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

GB/T 43950-2024

Technical guidelines for reuse of industrial brine

工业浓盐水回用技术导则

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Table of Contents

- 1 Scope
- 2 Normative references
- 3 Terms and definitions
- 4 General

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"

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Industrial Brine

1 Scope

GB/T 43950-2024 gives the Chinese technical guidelines for reusing industrial concentrated brine. It addresses the residue of the zero liquid discharge policy: as Chinese industry has been pushed to stop discharging wastewater, the water is recovered and what remains is an ever more concentrated brine that has to go somewhere, and evaporating it to a mixed salt merely converts a water problem into a hazardous solid waste problem. The guidelines set out the alternative. They cover the characterisation of the brine and the identification of its reuse potential, the pretreatment required to remove hardness, silica, organics and the specific contaminants that block reuse, the concentration and separation technologies including membrane and thermal routes and the selective separation of sodium chloride and sodium sulfate, the reuse routes for the recovered water and for the recovered salts and the quality each requires, the handling of the residual mother liquor, and the assessment of the technical and economic feasibility of a scheme. It took effect on 1 August 2024.

This document specifies the general principles, technical routes and process technologies for industrial brine reuse: This document applies to the reuse of industrial brine (hereinafter referred to as "brine"):

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 to This document:

GB/T 5462 Industrial Salt

GB/T 6009 Industrial anhydrous sodium sulfate

GB 7231 Basic identification colors, identification symbols and safety signs for industrial pipelines

GB/T 18920 Quality of urban miscellaneous water for urban sewage recycling

GB/T 18921 Water quality for landscape water use in urban sewage recycling

GB/T 19249 Reverse Osmosis Water Treatment Equipment

GB/T 19493 Terminology of Environmental Pollution Control Equipment

GB/T 19923 Water quality for industrial use of urban sewage recycling

GB/T 20103 Terminology of membrane separation technology

GB/T 39308 Technical specification for advanced treatment of refractory organic wastewater

GB/T 43089 High-salt water concentrating electrodialyzer

GB 50013 Outdoor water supply design standard

GB 50014 Outdoor drainage design standard

3 Terms and definitions

The terms and definitions defined in GB/T 19493, GB/T 20103 and the following apply to this document: 3:

1 Industrial brine industrialbrine Water with a salt content exceeding a certain concentration generated during industrial production and water treatment:

Note: The salt concentration is determined in accordance with national, industry or local wastewater discharge standards:

4 General

1 Based on the source of brine, water quantity and quality, water conservation goals, post-treatment discharge standards, reuse purposes and standards, and the current status of regional development and future planning, through technical and economic comparison, select the quality-based treatment and reuse methods, and determine the reasonable treatment scale and treatment process: 4:

2 The process parameters should be determined based on the water-salt balance calculation, and the technical parameters should be determined comprehensively through experiments or by drawing on the operating experience of existing projects: