

ICS 77.120.99

CCS H 65



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

GB/T 44763-2024

Anhydrous neodymium chloride

无水氯化钕

Issued on: October 26, 2024

Implemented on: May 1, 2025

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

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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 is required. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed and coordinated by the National Rare Earth Standardization Technical Committee (SAC/TC 229). This document was drafted by: Baotou Jingrui New Materials Co., Ltd., China Northern Rare Earth (Group) High-Tech Co., Ltd., Tianjin Baotou Rare Earth Research Institute Co., Ltd., Qiandong Rare Earth Group Co., Ltd., Baotou Rare Earth Research Institute, Ruike Rare Earth Metallurgy and Functional Materials National Engineering Research Center for Materials Co., Ltd., Baotou Huamei Rare Earth Hi-Tech Co., Ltd., China Southern Rare Earth Group Co., Ltd., Yiyang Hongyuan Rare Earth Co., Ltd., Youyan Rare Earth New Materials Co., Ltd., and Jiangxi Golden Century New Materials Co., Ltd. The main drafters of this document are. Zhang Ruixiang, Siqin Bilige, Wang Shizhi, Li Tingting, Zhang Ruisen, Wang Anli, Yao Nanhong, Hou Shaochun, Guo Jincheng, Yu Jingxue, Xu Guohua, Wu Yuchun, Liu Wei, Yu Jinqiu, and Liu Jiangang. Anhydrous neodymium chloride

1 Scope

China's national standard for anhydrous neodymium chloride. The compound is the feedstock for producing neodymium metal by molten salt electrolysis, which is the route to the metal that goes into neodymium iron boron magnets. Anhydrous is the operative word and the whole difficulty: neodymium chloride is strongly hygroscopic, and if it is dehydrated carelessly it hydrolyses rather than drying, forming the oxychloride, which does not

electrolyse and which contaminates the bath. So producing and handling the anhydrous salt is a specialised operation, and its water and oxide content are the specifications that matter. The scale is considerable - China produces the great majority of the world's neodymium magnets and therefore of the metal behind them - and the purity carried through this step determines the purity of the metal and, ultimately, the magnetic properties achievable.

This document specifies the classification, technical requirements, test methods, inspection rules, as well as marking, packaging, transportation, storage and Requirements for accompanying documents. This document applies to anhydrous neodymium chloride produced by chemical methods, which is used to prepare synthetic rubber catalysts, pharmaceutical intermediate catalysts, etc.

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 latest version (including all amendments) applies to this document. In this document.

GB/T 8170 Rules for rounding off values and expression and determination of limit values

GB/T 12690.7-2021 Chemical analysis of non-rare earth impurities in rare earth metals and their oxides Part

3 Terms and Definitions

There are no terms or definitions that require definition in this document.

4 Categories

4.1 Product brand classification The products are divided into three categories according to chemical composition. NdCl₃ (Anhydrous) 4N, NdCl₃ (Anhydrous) 3N, and NdCl₃ (Anhydrous) 2N5 A brand.

7 Determination of silicon content

GB/T 12690.8-2021 Chemical analysis of non-rare earth impurities in rare earth metals and their oxides Part

8 Determination of sodium content

GB/T 12690.15-2018 Chemical analysis of non-rare earth impurities in rare earth metals and their oxides Part

13 Determination of ammonium chloride content

GB/T 16484.16 Chemical analysis methods for rare earth chlorides and light rare earth carbonates - Part

16.Determination of water-insoluble matter in rare earth chlorides Gravimetric method

GB/T 16484.20 Chemical analysis methods for rare earth chlorides and light rare earth carbonates Part

20.Nickel oxide, manganese oxide, lead oxide, oxygen Determination of aluminum oxide, zinc oxide and thorium oxide content by inductively coupled plasma mass spectrometry

GB/T 16484.21 Chemical analysis methods for rare earth chlorides and light rare earth carbonates - Part

21.Determination of iron oxide content 1,10Dinitrogen Phenanthrene spectrophotometry

GB/T 18115.4 Chemical analysis of rare earth impurities in rare earth metals and their oxides Part

4.Lanthanum, cerium, praseodymium, samarium, Determination of the amount of europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium and yttrium

GB 39176 Packaging, labeling, transportation and storage of rare earth products JJG 1154 Karl Fischer Volumetric Moisture Analyzer

15 Calcium content Determination of

GB/T 14635 Chemical analysis methods for rare earth metals and their compounds-Determination of total rare earth content

GB/T 16484.13 Chemical analysis methods for rare earth chlorides and light rare earth carbonates - Part