
**Kakovost vode – Preskus zaviranja rasti morskih alg s *Skeletonema costatum*
in *Phaeodactylum tricomutum***

Water Quality - Marine algal growth inhibition test with *Skeletonema costatum* and
Phaeodactylum tricomutum

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English version

Water Quality - Marine algal growth inhibition test with *Skeletonema costatum* and *Phaeodactylum tricomutum*

Qualité de l'eau - Essai d'inhibition de la croissance des
algues marines avec *Skeletonema costatum* et
Phaeodactylum tricomutum

This draft European Standard is submitted to CEN members for parallel enquiry. It has been drawn up by the Technical Committee CEN/TC 230.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Foreword

This document (prEN ISO 10253:2004) has been prepared by Technical Committee ISO/TC 147 "Water quality" in collaboration with Technical Committee CEN/TC 230 "Water analysis", the secretariat of which is held by DIN.

This document is currently submitted to the parallel Enquiry.

This document will supersede EN ISO 10253:1998.

Endorsement notice

The text of ISO/DIS 10253:2004 has been approved by CEN as prEN ISO 10253:2004 without any modifications.

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Water quality — Marine algal growth inhibition test with *Skeletonema costatum* and *Phaeodactylum tricornutum*

*Qualité de l'eau — Essai d'inhibition de la croissance des algues marines avec *Skeletonema costatum* et *Phaeodactylum tricornutum**

[Revision of first edition (ISO 10253:1995)]

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Foreword

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ISO 10253 was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 5, *Biological methods*.

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WARNING — Persons using this International Standard should be familiar with normal laboratory practice. This International Standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

1 Scope

This International Standard specifies a method for the determination of the inhibition of growth of unicellular marine algae by substances and mixtures contained in seawater.

The method can be used for testing substances that are readily soluble in water and are not significantly degraded or eliminated from the test.

NOTE With modifications as described in ISO/DIS 14442 and ISO 5667-16, the inhibitory effects of poorly soluble organic and inorganic materials, volatile compounds, metals, effluents, marine water samples and elutriates of sediments can be tested.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5667-16, *Water quality — Sampling — Part 16: Guidance on biotesting of samples*

ISO/DIS 14442¹⁾, *Water quality — Guidelines for algal growth inhibition tests with poorly soluble materials, volatile compounds, metals and waste water*

ISO/TS 20281¹⁾, *Water quality — Guidance on statistical interpretation of ecotoxicity data*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

cell density

number of cells per unit volume of medium (x cells/ml)

1) Under preparation.

3.2

specific growth rate

proportional rate of increase in cell density per unit of time : $\frac{1}{x} \times \frac{dx}{dt}$ (1/day)

3.3

growth medium

mixture of seawater and nutrients which is used for pre-cultures and controls

3.4

test medium

mixture of seawater, nutrients (growth medium 3.3) and test material in which algal cells are incubated

3.5

test batch

mixture of seawater, nutrients and test material (test medium 3.4) inoculated with algae

3.6

control

mixture of seawater, nutrients (growth medium 3.3) without test material, inoculated with algae

3.7

effective concentration, $E_r C_x$

concentration of test substance which results in a x % reduction in specific growth rate relative to the controls

4 Principle

Mono-specific algal strains are cultured for several generations in a defined medium containing a range of concentrations of the test substance, prepared by mixing appropriate quantities of nutrient concentrate, seawater, stock solutions of the test substance, and an inoculum of exponentially growing algal cells. The test solutions are incubated for a period of $72 \text{ h} \pm 2 \text{ h}$, during which the cell density in each is measured at intervals of at least every $24 \text{ h} \pm 2 \text{ h}$. Inhibition is measured as a reduction in specific growth rate, relative to control cultures grown under identical conditions.

5 Materials

5.1 Test organisms

Use either of the following marine algae :

- a) *Skeletonema costatum* (Greville) Cleve (CCAP 1077/1C, NIVA BAC 1, ISTPM P4) ; or
- b) *Phaeodactylum tricornutum* Bohlin (CCAP 1052/1A, SAG 1090-1a , NIVA BAC 2, ISTPM P1).

These algae are important and widely distributed phytoplankton species (phylum *Bacillariophyta*) in estuarine and coastal areas.

The strains recommended are available in unialgal, non-axenic cultures from the following sources.

NIVA Norwegian Institute for Water Research
 P.O Box 173 Kjelsås
 N-0411 Oslo
 Norway