

ICS 27.010
CCS F 01



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

GB 29136-2012

**The norm of energy consumption per unit product of sponge
titanium**

海绵钛单位产品能源消耗限额

(English Translation)

Issued on: December 31, 2012

Implemented on: October 1, 2013

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China**

Table of Contents

Foreword...	3
1 Application Scope...	4
2 Normative References...	4
3 Terms and Definitions...	4
4 Specifications...	6
5 Calculation Principle...	7
6 Calculation Method of Energy Consumption...	10
7 Energy-saving Management and Measures...	11

Foreword

Sub-articles 4.3 and 4.4 of this Standard are compulsory; and the others are voluntary.

This Standard was proposed by the National Development and Reform Commission and the Ministry of Industry and Information Technology.

This Standard shall be under the jurisdiction of National Technical Committee 20 on Energy Base and Management of Standardization Administration of China (SAC/TC 20) and National Technical Committee 243 on Non-ferrous Metals of Standardization Administration of China (SAC/TC 243).

The drafting organizations of this Standard. Zunyi Titanium Co., Ltd., Fushen Titanium Co., Ltd., China Research Institute of Standards, Metrology and Quality of Nonferrous Metals Industry.

1 Application Scope

This Standard specifies the specifications, calculation principle and calculation method, and energy-saving management and measures of the norm of energy consumption per unit product of sponge titanium (hereinafter referred to as energy consumption).

This Standard applies to the calculation, evaluation and assessment of products' energy consumption of the manufacturer who manufacture sponge titanium using the

magnesium thermal reduction process (the Kroll method).

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition dated applies to this document. For undated references, the latest edition of the referenced documents (including all amendments) applies to This Standard.

GB/T 2589, General Principles for Calculation of the Comprehensive Energy Consumption

3 Terms and Definitions

For the purposes of this Standard, the following terms and definitions and those defined in GB/T 2589 apply.

3.1

primary energy sources

Coal, natural gas, crude oil and other energy sources.

3.2

secondary energy sources

Coke, fuel oil, petroleum coke, coal gas, electric power, petroleum products (gasoline, diesel and kerosene), heating power and other energy species specified by the national statistical system.

3.3

Energy consumption medium

The operation material which is consumed during the production process and is not used as a raw material nor incorporated in products, and whose production or preparation requires direct energy consumption.

3.4

unit energy consumption in working procedure

The energy consumed by per unit qualified product during the manufacturing process of the manufacturer.

4.1 The norm value of unit object consumption in working procedure of the
manufacturer of sponge titanium shall be as specified in Table 1.

4.2 The norm value of unit energy consumption in working procedure of the
manufacturer of sponge titanium shall be as specified in Table 2.

4.3 The norm value of integrated energy consumption per unit product of the
current

manufacturer of sponge titanium shall be as specified in Table 3.

5.1 Energy consumed by the Manufacturer's production

The energy consumed by the manufacturer mainly refers to the primary energy sources and secondary energy sources of the manufacturing system, assistant manufacturing system and auxiliary manufacturing system in the manufacturing activities, and all kinds of energy consumed by the energy consumption media used in manufacture. It does not include household energy consumption and construction project energy consumption.

5.2 Measurement unit of energy

The measurement unit of all kinds of energy consumed is as specified in Table 6.

5.3 Method for conversion of all kinds of energy (including the energy consumed by

energy consumption media) into standard coal equivalent

The energy source of net calorific value equal to 29.307 6 MJ shall be used, i.e. 1 kg of standard coal.

5.4 Determination of qualified product quantity

The qualified product quantity in the titanium slag procedure is the total of qualified titanium slag manufactured during the same statistical reporting period;

The qualified product quantity in the chlorination procedure is the total of qualified crude titanium tetrachloride manufactured during the same statistical reporting period;

The qualified product quantity in the refining procedure is the total of qualified refined

titanium tetrachloride manufactured during the same statistical reporting period;
The qualified product quantity in the magnesium electrolysis is the total of qualified magnesium manufactured by electrolyzing magnesium chloride during the same statistical reporting period;

5.5 Statistical caliber of energy consumption in working procedure

The energy consumption in the titanium slag procedure includes the energy consumption in the whole process including ilmenite burdening, electric furnace smelting and crushing.

6.1 Unit object consumption in working procedure

The unit object consumption in working procedure is calculated in accordance with Formula (1).

6.2 Unit energy consumption in working procedure

The unit energy consumption in working procedure is calculated in accordance with Formula (2).

7.2.1 Carry out scientific energy-saving management and share energy-saving technologies.

7.2.2 Carry forward the scale development of equipment and promote the application

of new processes, new technologies and new equipment for energy saving.

7.2.3 Enhance the cyclic utilization and recycling of energy.

Annex A

(Informative)

Current Coefficient for Conversion of Common Energy Sources into
Standard Coal

Annex B

(Informative)

Equivalent Calorific Value of Energy Consumption Media