

ICS 07.060
CCS A45



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

GB/T 42629.4-2023

**Code of practice for international seabed area and high seas
environmental survey - Part 4: Physical features survey of
marine sediments**

国际海底区域和公海环境调查规程 第4部分：海洋沉积物物理特性调查

Issued on: August 6, 2023

Implemented on: March 1, 2024

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

Table of Contents

1	Scope
2	Normative reference documents
3	Terms and definitions
4	Investigation of physical properties of marine sediments
4.1	Technical design
4.2	Investigation elements and requirements
4.3	Sample collection
4.4	On-site description and processing of sediment samples
4.5	Report preparation
5	Sediment material composition test
5.1	Sediment particle size analysis
5.4	Identification of sediment micropaleontology
5.5	Data organization
6	Testing of sediment physical and mechanical properties
6.1	Testing of sediment physical properties
6.2	Testing of sediment mechanical properties
6.3	On-site in-situ mechanical testing
6.4	Data compilation
7	Bioturbation Rate Test
7.1	Technical requirements
7.2	Analytical methods
7.3	Data organization
8	Marine Geological and Geophysical Surveys
8.1	Test elements
8.2	Sample processing methods
11	Marine Engineering Geological Survey
55	Reference

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. This document is Part 4 of GB/T 42629 "International Environmental Investigation Procedures for Seabed Areas and High Seas". GB/T 42629 has been released. The following sections are included.

1. General provisions;

2. Marine chemical survey;

3. Marine life survey;

4. Investigation of physical properties of marine sediments. Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents. This document is proposed by the Ministry of Natural Resources of the People's Republic of China. This document is under the jurisdiction of the National Marine Standardization Technical Committee (SAC/TC283). This document was drafted by: Second Institute of Oceanography of the Ministry of Natural Resources, Guangzhou Marine Geological Survey Bureau, Changsha Research Institute of Mining and Metallurgy Co., Ltd. Division, China Ocean Mineral Resources Research and Development Association. The main drafters of this document: Zhang Weiyan, Zhang Fuyuan, Jiang Jing, Chen Qing, Shang Hehui, Zheng Hao, Li Hongliang, Yang Kehong, Dong Yanhui, Cheng Yangrui, Li Zhou, Ma Weilin, Yu Xiaoguo, Wu Chunfang.

In order to fully implement the "Law of the People's Republic of China on the Exploration and Development of Deep Seabed Area Resources" and comply with the relevant regulations and rules of the International Seabed Authority, The requirements of environmental guidelines guide our contractors to effectively implement the requirements of deep seabed areas such as polymetallic nodules, cobalt-rich crusts and polymetallic sulfide resources. Environmental investigation obligations for resource exploration and development, and the GB/T 42629 "International Environmental Investigation Procedures for Seabed Areas and High Seas" series of procedures were compiled. Bring my country's environmental investigation technology and methods in international seabed areas and high seas into line with international standards, and help our contractors fulfill their environmental investigation obligations and launch projects. Provide technical support for high sea environmental surveys. GB/T 42629 aims to establish content that is generally applicable to environmental surveys in international seabed areas and high seas. The content, procedures and common requirements are planned to be composed of 4 parts.

1. General principles. The purpose is to establish standards applicable to marine chemistry, marine life, and marine sediments in international seabed areas and the high seas. Procedures and general requirements for surveys of physical properties and physical oceans and other marine environments.

2. Marine Chemical Survey. The purpose is to standardize the content and analysis methods of marine chemical surveys.

3. Marine life survey. The purpose is to standardize the content, methods and technical requirements of marine life surveys.

4. Investigation of physical properties of marine sediments. The purpose is to standardize the investigation content, methods and techniques of physical properties of marine sediments. technical requirements. This document is Part 4 of GB/T 42629. This document is used in conjunction with other parts. International code for environmental surveys of seabed areas and high seas Part

1 Scope

GB/T 42629.4-2023 is Part 4 of the Chinese code of practice for surveying the environment of the international seabed area and the high seas - the parts of the ocean floor that belong to no state and are governed under the law of the sea. Before anything is mined there, the baseline condition of the seabed has to be established, and it has to be established in a way another party can check years later. This part deals with the sediment itself: what it is made of, how it behaves mechanically, how organisms churn it, and how material moves through it. It specifies the survey elements and the general requirements that govern sample collection, on-site description and processing, laboratory testing and data compilation, then works through the measurements one at a time - particle size and material composition, physical properties, mechanical properties, and in-situ mechanical testing performed on the seabed rather than on a recovered core. It applies to environmental surveys everywhere in the international seabed area and the high seas except the polar oceans, which are treated separately. Filed under ICS 07.060 and CCS A45, it is the working document for the survey vessels, marine geology laboratories and contractors whose baseline data will later be read as evidence.

This document specifies sediment composition, physical and mechanical properties, bioturbation, sediment circulation in international seabed area and high seas environmental surveys. Survey elements such as quantity, and general requirements for sample collection, processing, testing and data collection during the survey process. This document is applicable to investigations of physical properties of sediments in environmental surveys of international seabed areas and high seas, except in the polar oceans.

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document.

GB/T 12763.8-2007 Marine Survey Specifications Part

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Physical characteristics such as sediment composition, physical and mechanical properties, bioturbation, and sediment flux.

3.2 On-site and indoor tests such as sediment particle analysis, moisture content, density, soil particle specific gravity and critical moisture content.

3.3 On-site and indoor tests on sediment compressive strength, penetration strength and shear strength.

3.4 bioturbation bioturbation Disturbance of soft bottom sediments by bottom animals through movement and feeding activities. [Source: GB/T 15919-2010,5.20]

3.5 bioturbation rates bioturbation rates By analyzing the excess ^{210}Pb activity in sediments at different depths, the bioturbation rate and depth of sediment mixing were determined.

8 Marine Geological and Geophysical Surveys

GB/T 12763.11-2007 Marine Survey Specifications Part

11 Marine Engineering Geological Survey

GB/T 50123-2019 Standard for geotechnical testing methods

GB/T 42629.1-2023 International Regulations for Environmental Investigation of Seabed Areas and High Seas Part