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

GB/T 34500.2-2017

**Chemical analysis methods for rare earth residue and
wastewater - Part 2: Determination of chemical oxygen demand**

稀土废渣、废水化学分析方法 第2部分：化学需氧量(COD)的测定

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Foreword

GB/T 34500 "rare earth waste, chemical analysis of waste water" is divided into 5 parts.

- Part 1. Determination of the amount of fluoride ion selective electrode method;
- Part 2. Determination of chemical oxygen demand (COD);
- Part 3. Determination of weak radioactivity (total activity of alpha and beta);
- Part 4. Determination of copper, zinc, lead, chromium, cadmium, barium, cobalt, manganese, nickel, titanium content; Inductively coupled plasma atomic emission spectrometry;
- Part 5. Determination of ammonia nitrogen content. This section GB/T 34500 Part 2. This section drafted in accordance with GB/T 1.1-2009 given rules. This part of the National Rare Earth Standardization Technical Committee (SAC/TC229) and focal point. This part of the drafting unit. Qin East Rare Earth Group Co., Ltd. (Ganzhou Ai Rui Detection Technology Co., Ltd.), Baotou Rare Earth Research Institute, Ganzhou Institute of Nonferrous Metallurgy, China North Rare Earth (Group) High-Tech Co., Ltd., Ganzhou Chenguang Rare Earth New Materials Co., Ltd., Yiyang Hongyuan Rare Earth Co., Ltd., Tungsten and Rare Earth Products Quality Supervision and Inspection Center, Baotou Rare Earth Hi-Tech Co., Ltd., China Academy of Ecology and Environment Research Center. The main drafters of this section. Yao Nanhong, Liu Chun, Duan Guilan, Wen Bin, Wang Dan, Zhu Ni, Liu Danna, Zhang Wenxing, Zhang Meng, Guo Yu, Xu Ning, Dong Tao, Xiao Hongmei, Song Xudong, Li Jing. Rare earth waste, waste water chemical analysis methods Part 2. Determination of chemical oxygen demand (COD)

1 Scope

Part 2 of China's national methods for analysing rare earth residues and wastewater, covering chemical oxygen demand. It specifies the determination of COD in the leachate and wastewater from rare earth mining, beneficiation and smelting. COD measures how much oxygen it would take to oxidise everything oxidisable in a water sample, and it is the standard proxy for organic pollution load: a discharge with high COD will strip the oxygen from the water it enters. Measuring it in rare earth wastewater is harder than in ordinary

effluent, and the reason is chloride. Rare earth separation runs on solvent extraction from strongly acidic chloride solutions, so the wastewater carries chloride at concentrations that interfere directly with the standard dichromate method - chloride is itself oxidised and reports as COD that is not there. A method written for this specific matrix, with the interference suppressed, is what allows a rare earth plant's discharge to be measured honestly rather than approximately.

GB/T 34500 provisions of this part of the mining, mineral processing, smelting rare earth waste leachate and wastewater COD (Chemical Oxygen Demand) The determination method. This section applies to mining, mineral processing, smelting rare earth residue leaching solution and the determination of chemical oxygen demand (COD). Headquarters Subcategories include two methods of analysis Method

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document. Water quality - Determination of chloride - Silver nitrate titration Solid waste extraction toxicity Toxicity method HNO₃ method

HJ828 Water quality - Determination of chemical oxygen demand dichromate method

3 Method 1 potassium dichromate titration When method 1 and method 2 overlap in the measurement range, method 1 is arbitration method.

3.1 method principle In strong acid solution, with a certain amount of potassium dichromate oxidation of water samples of reducing substances, with silver nitrate and bismuth nitrate masking agent to eliminate Chloride interference, excessive potassium dichromate to try ferrous spirit as an indicator, ammonium ferrous sulfate standard titration titration solution, according to ammonium ferrous sulfate Standard titration solution to calculate the amount of chemical oxygen demand in water samples.

3.2 Reagents and materials

3.2.1 ferrous ammonium sulfate.