



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

GB/T 40531.1-2021

**Ships and marine technology - Specifications for gas detectors
intended for use on board ships - Part 1: Portable gas detectors
for atmosphere testing of enclosed spaces**

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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 of Standardization Documents"

Drafting.

This document is the first part of GB/T 40531 "Specifications for Marine Gas Detectors for Ships and Offshore Technology". GB/T 40531 has

The following sections were released.

---Part 1. Portable gas detectors in enclosed spaces.

The translation method used in this document is equivalent to ISO 19891-1.2017 Part 1 of the Specification for Ships and Marine Technology Marine Gas Detectors

Sub. Portable gas detectors in enclosed spaces.

This document was proposed and managed by the National Marine Machinery Standardization Technical Committee (SAC/TC137).

Drafting organizations of this document. China Shipbuilding Industry Comprehensive Technical and Economic Research Institute, Fujian Tianguang Fire Fighting Co., Ltd., Shanghai Xiaoxiang Fire Fighting Equipment

Co., Ltd., Chengdu Chaorun Technology Co., Ltd., Hangzhou Huayan Digital Electronics Co., Ltd., Mengpuan Electronics (Shanghai) Co., Ltd., Zhoushan City Quality

Quantitative Technology Supervision and Inspection Institute, Jiangsu University of Science and Technology, Shenzhen Xibao Ship Electronics Co., Ltd., China Shipbuilding Industry Association.

Introduction

GB/T 40531 will standardize the product performance and inspection methods of marine

gas detectors for the manufacture and use of marine gas detectors.

And inspection provides technical basis.

In view of the fact that the international standard ISO 19891 adopted by GB/T 40531 only released Part 1, GB/T 40531 currently only has.

---Part 1. Portable gas detectors in enclosed spaces. Can be used for portable gas detector detection to prove that portable gas

Whether the body detector meets the requirements of the SOLAS Convention.

The other parts of GB/T 40531 will be formulated in time according to the release status of other parts of ISO 19891 and will be rolled out one after another.

Ship and Marine Technology Ship Gas Detector Specification

Part 1. Portable gas detectors in enclosed spaces

1 Scope

This document specifies the performance, gas measurement, sensitivity, result display, and performance of portable gas detectors used before entering enclosed spaces on ships

Alarm level, impact resistance, temperature and humidity protection, and measurement requirements, etc.

This document can be used for portable gas detector testing to prove compliance with SOLAS Convention XI-1/7 "Gas Detection in Enclosed Spaces"

"Detector" requirements can also be used to determine whether portable gas detectors on the market meet the requirements of the SOLAS Convention.

Note 1. From July 1, 2016, SOLAS Convention XI-1/7 stipulates portable gas testing equipment and shipboard equipment. The SOLAS Convention requires that

The portable gas testing equipment on board in front of the shelter can at least test the concentration of oxygen, combustible gas or steam, hydrogen sulfide, and carbon monoxide.

In order to measure the concentration of combustible gas or vapor, the combustible gas mentioned in this document is methane or a mixture of propane and butane, and it is required to be portable

The type of combustible gas is clearly marked on the integrated gas detector. Unmarked combustible gases cannot be detected and measured by portable gas detectors.

Note 2. The portable gas detector can use isobutane as the calibration gas when measuring propane and butane gas.

This document does not apply to the toxicity test of combustible gas.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, dated quotations

Only the version corresponding to that date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

This document.

IEC 60079-0 Explosive atmospheres Part 0.General requirements for equipment (Explosive atmospheres-Part0.Equip-ment-Generalrequirements)

IEC 60079-29-1 Explosive Atmosphere Part 29-1.Gas Detector Combustible Gas Detector Performance Requirements (Explosive atmospheres-Part 29-1.Gasdetectors-Performancerequirementsofdetectorsforflammablegases)

IEC 60079-29-2 Explosive Atmosphere Part 29-2.Gas Detector Combustible Gas and Oxygen Detector Selection, Installation, Use and maintenance (Explosive atmospheres-Part 29-2.Gasdetectors-Selection, instalation, use and maintenanceofdetectorsforflammablegasesandoxygen)

IEC 60092-504 Ship Electrical Equipment Part 504.Automation, Control and Measuring Instruments (Electricalinstalationsin ships-Part 504.Automation,controlandinstrumentation)

IEC 60529 enclosure protection level (IP code) [Degrees of protection provided by enclosures (IP code)]

IEC 60533 Electromagnetic compatibility of electrical and electronic equipment in ships (Electricalandelectronicinstalationsinships-Electromagneticcompatibility)

IMO Res.A.1050(27) "Recommendations for Entering Enclosed Spaces on Ships" Appendix 7 Test Gas (Revised recommendationsforenteringenclosedspacesaboardships,Annex,section7Testingtheatmosphere)

SOLAS Convention XI-1/7 Gas detection equipment in enclosed spaces (Atmosphere

testing instrument for enclosed
spaces)

3 Terms and definitions

The following terms and definitions apply to this document.

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