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GB/T 45015-2024

**Technical specifications for comprehensive utilization of
titanium gypsum**

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Foreword

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1 Scope

GB/T 45015-2024 sets the technical requirements for putting titanium gypsum to use. Titanium gypsum is the calcium sulfate sludge left when the acidic waste of sulfate-route titanium dioxide production is neutralised with lime, and China makes tens of millions of tonnes of it a year. It is chemically close to natural gypsum but arrives wet, fine and stained red with iron, and it carries residual acidity and heavy metals, so it has historically been stacked rather than used. The standard sets the general requirements and then the technical requirements and verification methods for each utilisation route in turn - building materials, land application, ecological restoration, road construction, mine filling, backfill, soil stabilisation, and the production of sulfuric acid with cement as a by-product - together with the packaging, marking, storage and transport provisions, and normative annexes on the determination of adhesion water and crystal water and the calculation of the calcium

sulfate dihydrate content. It takes effect on 1 June 2025.

This document specifies the overall requirements, technical requirements and verification methods, pollutant emissions, packaging, labeling, storage and Transport, monitoring and frequency. This document is applicable to the treatment of waste acid and acidic wastewater generated when producing titanium dioxide by sulfuric acid process, using calcium sulfate dihydrate Comprehensive utilization of general industrial solid waste with (CaSO₄·2H₂O) as the main component.

2 Normative references

The contents of the following documents constitute 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 175 General purpose Portland cement

GB/T 208 Cement density determination method

GB/T 534 Industrial sulfuric acid

GB/T 1345 Cement fineness test method - Sieve analysis method

GB/T 1346 Test methods for water consumption, setting time and stability of cement of standard consistency

GB/T 1596 Fly ash used in cement and concrete

GB 2762 National Food Safety Standard Limits of Contaminants in Food

GB 4915 Emission standard of air pollutants for cement industry

GB 5085.3 Identification Standard for Hazardous Wastes - Identification of Leaching Toxicity

GB/T 5484-2024 Chemical analysis method for gypsum

GB 6566 Limits of radionuclides in building materials

GB/T 7484 Determination of fluoride in water - Ion selective electrode method

GB/T 8077 Test method for homogeneity of concrete admixtures