SLOVENSKI PREDSTANDARD

OSIST prEN ISO 10253:2004

december 2004

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

ICS 13.060.70

Referenčna številka
OSIST prEN ISO 10253:2004(en;fr;de)

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN ISO 10253

September 2004

ICS

Will supersede EN ISO 10253:1998

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.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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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

Ref. No. prEN ISO 10253:2004: E

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.

DRAFT INTERNATIONAL STANDARD ISO/DIS 10253

ISO/TC **147**/SC **5** Secretariat: **AFNOR**

Voting begins on: **2004-09-02**

Voting terminates on: **2005-02-02**

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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)]

ICS 13.060.70

ISO/CEN PARALLEL ENQUIRY

The CEN Secretary-General has advised the ISO Secretary-General that this ISO/DIS covers a subject of interest to European standardization. **In accordance with the ISO-lead mode of collaboration as defined in the Vienna Agreement, consultation on this ISO/DIS has the same effect for CEN members as would a CEN enquiry on a draft European Standard.** Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month FDIS vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

Pour accélérer la distribution, le présent document est distribué tel qu'il est parvenu du secrétariat du comité. Le travail de rédaction et de composition de texte sera effectué au Secrétariat central de l'ISO au stade de publication.

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

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

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

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 14442[1)], *Water quality — Guidelines for algal growth inhibition tests with poorly soluble materials, volatile compounds, metals and waste water*

ISO/TS 20281[1)], *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_rC_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 h ± 2 h, during which the cell density in each is measured at intervals of at least every 24 h ± 2 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.

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