

ICS 25.010
CCS J04



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

GB/T 28617-2024

**General guidance for green manufacturing technology -
Foundry section**

绿色制造通用技术导则 铸造

Issued on: September 29, 2024

Implemented on: January 1, 2025

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

Table of Contents

- 1 Scope
- 2 Normative references
- 3 Terms and definitions
- 4 Technical guidelines

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 for standardization documents" Drafting. This document replaces GB/T 28617-2012 "General Technical Guidelines for Green Manufacturing - Casting". Compared with GB/T 28617-2012, In addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) The description of the purpose of the standard in the general requirements has been changed (see 4.1, 4.1 of the.2012 edition);
- b) Added relevant contents on the rational selection and optimization of casting methods and process routes (see 4.2, 4.2 of the.2012 edition);
- c) Added the general part of smelting (chemical) process, and energy-saving technologies related to steel casting and non-ferrous metal smelting (chemical) (see 4.3,.2012 edition) 4.3);
- d) Deleted the contents that do not match the current development direction of the foundry industry, such as cupola gas re-ignition heating and two-row large-spaced cupolas. Content (see 4.3 of the.2012 edition);
- e) Added new materials for smelting (chemical), molding and core making processes (see 4.4);
- f) The casting method, post-processing, recycling and other processes have been deleted (see 4.4 of the.2012 edition);

- g) Added shape detection technology (see 4.5);
- h) Deleted cupola computer control technology (see

1 Scope

GB/T 28617-2024 is the foundry part of the Chinese general guidance on green manufacturing technology. Casting is one of the heaviest environmental burdens in manufacturing: melting is energy intensive, sand systems generate dust and large volumes of spent sand, binders release volatile organics and the cores burn out into the workplace, and the sector in China is very fragmented, which is where most of the impact sits. The standard gives the guidance across the process: the design of the casting and the process for material and energy efficiency, the choice of melting equipment and the recovery of heat, the moulding and core-making materials and the reclamation of sand, the control of dust and of the emissions from binders and coatings, the water and its recirculation, the treatment and utilisation of slag, dust and spent sand, the cleaning and finishing operations, and the measurement, evaluation and continuous improvement of the plant's green performance. It takes effect on 1 January 2025.

This document specifies the general requirements for green casting, and provides the design of castings and casting processes, process and equipment technology, raw materials and auxiliary materials. Provide technical guidance on raw materials (hereinafter referred to as "raw and auxiliary materials"), quality control, pollutant control, resource and energy recovery and reuse. This document is applicable to the green manufacturing activities of casting design and production enterprises (branches, workshops, sections), casting raw and auxiliary materials, casting equipment Production enterprises may refer to this for implementation.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 5611 Casting Terminology

GB/T 28612 Green Manufacturing Terminology

HJ 1115 Technical Specification for Application and Issuance of Pollutant Discharge Permits Metal Casting Industry

HJ 1292 Guidelines for feasible technologies for air pollution prevention and control in foundry industry

3 Terms and definitions

The terms and definitions defined in GB/T 5611 and GB/T 28612 and the following apply to this document.

3.1 Additive manufacturing; AM A process of manufacturing parts or objects by depositing materials based on 3D model data. [Source: GB/T 35351-2017, 2.1.1]

3.2 Rapid forming Additive manufacturing is used to reduce sample production time. [Source: GB/T 35351-2017, 2.6.4]

4 Technical guidelines

4.1 General requirements Under the premise of ensuring the quality of castings, the following methods and technologies should be used to improve the efficiency of resource and energy utilization, reduce resource and energy consumption, pollution and Pollutant and carbon emissions, reduce or avoid the use of harmful substances, and achieve green casting. --Optimize casting design, select appropriate casting alloys and optimize casting structure to reduce casting defects, reduce resource consumption and improve Casting production efficiency; --Select and optimize casting processes and equipment, and adopt processes and equipment with high production efficiency, low impact on the ecological environment, and low health and safety hazards Equipment, to replace outdated production technologies, processes and equipment that do not meet energy consumption and pollutant emission standards;