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NATIONAL STANDARD OF THE
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ICS 27.010

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GB 21343-2015

Replacing GB 21343-2008

Norm of Energy Consumption per Unit Products of Calcium Carbide

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Issued on: September 11, 2015

Implemented on: October 1, 2016

**Issued by: General Administration of Quality Supervision, Inspection and Quarantine;
Standardization Administration of PRC.**

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Foreword

The 4.1 and 4.2 in this Standard are mandatory, while the rest are recommended.

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

This Standard replaced GB 21343-2008 *The Norm of Energy Consumption per Unit Product of Calcium Carbide*; compared with GB 21343-2008, this Standard has the major changes as follows:

- Modify the norm, access value, and advanced value indicator of energy consumption per unit product of calcium carbide;
- Modify the energy consumption statistics range and calculation method.

This Standard was proposed by Department of Resources Conservation and Environmental Protection of NDRC, and Department of Energy Conservation and Resources Utilization of MIIT.

This Standard shall be under the jurisdiction of National Technical Committee for Standardization of Energy Fundamentals and Management (SAC/TC 20), and China Petroleum and Chemical Industry Federation.

Drafting organizations of this Standard: China Petroleum and Chemical Industry Federation, China Carbide Industry Association, Zhejiang Juhua Calcium Carbide Co., Ltd., Chlor-Alkali Chemical Branch of Inner Mongolia Erdos Power Metallurgical Co., Ltd., Inner Mongolia Baiyanhu Chemicals Co., Ltd., Sichuan Calcium Carbide Dissolution Acetylene Industry Association, Shanxi Carbide Industry Association, Qinghai Dongsheng Chemical Co., Ltd., Yibin Tianyuan Co., Ltd., Xinjiang Tianye (Group) Co., Ltd., and Xi'an Xihua Thermoelectrical & Chemical Co., Ltd..

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Norm of Energy Consumption per Unit Products of Calcium Carbide

1 Scope

This Standard specifies the terms and definitions, requirements, statistics range and calculation method, energy conservation management and measures for the energy consumption per unit product of calcium carbide (hereinafter referred to as energy consumption).

This Standard is applicable to the calcium carbide enterprises for the energy consumption calculation and evaluation; as well as the control of energy consumption for the new and rebuilt devices.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.

GB 10665 Calcium Carbide

GB/T 12723 General Principles of Stipulation of Energy Consumption Norm for Unit Product

GB/T 17167 Guides for Providing and Managing of the Measuring Instruments of Energy in Enterprise

3 Terms and Definitions

The following terms and definitions stipulated in GB/T 12723 are applicable to this document.

3.1 Comprehensive energy consumption of calcium carbide

In the report period, the total amount of various energy consumed actually in the production process of calcium carbide product.

room, lounge, locker room, bathhouse, as well as the devices for central control analysis, product inspection, maintenance section etc.

5.1.2 The comprehensive energy consumption shall deduct the output of energy; the following energy transferring externally beyond the production area of calcium carbide, such as closed furnace gas, steam, nitrogen, compressed air and waste heat etc. shall be calculated as the output of energy.

5.1.3 The comprehensive energy consumption of calcium carbide shall specially include the following items:

- a) The electricity consumption includes the one consumed in the production area like furnace electricity consumption, power electricity consumption, lighting electricity consumption, dust-removing facilities electricity consumption etc.;
- b) The carbon raw materials consumed for the production of calcium carbide include coke, blue carbon, petroleum coke, blind coal, other carbon as the reducing agent etc. The calculation shall begin from the first working process entering into the production area; when calculating, deducting the moisture within the carbon;
- c) The fuel consumed by dry carbon materials, and its calorific value and calculation method are the same as b). If using calcium carbide to produce the waste heat dry carbon materials, its waste heat shall not calculate the fuel consumption;
- d) The energy-consumed medium that is supplied outside of the production area, such as cooling water (soft water, desalted water), oxygen, nitrogen, compressed air etc.; their calorific values shall be calculated as the specified equivalent ones.

5.1.4 The energy consumption quantity and loss quantity in auxiliary and ancillary production systems shall be distributed to the product.

5.1.5 The calorific values of various energies shall be converted into the uniform measurement unit of standard coal per kilogram (kgce). The calorific values of various energies shall be subject to the actually-measured values within the report period of the enterprise; if there is no measured condition, convert the calorific values as per the reference coefficients of various energies converting into the standard coal given in Appendix A and B.

5.2 Calculation method

5.2.1 The comprehensive energy consumption of calcium carbide (E) shall be calculated as per Formula (1):

The converted standard production quantity indicates convert the actual production quantity of calcium carbide before the furnace into the production quantity with gas evolution of 300L/kg as per the actual gas evolution.

The gas evolution of calcium carbide shall be measured as per the provisions of GB 10665.

5.2.3 The comprehensive energy consumption per unit product (E_{cd}) shall be calculated as per the Formula (3):

$$E_{cd} = \frac{E}{P_b} \dots\dots\dots (3)$$

Where:

E_{cd} – comprehensive energy consumption per unit product of calcium carbide, in tec/t.

5.2.4 The furnace electricity consumption per unit product of calcium carbide (E_d) shall be calculated as per the Formula (4):

$$E_d = \frac{Q_{cd}}{P_b} \dots\dots\dots (4)$$

Where:

E_d – furnace electricity consumption per unit product of calcium carbide, in kW•h/t;

Q_{cd} – furnace electricity consumed during the production process of calcium carbide, in kW•h.

6 Energy-Saving Management and Measures

6.1 The enterprise shall regularly evaluate the comprehensive energy consumption of calcium carbide, and furnace electricity consumption; distribute these evaluation indicators to the grassroot department, and establish the responsibility system to use energy.

6.2 The enterprise shall establish the energy consumption statistics system as per the requirements; establish the documents on energy consumption test data, energy consumption statistics, evaluation results etc.; carry out the controlled management against the document.

6.3 The enterprise shall be equipped with the energy measurement instrument as per the requirements of GB 17167; and establish the energy measurement management system.

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