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HJ

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

HJ 442.3-2020

Replacing HJ 442-2008

**Technical specifications for environmental monitoring of
coastal waters - Part 3: Water quality monitoring of coastal
waters**

近岸海域环境监测技术规范 第三部分 近岸海域水质监测
(English Translation)

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1 Technical specifications for environmental monitoring in coastal waters

Part III Water Quality Monitoring of Inshore Waters

1 Scope of application this standard specifies the collection, storage, transportation, on-site testing, laboratory analysis and quality of water quality monitoring samples in coastal waters.

Basic methods and procedures of control.

This standard is applicable to the monitoring of water quality in coastal waters, estuaries and salty and brackish waters (excluding sections of rivers entering the sea Monitoring of pollutants entering the sea). Including container preparation and washing, sample collection, pre-processing, field testing, laboratory analysis and QC.

2 Normative references

The content of this standard refers to the terms in the following documents. For undated references, the effective version is applicable to this standard.

GB 3097 sea water quality standard GB 12763.4 Marine Survey Specification Part 4: Investigation of Seawater Chemical Elements HJ 168 Technical Guidelines for the Preparation and Revision of Environmental Monitoring and Analysis Methods HJ 442.1 The general rules of the first part of the technical specifications for environmental monitoring in coastal waters HJ 442.2 Technical Specification for Environmental Monitoring in Coastal Seas Part 2 Data Processing and Information Management HJ 442.6 Technical Specification for Environmental Monitoring in Coastal Seas Part 6 Biological Monitoring in Coastal Seas HJ 442.10 Technical Specifications for Environmental Monitoring in Coastal Seas Part Ten Evaluation and Report HJ 730 Technical Specification for Layout of Environmental Monitoring Points in Coastal Waters

3 General requirements for water quality monitoring in coastal waters

The implementation plan for coastal water quality monitoring shall be determined in accordance with the relevant requirements of HJ 442.1; the layout of monitoring points shall be determined in accordance with HJ 730 Implementation of relevant requirements; data processing, statistics, summary, review and submission shall be implemented in accordance with HJ 442.2 requirements; water quality evaluation and reporting Compilation is carried out in accordance with the requirements of HJ 442.10.

The frequency of routine water quality monitoring is generally 3 times a year, and the sampling time is arranged in March to May, July to August and September to November.

In principle, the interval between two monitorings should be more than 2 months.

The mandatory measurement items for coastal water quality monitoring are determined in accordance with GB 3097 and based on the monitoring purpose. The water depth and salt Degree, chlorophyll a, actual sampling latitude and longitude, etc.; optional measurement items include redox potential, silicate, hydrological and meteorological parameters for the related analysis and quality control of chlorophyll a, please refer to the relevant requirements of HJ 442.6;

The plan is selected according to the monitoring purpose.

Other monitoring water quality monitoring items, time, frequency, etc. shall be determined according to the monitoring purpose.

24 Water quality sample collection, storage and transportation

4.1 Preparation of containers and sampling equipment

4.1.1 Selection of container the choice of containers for sampling and sample storage determines whether the sample undergoes physical, chemical, and biological reactions before analysis, which affects the accuracy of the analysis. The following factors should be considered when choosing a container.

a) The material of the container has strong chemical stability, does not react with the tested component, and the wall should not absorb or adsorb the tested component it is easy to clean, has a certain degree of shock resistance, can adapt to large temperature changes, and has a tight seal;

b) Generally, sample containers made of materials with strong stability such as hard glass and polyethylene plastic are selected, most of which contain inorganic the samples of the components are mostly containers made of polyethylene, polytetrafluoroethylene and polycarbonate polymers;

High density polyethylene, suitable for silicate, sodium salt, total alkalinity, chloride, conductivity, pH analysis in water and storage of samples for determination; light-absorbing glass materials are often used for photosensitive substances, such as brown bottles, and tin if necessary Foil shading; commonly used glass containers are suitable for the storage of organic compounds and biological samples; plastic containers are suitable for the storage of radionuclides, most trace elements and water samples for routine monitoring items; with neoprene rubber ring and oil the container of the mass lubrication valve is not suitable for the storage of organic matter and microorganism samples;

c) Generally, narrow-mouth containers are used for water samples, and the sealing material of the container is the same as that of the container, and the sealing corks should not be mixed;

In special circumstances, when wooden or rubber stoppers are needed, they must be wrapped in stable metal foil; organic matter and bacteria Do not use rubber stoppers for product containers; do not use glass stoppers for alkaline liquid sample containers; do not use paper balls and metal materials Material plug.

4.1.2 Washing of containers New containers must be degreased and thoroughly cleaned of substances that may cause pollution effects before they can be used. General container cleaning the type of detergent used should be selected according to the composition of the substance to be tested. Routinely monitored container washing methods are shown in Table 1.

a) Cleaning of newly purchased containers. When cleaning with general detergent or non-phosphorus detergent, first use a soft brush to scrub the container Rinse the outer surface and cover with tap water, and then rinse with pure water that meets the analysis requirements of the monitoring project 3 Times

b) Cleaning of stoppered glass bottles. pay attention to the dissolution, adsorption and adhesion phenomena that may exist in the ground part.

Containers that cannot be cleaned cannot be used for sampling;

c) Polyethylene bottle cleaning. pay special attention to the absorption of oil, heavy metals, sediments and organic matter, and it is really impossible to scrub clean the container cannot be used for sampling;

d) Cleaning of glass bottles storing petroleum and organic water samples. clean with tap water, chromic acid lotion, tap water and pure water After drying, rinse with purified or qualified extraction solution for 3 times, dry in the shade and pack it in the packing box to avoid contamination;

e) Washing of chlorophyll a and toxic algae sample bottles. wash with tap water and distilled water in turn;

- f) Containers for storing and testing bacterial water samples. After cleaning according to general methods, place the containers in a pressure cooker at 120°C and keep it for 15 minutes, or bake in a 160°C oven for 2 hours to sterilize;
- g) Washing of active phosphate and total phosphorus sample bottles. After washing with a non-phosphorus detergent, they must be washed with (13) hydrochloric acid After soaking for 24 hours and washing with pure water, cover the mouth of the bottle with aluminum foil and save it for later use;
- h) Storage of water sample bottles for counting and biochemical analysis. soak in nitric acid solution for a long time, then rinse with distilled water to remove 5e) Reasonable price, easy to promote and use.

4.1.4.2 Sampler

The sampler is selected according to the actual sampling situation. The sampler generally includes the following types.

a) Instantaneous sample sampler, including.

- 1) Nearshore surface water collector. a plastic-wrapped bottle clamp is connected to a telescopic long rod, and the sampling bottle is fixed on the plastic on the bottle clamp, the sampling bottle is the sample bottle;
 - 2) Throwing floating water collector. the sampling bottle is installed in a fixed frame made of stainless steel that can be opened, and the steel frame is fixed A long nylon rope is connected with a floating ball and is usually used to collect water samples such as surface petroleum hydrocarbons;
 - 3) Depth comprehensive method sampler. The depth comprehensive method sampling requires a set to clamp the sampling bottle and sink it into the water the mechanical device of the weighted object sinks into the water, and at the same time, the entire vertical section of the each layer of water samples enter the sampling bottle;
 - 4) When using the instantaneous sampler, in order to make the water sample proportionally taken at various depths, the sampling bottle should settle or be the speed of ascent should be changed correspondingly with different depths. At the same time, it should also have an adjustable injection hole to maintain the when the water pressure changes, the injection flow rate is constant; when there is no above-mentioned sampling equipment, the open-close type can be used the water collector separately collects samples from each depth layer and then mixes them.
- b) Open-closed water collector. It is a simple and easy to use sampler, open at both ends, the top and bottom can be opened respectively the lid of the water collector is opened and sinks into the water. When the sampling depth is reached, the lids at both ends are closed according to the instructions.