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

GB/T 31971.3-2025

Replacing GB/T 31971.3-2015

**Ships and marine technology - Marine environment protection:
performance testing of oil skimmers - Part 3: High viscosity oil**

船舶与海上技术 海上环境保护：撇油器性能试验 第3部分：高黏度油

(English Translation)

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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 3 of GB/T 31971 "Ships and Marine Technology - Marine Environmental Protection. Performance Tests of Skimmers".

GB/T 31971 has published the following parts.

---Part 1: Dynamic Water Conditions;

---Part 2: Medium and Low Viscosity Oils;

---Part 3: High Viscosity Oils this document replaces GB/T 31971.3-2015 "Ships and Marine Technology - Marine Environmental Protection. Performance Testing of Skimmers - Part 3.

Compared with GB/T 31971.3-2015, the main technical changes in "High Viscosity Oils" are as follows, except for structural adjustments and editorial modifications.

- a) Increased the viscosity range of high-viscosity oils (see Chapter 1);
- b) Normative reference ISO 21072-1 (see Chapter 3 of the 2015 edition) has been removed;
- c) Added terms such as "data acquisition period", "residue", "emulsification factor", "liquid recovery rate", "recovery efficiency", "oil recovery rate", and "oil recovery rate".

"Phase," "skimmer," and "steady-state period" and their definitions (see Chapter 3);

- d) Provisions in the general requirements for testing facilities that overlap with the detailed requirements for testing facilities have been removed (see 4.1.2 in the 2015 edition);

- e) The indexing instructions in the experimental setup drawings have been revised (see Figure 1, Figure 1 in the 2015 version);

f) Examples of test oils in the table of oil properties and related floating oil parameter ranges have been modified (see Table 1, 2015 edition of Table 1).

This document adopts ISO 21072-3:2020 "Ships and marine technology, marine environmental protection - performance testing of skimmers - Part 3" Category. High viscosity oil.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Marine Machinery (SAC/TC137).

Introduction

GB/T 31971 "Ships and Marine Technology - Marine Environmental Protection. Performance Testing of Oil Skimmers" specifies the performance requirements for oil skimmers used in marine pollution control.

The testing was standardized. Prior to this, oil skimmers that had undergone performance testing under non-standard conditions and procedures, especially under field conditions, had...

The measured performance parameters have limited value for end users.

GB/T 31971 aims to provide a method for conducting comprehensive tests on oil skimmers under different test conditions and recording the test results, so that end users can...

Objectively judge, compare and evaluate the design and performance of different types of oil skimmers.

GB/T 31971 consists of the following three parts.

---Part 1: Dynamic Water Conditions. The aim is to provide a method for quantitatively determining the performance data of oil skimmers under dynamic water conditions, applicable to...

Performance tests of the skimmer were conducted within the specified size limits of the test tank.

---Part 2: Medium and Low Viscosity Oils. The aim is to provide quantitative performance data for skimmers in recovering medium and low viscosity oils.

The method is applicable to performance testing of skimmers in the case of recovering medium and low viscosity oils.

---Part 3: High Viscosity Oils. The aim is to provide a method for quantitatively determining performance data for skimmers in the recovery of high viscosity oils.

This method is applicable to performance testing of skimmers in the case of recovering high-viscosity oils.

Ships and Marine Technology. Marine Environmental Protection Oil skimmer performance test Part 3: High viscosity oil

1 Scope

This document specifies a method for quantitatively determining the performance data of an oil skimmer when recovering high-viscosity oil with a viscosity greater than 50,000 cP.

This allows end users to objectively judge, compare, and evaluate the design and performance of different types of oil skimmers. The methods specified in this document are applicable to use in water tanks.

Tests must be conducted to control the properties of the oil and floating oil.

This document applies to all types of skimmers whose dimensions fall within the range of the test tank. The test procedures specified in this document are performed under the specified control conditions.

The following provides comprehensive test results for the tested apparatus, applicable to one or more high-viscosity oils. These test results can be used to predict skimming...

When assessing the performance of the device under field conditions, attention must be paid to the required details.

For dedicated/embedded systems, the test procedures specified in this document apply only to skimming equipment that meets the test conditions, and not to...

The entire skimming system.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

Note: GB/T 21478-2024 Marine Technology - Vocabulary for Marine Environmental Protection and Oil Spill Treatment (ISO 16165:2020, IDT).

3 Terms and Definitions

The terms and definitions defined in ISO 16165 and the following terms and definitions apply to this document.

high viscosity oil

Oil that is not easily recovered by the skimmer (3.9) due to its inherent characteristics.

Data collection period. datacollectionperiod During the steady-state period (3.10), the time period during which the recovered liquid is collected to determine performance data.

Debris

Solid or semi-solid substances that interfere with the operation of oil spill control systems.

The amount of water emulsified into the oil due to the skimming/suction process, but excluding the water in the original test liquid.

Note: Represented as a decimal between 0 and 1.