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des produits et services

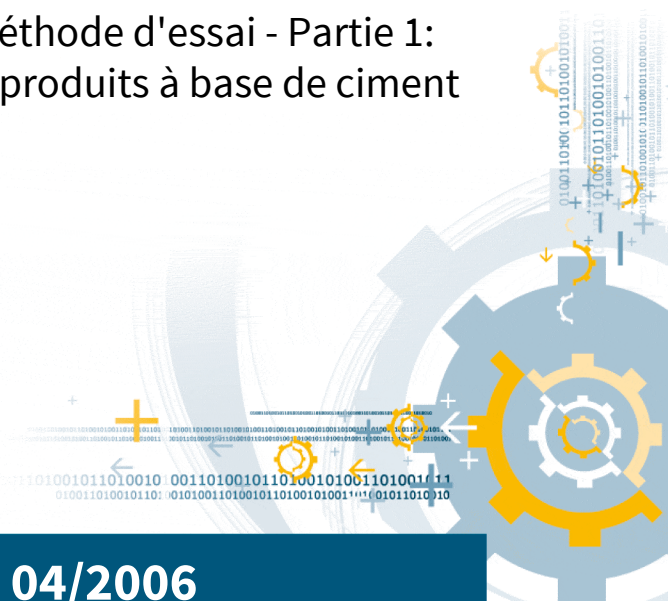
ILNAS-EN 14944-1:2006

Influence of cementitious products on water intended for human consumption - Test methods - Part 1: Influence of factory made

Einfluss von zementgebundenen
Produkten auf Wasser für den
menschlichen Gebrauch - Prüfverfahren -
Teil 1: Einfluss fabrikmäßig hergestellter

Influence des produits à base de ciment
sur l'eau destinée à la consommation
humaine - Méthode d'essai - Partie 1:
Influence des produits à base de ciment

04/2006



National Foreword

This European Standard EN 14944-1:2006 was adopted as Luxembourgish Standard ILNAS-EN 14944-1:2006.

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EUROPEAN STANDARD ^{ILNAS-EN 14944-1:2006} **EN 14944-1**
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English Version

Influence of cementitious products on water intended for human consumption - Test methods - Part 1: Influence of factory made cementitious products on organoleptic parameters

Influence des produits à base de ciment sur l'eau destinée à la consommation humaine - Méthodes d'essai - Partie 1: Influence des produits à base de ciment fabriqués en usine sur les paramètres organoleptiques

Einfluss von zementgebundenen Produkten auf Wasser für den menschlichen Gebrauch - Prüfverfahren - Teil 1: Einfluss fabrikmäßig hergestellter zementgebundener Produkte auf organoleptische Parameter

This European Standard was approved by CEN on 13 February 2006.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

This document (EN 14944-1:2006) 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 October 2006, and conflicting national standards shall be withdrawn at the latest by October 2006.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

It describes a test method to determine the influence(s) of factory made cementitious products on the organoleptic parameters of water intended for human consumption.

Annex A, which is normative, describes additional procedures for testing factory made pipes (cement mortar lined and concrete).

Annex B, which is normative, describes additional procedures for testing factory made fittings (cement mortar lined and concrete).

Annex C, which is normative, describes additional procedures for testing factory made storage systems (cement mortar, cement mortar lined and concrete).

Annex D, which is informative, provides examples of typical test pieces and test conditions as a function of S/V ratio.

Annex E, which is informative, describes test arrangements for testing factory made cementitious products

Annex F, which is normative, describes additional procedures for testing factory made cementitious products at elevated temperature.

Annex G, which is informative, provides a means of discriminating between porous and non-porous coatings on factory made products.

Annex H, which is informative, provides a schematic description of the test (preconditioning and migration) procedure.

This European Standard provides a bibliography.

This European Standard will result in one of a series of standards that support appropriate standards.

This European Standard is Part 1 of a series dealing with the influence of cementitious and associated non-cementitious products/materials on water intended for human consumption, including:

- Part 1: Influence of factory made cementitious products on organoleptic parameters
- Part 2¹: Influence of site-applied cementitious materials and associated non-cementitious products/materials on organoleptic parameters
- Part 3: Migration of substances from factory made cementitious products.
- Part 4²: Migration of substances from site-applied cementitious materials and associated non-cementitious products/materials.

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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

¹ The work on Part 2 of EN 14944 has not yet begun.

