiency and Calculation of comprehensive energy consumption for clinker firing: Heat balance, thermal efficiency and comprehensive energy of clinker burning when waste is used as alternative raw material and alternative fuel The calculation method of consumption can refer to this document:

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, dated citations documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document:

GB/T 213 Determination method of calorific value of coal

GB/T 2587 General rules for energy balance of energy-using equipment

GB/T 2589 General Principles of Comprehensive Energy Consumption Calculation

GB 16780 Limit of energy consumption per unit product of cement

GB 17167 General Rules for the Equipping and Management of Energy Measuring Instruments for Energy Consumption Units

GB/T 26282 Determination method of heat balance of cement rotary kiln

GB/T 27977 Electric energy efficiency test and calculation method for cement production

GB/T 33650 Technical requirements for energy consumption evaluation in cement manufacturing

GB/T 33652 Technical Specifications for Energy Consumption Testing of Cement Manufacturing

GB/T 35461 Requirements for the equipment and management of energy measuring instruments in cement production enterprises

3 Terms and Definitions

The following terms and definitions apply to this document: 3:

1 Clinker burning heat consumption heatconsumptionofclinkerburning During the test period, the combustion heat of various fuels consumed by clinker sintering is converted into the thermal energy consumed by 1kg of clinker:

Note: The heat consumption of clinker burning can also be called the heat of fuel combustion: 3:

2 Firing system heat utilization ratio of pyrosystem ny During the test period, the effective utilization of thermal energy in the cement clinker firing system accounted for the proportion of the thermal energy input of fuel combustion: