SLOVENSKI STANDARD
SIST EN 14395-1:2005

01-marec-2005

Vpliv organskih snovi na pitno vodo ï Ocenjevanje organoleptiļ nih lastnosti vode v sistemih za hranjenje ï 1. del: Preskusna metoda

Influence of organic materials on water intended for human consumption - Organoleptic assessment of water in storage systems - Part 1: Test method

Einfluss von organischen Werkstoffen auf Wasser für den menschlichen Gebrauch - Organoleptische Prüfung von Wasser in Speichersystemen - Teil 1: Prüfverfahren

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Influence des matériaux organiques sur l'eau destinée a la consommation humaine - Evaluation organoleptique de l'eau dans les systemes de stockage - Partie 1 : Méthode d'essai

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Ta slovenski standard je istoveten z: **EN 14395-1:2004**

ICS:

13.060.20	Pitna voda	Drinking water
13.060.45	Preiskava vode na splošno	Examination of water in general

SIST EN 14395-1:2005 **en**

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EUROPEAN STANDARD

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Influence of organic materials on water intended for human consumption - Organoleptic assessment of water in storage systems - Part 1: Test method

Influence des matériaux organiques sur l'eau destinée à la consommation humaine - Evaluation organoleptique de l'eau dans les systèmes de stockage - Partie 1 : Méthode d'essai

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This European Standard was approved by CEN on 8 August 2004.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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Foreword

This document (EN 14395-1:2004) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2005, and conflicting national standards shall be withdrawn at the latest by April 2005.

The material-dependent parameters and/or performance requirements are incorporated into the Product Standards, for example the System Standards for storage systems.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Introduction

In respect of potential adverse effects on the quality of water intended for human consumption caused by the materials, it is recalled to mind that, while awaiting the adoption of verifiable European acceptance criteria, such as proposed in a future European Acceptance Scheme, national regulations remain in force.

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1 Scope

This document specifies a test method for determining the organoleptic properties (odour, flavour, colour and turbidity) of test waters after their contact with products made from organic materials used in storage systems (tanks, reservoirs, ancillaries and their coatings both for factory and site applied products).

Products containing cementitious materials are not covered by this document.

The test method described in this standard is applicable to products to be used under various conditions for the storage of water intended for human consumption and raw water used for the manufacture of water intended for human consumption. Coatings or protective layers on products which are not intended to be in contact with these types of waters are not covered by this method.

This document specifies the test method comprising a set of procedures with and without a disinfection pretreatment and possible temperatures for the test waters. The use of the disinfection pretreatment and the choice of the test temperature are dependant on the relevant national regulations and/or the system or product standards.

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.

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EN 1622:1997, *Water analysis - Determination of the threshold odour number (TON) and threshold flavour number (TFN).*

EN ISO 7393-2:2000, *Water quality - Determination of free chlorine and total chlorine - Part 2: Colorimetric method using N, N-diethyl-1, 4-phenylenediamine for routine control purposes (ISO 7393-2:1985).*

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EN ISO 7887:1994, *Water quality - Examination and determination of colour (ISO 7887:1994).*

EN ISO 7027:1999, *Water quality - Determination of turbidity (ISO 7027:1999).*

3 Terms and definitions

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

3.1
odour
organoleptic attribute perceptible by olfactory organ on sniffing certain volatile substances

[ISO 5492:1992]

3.2
flavour
complex combination of the olfactory, gustatory and trigeminal sensations perceived during tasting. The flavour may be influenced by tactile, thermal, painful and/or kinaesthesic effects

[ISO 5492:1992]

NOTE The term «taste» should not be used to designate the combination of gustatory, olfactory and trigeminal sensations which are designated by the term «flavour». If, in informal language, this term is used in this sense, it should always be associated with a qualifying term, e.g. musty taste, raspberry taste, corky taste.

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3.3
threshold odour number (TON)
dilution ratio of the migration water with the reference water at the same temperature, beyond which this diluted sample does not have any perceptible odour

3.4
threshold flavour number (TFN)
dilution ratio of the migration water with the reference water at the same temperature, beyond which this sample does not have any perceptible flavour

3.5
colour
optical property that causes the changing of the spectral composition of transmitted visible light measured at three wavelengths

[EN ISO 7887:1994, Clause 3]

3.6
turbidity
reduction of transparency of a liquid caused by the presence of undissolved matter

[EN ISO 7027:1999]

3.7
reference water
water described as without any odour, flavour, colour and turbidity

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3.8
test water
water used for testing purposes prepared as described in 6.3.2 and 6.3.3

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3.9
migration water
test water which has been in contact with a test piece under specified conditions

3.10
blank water
test water which has been kept at the same specified conditions as migration water but without contact with the test piece

3.11
flushing water
tapwater distributed by a public supplier

3.12
disinfection treatment water
water containing chlorine prepared as described in 6.2.2

3.13
testing panel
group of people that carried out the odour /flavour assessment

3.14
storage vessels
tanks, reservoirs, cisterns and their coatings

3.15
ancillary
complete functional unit made up of one or more components (e.g. piping systems, ladders, structural supports, valves, baffles)

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3.16
storage systems
combination of storage vessels and necessary ancillaries

3.17
products
manufactured item in its finished form

3.18
sample
one or more units, or a specified quantity, drawn from a batch or lot, selected at random for inspection, e.g. in a laboratory

3.19
test piece
sample or portion which is conditioned, treated or otherwise prepared to be tested to obtain a single test result

3.20
homogeneous product
product where the water contact surface is made from the same material as the remainder of the product

3.21
non-homogeneous product
product where the water contact surface is made from a material that differs from those comprising the remainder of the product

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3.22
factory made product
products made in a factory under controlled conditions as part of the manufacturing process

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3.23
site applied product
product manufactured on site (e.g. sealing membranes), or products mixed, applied and cured on site (e.g. coatings, sealants and adhesives)

4 Principle

Following a defined pretreatment procedure including flushing, stagnation with or without disinfection and pre-washing, the surface of the test pieces to be tested, exposed in practice to drinking water, is brought into contact with test waters.

The migration procedure is carried out three times on the same test piece under specified conditions as follows.

Test pieces are put in contact with chlorinated and unchlorinated water for 72 h at 23 °C, or put in contact with unchlorinated water for 24 h at a specified temperature in the range 60 °C to 85 °C.

After this contact the migration water is assessed for colour and turbidity and by a test panel to determine the odour (TON) and flavour (TFN).

Additional information is given in the relevant product standard, system standard or in national regulation concerning:

— the temperature to be used in the test;

— the need for a disinfection pretreatment;

— the need to carry out a 23 °C test, using chlorinated water, for products being tested at elevated temperatures.

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5 Test environment

When testing of odour and flavour, the test environment shall conform to the requirements given in EN 1622.

6 Reagents

6.1 Sodium thiosulfate solution

Sodium thiosulfate solution, comprising a solution of 3,5 g/l of sodium thiosulfate pentahydrate ($Na_2S_2O_3 \times 5H_2O$) analytical grade, stored in the absence of light at a temperature below 10 °C, for a maximum of 4 months.

6.2 Disinfection reagents

6.2.1 Sodium hypochlorite solution

Sodium hypochlorite solution, prepared from a commercial solution of sodium hypochlorite (NaOCl) and having a known concentration of about 0,1 % by mass of free chlorine determined in accordance with EN ISO 7393-2.

NOTE Unless tests have proved otherwise the sodium hypochlorite solution should be considered as unstable and prepared the day of use.

6.2.2 Disinfection treatment water, shall consist of a batch of reference water (see 6.3.1) with a free chlorine content of (50 ± 5) mg/l as Cl2 after addition of sodium hypochlorite solution (see 6.2.1).

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6.3 Waters to be used for testing

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6.3.1 Reference water shall be without any perceptible odour or flavour as determined according to EN 1622, and without colour and turbidity.

When a reference water is chlorinated to 1,0 mg/l free chlorine and then dechlorinated after 72 h with sodium thiosulfate, it shall have no perceptible odour, flavour, colour and turbidity.

6.3.2 Test water without chlorine content, shall consist of a batch of reference water (see 6.3.1) used for contact with test pieces and preparation of the blank water.

6.3.3 Test water with chlorine content, shall consist of reference water (see 6.3.1) with a free chlorine content of (1 ± 0,2) mg/l as Cl2 after addition of sodium hypochlorite solution (see 6.2.1).

6.4 Cleaning liquids for apparatus

— non-perfumed biodegradable detergent;

— hydrochloric acid, 2 mol/l (analytical grade);

— nitric acid, 10 % or 1,5 mol/l (analytical grade);

— hydrogen peroxide, 3 % vol/vol (analytical grade).