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

GB/T 40816.11-2021

**Industrial furnaces and associated processing equipment -
Method of measuring energy balance and calculating energy
efficiency - Part 11: Evaluation of various kinds of efficiency**

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Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and definitions	1
3.1 General terms	2
3.2 Balance Sheet	3
4 Symbol	3
4.1 Energy/Symbol	4
4.2 Other symbols	5
5 Boundary conditions and energy (enthalpy)	7
5.1 Composition of assessment scope	7
5.2 Classification of boundary conditions	8
5.3 Energy (enthalpy) classification	8
5.4 Energy (enthalpy) calculation	10
6 Enthalpy efficiency	15
6.1 General formula	15
6.2 Example of typical efficiency	15
7 Efficiency	16
7.1 General principles	16
7.2 Boundary conditions	17
7.3 Classification	17
7.4 Calculation	17
7.5 Efficiency	20
8 Naming	21
8.1 General requirements	21
8.2 Each independent project module	21
8.3 Types of operation	22
8.4 Energy source	22
8.5 Example	22
9 Measuring	23
10 Evaluation Report	23
Appendix A (informative) Energy efficiency evaluation example	24

Appendix B (informative) Enthalpy efficiency and efficiency comparison of continuous heating furnace	33
Appendix C (informative) Evaluation procedure for energy saving effect of combustion furnace	40
References	50

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"

Drafting.

This document is part 11 of GB/T 40816 "Industrial Furnace and Related Process Equipment Energy Balance Test and Energy Efficiency Calculation Method".

GB/T 40816 has released the following parts.

---Part 11. Various efficiency assessments.

The translation method used in this document is equivalent to ISO 13579-11.2017 "Energy balance test and energy efficiency meter for industrial furnaces and related process equipment"

Calculation Methods Part 11. Various Efficiency Evaluations.

The following editorial changes have been made to this document.

--- Deleted cpm and ex in 4.2 of ISO 13579-11.2017 (because cpm, ex and cg are defined repeatedly, and cpm and ex are not used in the text use);

---Deleted item f) and item g) in C.4.3.2 of ISO 13579-11.2017 (because item f), item g) and item d),

Column item e) content is repeated], and the formula number after formula (38) is changed in order.

Introduction

Industrial furnaces and related process equipment are thermal equipment that uses heat from fuel combustion or electric energy conversion to heat materials or workpieces. for

Evaluate the energy efficiency of industrial furnaces and related process equipment, and formulate GB/T 40816 "Energy balance test and energy efficiency of industrial furnaces and related process equipment"

Calculation method. GB/T 40816 aims to specify energy balance testing and energy efficiency calculation methods for industrial furnaces and related process equipment.

Partial composition.

---Part 1.General methods. The purpose is to describe the general purpose of energy balance testing and energy efficiency calculation for industrial furnaces and related process equipment

method.

---Part 2.Reheat furnace for steel. The purpose is to describe the special method of energy balance test and energy efficiency calculation of steel reheat furnace.

---Part 3.Intermittent aluminum melting furnace. The purpose is to describe the special method of energy balance test and energy efficiency calculation of batch aluminum melting furnace.

---Part 4.Protective or reactive atmosphere furnace. The purpose is to describe the energy balance test and energy

Special method of efficiency calculation.

---Part 11.Variety efficiency assessments. The purpose is to describe various efficiency evaluation methods of industrial furnaces and related process equipment.

The other parts are formulated according to the general part and used in conjunction with the general part.

Energy balance test of industrial furnace and related process equipment and

Energy efficiency calculation method Part 11.Variety efficiency evaluations

1 Scope

This document specifies the classification and name of the energy efficiency assessment methods for industrial furnaces and related process equipment (TPE), including the efficiency.

This document does not apply to the following TPE types.

- Blast furnace, alkaline oxidation furnace, coke oven;
- Furnaces where the gas produced is used as fuel (including by-product gas);
- Special gas generator;
- Industrial furnaces designed for chemical plants or petroleum plants;
- Facilities for heating or burning in an open air environment;

---A device that burns solid fuel;

---Waste incinerator.

2 Normative references

The content of the following documents constitutes an indispensable clause of this document through normative references in the text. Among them, dated quotations

Only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

This document.

ISO 13574.2015 Industrial Furnaces and Related Process Equipment Vocabulary
(Industrialfurnacesandassociatedprocessing

equipment-Vocabulary)

ISO 13579-1.2013 Energy balance test and energy efficiency calculation method for
industrial furnaces and related process equipment Part 1.General methods

Method

(Industrialfurnacesandassociatedprocessingequipment-Methodofmeasuringenergybalance
and

calculatingefficiency-Part 1.Generalmethodology)

ISO 13579-2.2013 Energy balance test and energy efficiency calculation method for
industrial furnaces and related process equipment-Part 2.Recycled steel

Hot furnace

(Industrialfurnacesandassociatedprocessingequipment-Methodofmeasuringenergybalance
andcalculatingefficiency-Part 2.Reheatingfurnacesforsteel)

ISO 13579-3.2013 Energy balance test and energy efficiency calculation method for
industrial furnaces and related process equipment Part 3.Intermittent

Aluminum melting furnace

(Industrialfurnacesandassociatedprocessingequipment-Methodofmeasuringenergybalance
andcalculatingefficiency-Part 3.Batch-typealuminiummeltingfurnaces)

3 Terms and definitions

The following terms and definitions defined in ISO 13574.2015 and ISO 13579-1.2013
apply to this document.

The following address is the ISO and IEC standardized term database.