Water conditioning equipment inside buildings - Membrane separation devices - Requirements for performance, safety and testing

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EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 14652:2006 sisaldab Euroopa standardi EN 14652:2005 ingliskeelset teksti. Käesolev dokument on jõustatud 27.02.2006 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 14652:2006 consists of the English text of the European standard EN 14652:2005. This document is endorsed on 27.02.2006 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This document specifies requirements relating to the construction, performance and methods of testing for membrane separation systems with a particle rating below 1 µm, namely microfiltration (MF), ultrafiltration (UF), nanofiltration (NF) and reverse osmosis (RO) for drinking water installations inside buildings, intended to remove from the drinking water marginal concentrations of suspended and colloidal solids, microorganisms, organic molecules and/or to reduce the dissolved solids concentration and applies to systems with a minimum pressure of PN 10, connections between DN 15 and DN 100 and a maximum working temperature of at least 30 °C.	**Scope:** This document specifies requirements relating to the construction, performance and methods of testing for membrane separation systems with a particle rating below 1 µm, namely microfiltration (MF), ultrafiltration (UF), nanofiltration (NF) and reverse osmosis (RO) for drinking water installations inside buildings, intended to remove from the drinking water marginal concentrations of suspended and colloidal solids, microorganisms, organic molecules and/or to reduce the dissolved solids concentration and applies to systems with a minimum pressure of PN 10, connections between DN 15 and DN 100 and a maximum working temperature of at least 30 °C.

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Water conditioning equipment inside buildings - Membrane separation devices - Requirements for performance, safety and testing

Equipement de conditionnement d'eau à l'intérieur des bâtiments - Dispositifs de séparation membranaire - Spécifications de performances, de sécurité et essai

Anlagen zur Behandlung von Trinkwasser innerhalb von Gebäuden - Membranfilteranlagen - Anforderungen an Funktion, Sicherheit und Prüfung

This European Standard was approved by CEN on 8 July 2005.

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

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Foreword

This European Standard (EN 14652:2005) 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 June 2006, and conflicting national standards shall be withdrawn at the latest by June 2006.

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.

Introduction

With respect of potential adverse effects on the quality of water intended for human consumption caused by the product covered by this European Standard, the following is pointed out to the user of this European Standard:

1) this European Standard provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA;

2) it should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

1 Scope

This European Standard specifies requirements relating to the construction, performance and methods of testing for membrane separation systems with a particle rating below 1 µm, namely microfiltration (MF), ultrafiltration (UF), nanofiltration (NF) and reverse osmosis (RO) for drinking water installations inside buildings, intended to remove from the drinking water marginal concentrations of suspended and colloidal solids, microorganisms, organic molecules and/or to reduce the dissolved solids concentration and applies to systems with a minimum pressure of PN 10, connections between DN 15 and DN 100 and a maximum working temperature of at least 30 °C.

This European Standard applies to membrane separation systems, whose elements may be partly or entirely cleanable or disposable in accordance with the type of system. It only concerns units which are permanently connected to the mains supply at the point-of-entry or the point-of-use.

A membrane separation system may include, together with the separation device pre- and /or post-treatment devices.

For the scope of this European Standard:

— separation device shall comply with this European Standard, i.e. without pre-and/or post-treatments;

— where pre-and/or post-treatment devices are incorporated in the system, each of them shall conform to the relevant standard. If this is the case, the complete system shall be considered as conforming as a whole.

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.

EN 1092-1, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 1: Steel flanges*

EN 1092-2, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 2: Cast iron flanges*

EN 1254-1, *Copper and copper alloys — Plumbing fittings — Part 1: Fittings with ends for capillary soldering or capillary brazing to copper tubes*

EN 1567, *Building valves — Water pressure reducing valves and combination water pressure reducing valves — Requirements and tests*

EN 1717:2000, *Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow*

EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*

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

EN ISO 3822 (all parts), *Acoustics — Laboratory tests on noise emission from appliances and equipment used in water supply installations*

ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 304, *Surface active agents — Determination of surface tension by drawing up liquid films*

ISO 1219-1, *Fluid power systems and components — Graphic symbols and circuit diagrams — Part 1: Graphic symbols*

ISO 12103-1, *Road vehicles — Test dust for filter evaluation — Part 1: Arizona test dust*

3 Terms and definitions

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

3.1
accessible
fabricated to be exposed for cleaning and inspection using standard available tools if necessary (e.g., screwdriver, pliers, open-end spanner)

3.2
air gap (drain system)
unobstructed vertical distance through the free atmosphere between the outlet of the concentrated discharge pipe and the flood level rim of the receptacle into which it is discharging

3.3
air gap (water distribution system)
unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet to a tank, plumbing fixture or other device, and the flood level rim of the receptacle

3.4
bubble point
minimum pressure required to overcome the surface tension of the water filling the pores of the membrane

3.5
component
separate or distinct part of a drinking water treatment system including, but not limited to, appurtenant accessories such as membranes, filters, housing, tubing, storage tanks, taps, valves, connectors to the feed water supply and connectors to the waste discharge line

3.6
contaminant
any undesirable chemical or microbiological substance or parameter in drinking water

3.7
cross-flow filtration
mode of operation by which part of the water passes through the membrane (product water) and the remaining part is rejected (reject water)

NOTE 1 The reject water, which can be wasted or partly recycled, plays the major role of keeping the membrane surface clean.

NOTE 2 Term "tangential flow" has the same technical meaning.

3.8
daily production
volume of product water produced by the system per day

3.9
dead-end filtration
mode of operation in which all the water feed passes through the membrane (no reject water). Depending on the rate of fouling/clogging of the membrane due to the retained substances, this filtration method is subject to declining rate of flow due to build up of retained matter. The membrane should be cleanable or disposable