



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

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**Code for design of energy conservation of non-ferrous metals
smelter**

有色金属冶炼厂节能设计规范

(English Translation)

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Table of Contents

Foreword
1 General provisions
2 Terms
3 Heavy non-ferrous metals smelting
3.1 Copper smelting
3.2 Lead smelting
3.3 Zinc smelting
3.4 Nickel smelting
3.5 Cobalt smelting
3.6 Tin smelting
3.7 Antimony smelting
3.8 Acid making with smelting off-gas
3.9 Copper and lead anode slime treatment
4 Light non-ferrous metals smelting
4.1 Alumina production
4.2 Aluminium electrolysis
4.3 Production of carbon products for aluminium
4.4 Magnesium smelting
4.5 Titanium smelting
5 Rare metals smelting
5.1 Tungsten and molybdenum smelting
5.2 Tantalum and niobium smelting
5.3 Lithium smelting
5.4 Cemented carbide production
6 Non-ferrous metallurgical furnaces and kilns
6.1 General requirements
6.2 Energy conservation measures
7 Electric power
7.1 Power supply and distribution for enterprises
7.2 Electrolysis rectifier units
7.3 Electric furnace installations
8 Utilities

- 8.1 Water supply and drainage
- 8.2 Heating, ventilation and air conditioning
- 8.3 Waste heat recovery and utilization
- 8.4 Oxygen supply
- 8.5 Steam and hot water supply
- 8.6 Compressed air supply
- 8.7 Heat medium
- 8.8 Oxyhydrogen station
- 8.9 Softened water and demineralized water supply
- Explanation of wording in this code
- List of quoted standards
- Addition: Explanation of provisions

Foreword

This code was prepared jointly by China Nerin Engineering Co., Ltd. and China Nonferrous Engineering Co., Ltd. together with the organizations concerned, in accordance with the requirements of the Notice on Printing and Distributing the "Formulation and Revision Plan of Engineering Construction Standards and Codes for 2005 (Second Batch)" (Jian Biao Han [2005] No. 124) issued by the former Ministry of Construction.

During the preparation of this code, the drafting group carried out in-depth investigation and research, conscientiously summarized the practical experience and technical progress of the non-ferrous smelting industry in recent years, held repeated discussions and widely solicited the opinions of the design, research and production organizations concerned, and finally finalized the code upon review.

This code consists of 8 chapters. The main contents include: general provisions, terms, heavy non-ferrous metals smelting, light non-ferrous metals smelting, rare metals smelting, non-ferrous metallurgical furnaces and kilns, electric power, utilities, etc.

The provisions printed in bold type in this code are mandatory provisions and shall be strictly implemented.

The Ministry of Housing and Urban-Rural Development is in charge of the administration of this code and the interpretation of the mandatory provisions, the China Non-ferrous Metals Industry Engineering Construction Standards Administration Office is responsible for its routine administration, and China Nerin Engineering Co., Ltd. is responsible for the interpretation of specific technical contents. All organizations are kindly requested to sum up experience and accumulate data during the implementation of this code, and to send their comments and suggestions to China Nerin Engineering Co., Ltd. at any time for

reference in future revisions.

Chief editing organization: China Nerin Engineering Co., Ltd.

Participating organizations: China ENFI Engineering Corporation; Changsha Engineering & Research Institute Ltd. of Nonferrous Metallurgy; Kunming Engineering & Research Institute of Nonferrous Metallurgy Co., Ltd.; Shenyang Aluminium & Magnesium Engineering & Research Institute Co., Ltd.; Guiyang Aluminium & Magnesium Design & Research Institute Co., Ltd.; Jinchuan Nickel Cobalt Research and Design Institute.

1 General provisions

1.0.1

This code is formulated with a view to implementing the relevant national laws and regulations in the energy conservation of non-ferrous metals smelters, strengthening energy conservation management, promoting the progress of energy conservation technology and using energy rationally.

1.0.2

This code is applicable to the energy conservation design of new construction, reconstruction and extension projects of non-ferrous metals smelters.

1.0.3

An energy conservation part (chapter) shall be prepared in the feasibility study report and in the preliminary design documents.

1.0.4

New construction, reconstruction or extension projects must adopt new energy-saving processes, new technologies and equipment; the adoption of processes with high energy consumption and of electromechanical products that the State has announced as eliminated is strictly prohibited.

1.0.5

The energy consumption of new construction projects or large reconstruction and extension projects shall reach the grade 1 energy consumption indicators of this code; the energy consumption of medium and small reconstruction and extension projects shall reach the grade 2 energy consumption indicators of this code, and shall not be lower than the grade 3 energy consumption indicators of this code.

1.0.6

When calculating the comprehensive energy consumption, the kilogram of coal equivalent (kgce) shall be used as the unit of energy measurement.

1.0.7

The energy used by waste heat utilization devices shall be included in the energy consumption. The recovered energy, after conversion into standard coal, shall be deducted in the process step or process in which the waste heat is recovered.

1.0.8

In the design of a non-ferrous metals smelter, metering and control instruments shall be provided for the primary energy, secondary energy and energy-consuming working media entering and leaving the plant and entering and leaving the energy-consuming process steps.

1.0.9

The energy conservation design of non-ferrous metals smelters shall comply not only with this code but also with the provisions of the current relevant national standards.

2.0.1 primary energy

The various kinds of energy taken directly from nature without processing or conversion, including crude oil, raw coal, natural gas, oil shale, nuclear energy, solar energy, hydropower, wind power, ocean energy, geothermal energy, etc.

2.0.2 secondary energy

Energy of other kinds and forms obtained from primary energy by processing or conversion, including coal gas, coke, gasoline, kerosene, diesel oil, heavy oil, electric power, steam, etc.

2.0.3 energy consumed medium

Working substance consumed in the production process which is neither used as raw material nor enters the product, and whose production in turn requires the consumption of energy, such as the water, compressed air, oxygen, nitrogen, hydrogen, etc. used.

2.0.4 energy equivalent value

The amount of energy obtained by converting the various kinds of energy consumed for secondary energy or energy-consuming working media into primary energy.

2.0.5 comprehensive energy consumption for unit output of product

For an enterprise producing a certain product (including final product or intermediate product), the ratio of the sum of the comprehensive energy consumption of its main production system, auxiliary production system and ancillary production system to the output of qualified product; referred to as comprehensive energy consumption per unit