² The work on Part 4 of EN 14944 has not yet begun.

Introduction

With respect to any potential adverse effects of products and materials on the quality of water intended for human consumption, it should be understood that relevant national regulations remain in force until verifiable European acceptance criteria are adopted.

1 Scope

This European Standard specifies a method to determine the influence of factory made cementitious products on the odour, flavour, colour and turbidity of test waters after contact with the products.

This European Standard is applicable to factory made cementitious products, e.g. cement mortar linings to metallic pipes, tanks, concrete pipes etc. intended to be used for the transport and storage of water for human consumption, including raw water used for the production of drinking water.

2 Normative references

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

EN 196-1, *Methods of testing cement — Part 1: Determination of strength*

EN 1622:1997, *Water analysis — Method for the determination of threshold odour number (TON) and threshold flavour number (TFN)*

EN 1015-2, *Methods of test for mortar for masonry — Part 2: Bulk sampling of mortars and preparation of test mortars*

EN 1015-11, *Methods of test for mortar for masonry — Part 11: Determination of flexural and compressive strength of hardened mortar*

EN 10088-1, *Stainless steels — Part 1: List of stainless steels*

EN 12350-1, *Testing fresh concrete — Part 1: Sampling*

EN 12390-1, *Testing hardened concrete — Part 1: Shape, dimensions and other requirements for specimens and moulds*

EN 12390-2, *Testing hardened concrete — Part 2: Making and curing specimens for strength tests*

EN 27888, *Water quality — Determination of electrical conductivity (ISO 7888:1985)*

EN ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696:1987)*

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

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

EN ISO 7393-1, *Water quality — Determination of free chlorine and total chlorine — Part 1: Titrimetric method using N, N-diethyl-1, 4-phenylenediamine (ISO 7393-1:1985)*

EN ISO 7393-2, *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)*

EN ISO 9963-2, *Water quality — Determination of alkalinity — Part 2: Determination of carbonate alkalinity (ISO 9963-2:1994)*

EN ISO 16264, *Water quality — Determination of soluble silicates by flow analysis (FIA and CFA) and photometric detection (ISO 16264:2002)*

ISO 6058, *Water quality — Determination of calcium content — EDTA titrimetric method*

ISO 10523, *Water quality — Determination of pH*

3 Terms and definitions

For the purpose of this European Standard, the following terms and definitions apply.

3.1

appropriate body

certification body, inspection body or test laboratory, as relevant to a particular requirement

3.2

cementitious product

factory made product containing a cementitious material supplied in the hardened state with a formed surface prior to its incorporation into the construction works

3.3

cementitious material

material that contains a hydraulic cement in sufficient proportion to act as the main binder by forming a hydrate structure which governs the performance of the material

3.4

associated non-cementitious product

product which is applied to the surface of a cementitious product, directly or indirectly, during manufacture (or construction) and which either provides a porous seal to the product or which remains as a residue in contact with water e.g. porous seal coats, formwork release agents and curing compounds

3.5

porous seal coat

polymeric (usually organic) materials applied in a thin (25µm - 200µm thickness) surface layer to a cement mortar lining in order to restrict (but not prevent) interactions between the mortar and conveyed water (ISO 16132 ^[1])

3.6

proxy sample

sample of fresh mortar or fresh concrete taken from material to be used for the production of a factory made product, either spray-applied to a laboratory test plate (mortar only) or cast into a mould (mortar or concrete) of appropriate dimensions (e.g. standard cube, cylinder or prism etc.) and compacted (where appropriate), cured and hardened under conditions representative of those intended for the product

3.7

fresh concrete

concrete that is fully mixed and still in a condition capable of being compacted by the chosen method

3.8

fresh mortar

cement mortar that is fully mixed and still in a condition of being applied to a substrate by the chosen method

3.9

odour

organoleptic attribute perceptible by olfactory organ on sniffing certain volatile substances (ISO 5492 ^[2])

3.10

flavour

complex combination of the olfactory, gustatory, and trigeminal sensations perceived during tasting. The flavour may be influenced by tactile, thermal, painful and/or kinaesthetic effects (ISO 5492 ^[2])

3.11

colour

optical property that causes the changing of the spectral composition of transmitted visible light measured at three wavelengths (see section 3 of EN ISO 7887:1994)

3.12

turbidity

reduction of transparency of a water due to the presence of undissolved matter (see 3.1 of EN ISO 7027:1999)