ICS 27.010
CCS F 01

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 33650-2025

Replacing GB/T 33650-2017

Technical requirement of energy consumption evaluation for cement manufacturing

水泥制造能耗评价技术要求

Issued on: October 31, 2025 **Implemented on: May 1, 2026**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

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Foreword

This Standard was drafted as per the rules specified in GB/T 1.1-2009.

This Standard was proposed by China Building Material Federation.

This Standard shall be under the jurisdiction of Building Material Industry Energy Management Subcommittee of National Technical Committee for Standardization of Energy Infrastructure and Management (SAC/TC 20/SC 10).

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Technical Requirement of Energy Consumption Evaluation for Cement Manufacturing

1 Scope

This Standard specifies the terms and definitions, evaluation conditions and range, evaluation index system and index requirements, calculation methods and evaluation report of energy consumption evaluation for cement manufacturing.

This Standard is applicable to the energy consumption evaluation for common Portland cement and clinker manufacturing process.

2 Normative References

GB/T 3485

GB 17167

GB/T 23331

GB/T 24851

GB/T 26281

GB/T 26282

GB/T 27977

GB/T 33652-2017

6.1 Calculation method of cogeneration energy consumption ratio

The calculation of cogeneration energy consumption ratio can refer to Formula (1). Where.

etafd - cogeneration energy consumption ratio;

0 1229 - power conversion coefficient of standard coal (equivalent coefficient);

beta - electricity generation per ton clinker; in kW-h/t;

ecl - comprehensive coal consumption of clinker, in kgce/t.

6.2 Calculation method of second-level index weight for energy consumption

evaluation on different types of production lines

6.2.1 Confirmation of second-level index weight for energy consumption

evaluation on the cement production line The second-level index weight ac1 for energy consumption evaluation on cement production line can refer to Table 1.

6.2.2 Calculation method of second-level index weight for energy consumption

evaluation on the clinker production line The second-level items for energy consumption evaluation on the clinker production line include crude fuel pre-treatment, raw meal preparation, fuel preparation, clinker burning, cogeneration and auxiliary production system.

The calculation of energy consumption evaluation on clinker production line can refer to Formula (2). Where.

ac2 - second-level index weight for energy consumption evaluation on clinker production line;

ac1 - second-level index weight for energy consumption evaluation on cement production line, see Table 1;

the calculation method can refer to Table 3.

Table 3 -- Energy Consumption Index Calculation Score Form

6.3.3 Calculation for assessment score of single second-level evaluation index

in cement manufacturing enterprise The second-level index in the evaluation index for cement manufacturing enterprise is based on the data that is actually reached by the enterprise during the assessing period; the calculation can refer to Formula (4). Where.

Pi - assessment score or second-level evaluation index of the ith item;

ai - weight value of second-level evaluation index of the ith item;

Sij - the score corresponding to different classes in the second-level index of ith item (j is corresponding to Class-A, Class-B, or Class-C)

6.4 Calculation of energy consumption comprehensive evaluation value for

cement manufacturing The calculation of comprehensive evaluation value can refer to Formula (5). Where.

P - energy consumption comprehensive evaluation value of the enterprise, with 0~100;

Pi - assessment score of the second-level index of the ith item;

n - the total number of second-level indexes participating in the assessment.

Manufacturing Situation Class-A Class-B Class-C Class-C Below Corresponding score Sij Positive index Reverse index NOTE. Xi is the actual value for the evaluation index of the ith item;

Bmax(i) indicates the maximum value in the Class-B benchmark range of the ith item index; Bmin(i) indicates the minimum value in the Class-B benchmark range of the ith item index;

Cmax(i) indicates the maximum value in the Class-C benchmark range of the ith item index; Cmin(i) indicates the minimum value in the Class-C benchmark range of the ith item index.

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