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**Water quality — Determination of  
 $\text{pH}_t$  in sea water — Method using the  
indicator dye *m*-cresol purple**

*Qualité de l'eau — Détermination du  $\text{pH}_t$  dans l'eau de mer —  
Méthode utilisant l'indicateur coloré au pourpre de  
*m*-crésol*

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 147, *Water quality*, Subcommittee SC 2, *Physical, chemical and biochemical methods*.

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## Introduction

The greenhouse effect induced by anthropogenic carbon dioxide, CO<sub>2</sub>, in the atmosphere is one of the serious global environmental issues. A key factor controlling the atmospheric CO<sub>2</sub> is its absorption into the ocean. As a result of the absorption, the pH in the upper layer of the ocean is observed to have fallen gradually, and its influence on the living organisms is a matter of concern all over the world.

On the other hand, carbon capture and storage (CCS) technology is considered as a useful means of reducing the CO<sub>2</sub> emissions from fossil fuel. When ocean environment such as sub-seabed aquifer is selected as a storage site, the monitoring of carbonate system including pH in sea water becomes very important. The analytical method for pH<sub>t</sub> in sea water (the total hydrogen ion concentration pH scale) samples requires specific conditions and techniques essential to the precise and accurate determination. This International Standard describes a method for the determination of pH<sub>t</sub> in sea water with the repeatability less than 0,003.

This method will provide international communities accurate data sets on pH<sub>t</sub> in sea water being compatible with each other. This is the base of national and international operational observation or monitoring programs of the oceanic carbonate system as well as individual research works.

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