

ICS 29.030
CCS K14



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

GB/T 44655-2024

Amorphous soft magnetic alloy powder

非晶软磁合金粉末

Issued on: September 29, 2024

Implemented on: April 1, 2025

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

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Foreword

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1 Scope

GB/T 44655-2024 specifies amorphous soft magnetic alloy powder. An amorphous alloy has no crystal structure, having been frozen from the melt too fast to order itself, and the

absence of grain boundaries and magnetocrystalline anisotropy is what makes it magnetically soft: it magnetises and demagnetises with very little loss. In powder form, pressed into cores, that translates into inductors and transformers that run cooler at the high switching frequencies modern power electronics use - which is why demand has followed the growth of electric vehicle chargers, solar inverters and switched-mode supplies. The properties depend entirely on the quenching being fast enough and staying that way: heat the powder too much during processing and it crystallises, losing the property it was bought for. This document defines the terms and definitions for amorphous soft magnetic alloy powders made by rapid quenching atomisation and specifies the grade designation system, the technical requirements, the inspection rules, and the packaging and related provisions. Under ICS 29.030 and CCS K14, it is written for powder producers, magnetic component manufacturers and the power electronics industry that buys the result.

This document defines the terms and definitions of amorphous soft magnetic alloy powders produced by rapid quenching atomization process, and specifies the The brand naming method, technical requirements, inspection rules, packaging, marking, transportation and storage of amorphous soft magnetic alloy powders are described. method. This document applies to amorphous soft magnetic alloy powders for magnetic components in the fields of power, electronics and communications equipment.

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. in this document.

GB/T 1479.1-2011 Determination of bulk density of metal powders Part

3 Terms and definitions

GB/T 2900.1, GB/T 2900.60, GB/T 3500, GB/T 9637, GB/T 15019, GB/T 16418, The terms and definitions defined in GB/T 21219 and the following apply to this document.

3.1 Amorphous powder material with soft magnetic properties prepared by rapid solidification of high-temperature liquid alloy.

3.2 Direct current bias performance The percentage of the effective permeability when a DC bias magnetic field is applied to the effective permeability when there is no DC bias magnetic field.