

ICS 77.120.99

CCS Z 04



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

GB/T 47102-2026

**Greenhouse gases - Quantification method and requirements
for the carbon footprint of products - Rare earth permanent
magnet materials**

温室气体 产品碳足迹量化方法与要求 稀土永磁材料

Issued on: January 28, 2026

Implemented on: August 1, 2026

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

Table of Contents

1.Scope	1
2 Normative References	1
3.Terms and Definitions	1
5.Quantization range	3
6.List Analysis	5
7 Impact Assessment	6
12 Reference	15

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the National Rare Earth Standardization Technical Committee (SAC/TC229). This document was drafted by: China Iron & Steel Research Institute Co., Ltd., Beijing University of Technology, China Iron & Steel Research Institute Group Co., Ltd., and Baotou Tianhe Magnetic Materials Co., Ltd. Materials Science & Technology Co., Ltd., Chengdu Galaxy Magnet Co., Ltd., Ansteel Technology Co., Ltd., and Baotou Insteel Rare Magnetic New Materials Co., Ltd. Joint-stock limited companies, Hangzhou Quadrant Technology Co., Ltd., Ningbo Tongchuang Magnetics Co., Ltd., Qiangdong Rare Earth Group Co., Ltd., China Northern Rare Earth (Group) High-Tech Co., Ltd., Baotou Rare Earth Research Institute, Beijing Zhongke Sanhuan High-Tech Co., Ltd., Ningbo Yunsheng Joint-stock limited companies, Anhui Dadi Xiong New Materials Co., Ltd., Ganzhou Fuert Electronics Co., Ltd., Baotou Jinshan Magnetic Materials Co., Ltd. Company, Ganzhou Rare Earth Youli Technology Development Co., Ltd., Jiangxi Provincial Tungsten and Rare Earth Product Quality Supervision and Inspection Center (Jiangxi Provincial Tungsten and Rare Earth Research Institute) (Academy), GRINM Rare Earth New Materials Co., Ltd., Hangzhou Meici Technology Co., Ltd., Ganzhou Chenguang Rare Earth New Materials Co., Ltd., Chinese Academy of Sciences Ningbo Institute of Materials Technology and Engineering, Fujian Jinlong Rare Earth Co., Ltd., China General Testing, Evaluation and Certification Co., Ltd., Ningbo Zhaobao Magnetics Co., Ltd., GRINM Rare Earth (Rongcheng) Co., Ltd., China Rare Earth Tianma New Materials Technology Co., Ltd., Baotou Rare Earth New Materials Materials Technology R&D Center, Ningbo Ketian

Magnetics Co., Ltd., Ganzhou Carbon Footprint Technology Co., Ltd., China Rare Earth (Guangxi) Jinyuan Rare Earth New Materials Limited Liability Company, Beijing New Materials Daoshu Intelligent Technology Co., Ltd., Steel Research International New Materials Innovation Center (Shenzhen) Co., Ltd., Zhejiang Yingluohua Magnetics Co., Ltd. Limited Liability Company. The main drafters of this document are. Sun Xu, Sun Boxue, Zhu Minggang, Zhou Dong, Gao Feng, Chen Wenjuan, Li Xiaoqing, Diao Shulin, Bao Xiaotao, Zhang Yu, and Deng Zhiwei. Jin Zhiguo, Dong Gaihua, Huang Shulin, Sun Ming, Zhao Yi, Chen Kan, Yao Nanhong, Zhu Xiaoting, Zheng Jian, Li Tingting, Wang Yu, Wang Ying, Liu Changqing, Ye Qing, Shen Guodi Chen Jingwu, Huang Xiulian, Qi Zhiqi, Wang Yu, Sun Caina, Guan Xindi, Xiao Weidong, Li Ping, Lu Bo, Yang Yuanfei, Peng Haijun, Jia Shenglin, Zhan Lichun Peng Jianzhen, Zhou Qiaoying, Fu Xiuhong, Wu Yihan, Li Baocheng, Zhang Hongkun, Cheng Junfeng, Lin Jianqiang, Sun Xiaojun, Guo Jiyuan, Zhao Shanqi, Li Ruihong Cui Yaqiang, Yan Changjiang, Wu Xi, Jin Yanhua, Huang Weichao, Wang Changchang, Ji Xiaoman, Liu Bingjie, Wang Xiaojia, Wei Zhonghua, Zhao Dongliang. Methods and requirements for quantifying the carbon footprint of greenhouse gas products Rare earth permanent magnet materials

1 Scope

GB/T 47102-2026 is the Chinese national standard covering the carbon footprint of a neodymium magnet - the mining and separation of the rare earths, which is where most of the energy and nearly all of the waste is, then the reduction, melting, milling and sintering. Every electric motor and wind turbine that uses these magnets carries this footprint, and China makes almost all of them. First edition. It was issued on 28 January 2026 and has been in force since 1 August 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document specifies the purpose, scope, inventory analysis, impact assessment, and interpretation of results for the carbon footprint quantification of rare earth permanent magnet materials, as well as the carbon footprint of the products. Footprint report. This document applies to the quantification of the carbon footprint of rare earth permanent magnet materials products, and the results can be used for product carbon footprint performance evaluation and product carbon footprint assessment. Reference for different applications such as information disclosure and environmental information disclosure; applicable to a single type of environmental impact, namely climate change.

Note. Carbon offsetting is not included in the quantification of product carbon footprint. This document is not applicable to evaluating other potential environmental impacts arising from the product life cycle, nor is it applicable to evaluating the potential environmental impacts

during the product life cycle. The social and economic impacts that can be generated.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 15676-2015 Rare Earth Terminology

GB/T 24040 Principles and Framework for Environmental Management Life Cycle Assessment

GB/T 24044 Requirements and Guidelines for Environmental Management Life Cycle Assessment

GB/T 24067-2024 Requirements and Guidelines for Quantifying the Carbon Footprint of Greenhouse Gas Products

GB/T 32150 General Rules for Greenhouse Gas Emission Accounting and Reporting by Industrial Enterprises

3 Terms and Definitions

The definitions and the following are provided in GB/T 15676-2015, GB/T 24040, GB/T 24044, GB/T 24067-2024, and GB/T 32150. The terms and definitions listed apply to this document.

3.1 A magnetic material with high coercivity, made from alloys mainly composed of rare earth and transition elements through a specific process.

Note. This mainly includes samarium cobalt magnets and neodymium iron boron magnets. [Source: GB/T 15676-2015, 6.1.1, with modifications]

3.2 The sum of greenhouse gas (GHG) emissions and GHG removals in the product system, expressed in carbon dioxide equivalents, and based on... Life cycle assessment is conducted for climate change as a single type of environmental impact. [Source: GB/T 24067-2024, 3.1.1, with modifications]