



SLOVENSKI STANDARD

SIST EN 14743:2006

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CdfYa UŽ_j'gYi dcfUV^UnUdf]dfUj c'd]hbY'j cXY'j 'ghUj VU 'È'A Y UW'È'NU hYj Y'nU
XY'cj Ub^Žj Ufbcgh]b'dfYg_i ýUb^Y

Water conditioning equipment inside buildings - Softeners - Requirements for performance, safety and testing

Anlagen zur Behandlung von Trinkwasser innerhalb von Gebäuden - Enthärter - Anforderungen an Ausführung, Sicherheit und Prüfung

Equipement de traitement d'eau a l'intérieur des bâtiments - Adoucisseurs - Exigences de performances, de sécurité et d'essai

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91.140.60	Sistemi za oskrbo z vodo	Water supply systems

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EUROPEAN STANDARD

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English Version

Water conditioning equipment inside buildings - Softeners - Requirements for performance, safety and testing

Équipement de traitement d'eau à l'intérieur des bâtiments -
Adoucisseurs - Exigences de performances, de sécurité et
d'essais

Anlagen zur Behandlung von Trinkwasser innerhalb von
Gebäuden - Enthärter - Anforderungen an Ausführung,
Sicherheit und Prüfung

This European Standard was approved by CEN on 26 August 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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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Page

Foreword	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	6
4 Requirements	8
4.1 Softener specification	8
4.2 Quality of materials and chemicals	8
4.2.1 Cation exchange resin	8
4.2.2 Regenerating salt	8
4.3 Design and manufacturing specifications	9
4.3.1 Resistance to hydrostatic pressure	9
4.3.2 Resistance to cyclic pressure	9
4.3.3 Minimum and maximum operating pressure	9
4.3.4 Resistance to temperature	9
4.3.5 Electrical safety	9
4.3.6 Salt tank	9
4.3.7 Continuity of supply during regeneration	9
4.3.8 Protection against backflow and infiltration of brine	9
4.3.9 Noise level	9
4.3.10 Air vent	10
4.3.11 End connections	10
4.3.12 Drain connections	10
4.4 Operating specifications	10
4.4.1 Initiation of regeneration	10
4.4.2 Brining efficiency	10
4.4.3 Regeneration water	10
4.4.4 Quality of treated water after regeneration	10
4.4.5 Continuous flow rate	10
4.4.6 Pressure drop	10
4.4.7 Exchange capacity	11
4.5 Installation specifications	11
4.5.1 Connection to mains water supply and existing pipe network	11
4.5.2 Drain	11
4.5.3 Electrical connection	11
5 Labelling	11
5.1 Identification of equipment	11
5.2 Safety labelling	11
6 Technical documentation	12
7 Test methods	12
7.1 Test conditions	12
7.1.1 Ambient air	12
7.1.2 Water and salt	12
7.1.3 Test rig	13
7.1.4 Analysis	13
7.2 Cation exchange resin	13
7.3 Technical documentation	14
7.4 Manufacturing tests	14
7.4.1 Resistance to hydrostatic pressure	14

7.4.2	Resistance to cyclic pressure.....	14
7.4.3	Continuity of water supply	15
7.4.4	Protection against backflow.....	15
7.4.5	Air displacement	15
7.5	Operating characteristics	15
7.5.1	General	15
7.5.2	Nominal flow rate	15
7.5.3	Regenerations	16
7.5.4	Exchange capacity	17
7.5.5	Brine efficiency	17
7.5.6	Regeneration water.....	17
7.5.7	Quality of treated water after a regeneration	17

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EN 14743:2005 (E)**Foreword**

This European Standard (EN 14743:2005) 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 April 2006, and conflicting national standards shall be withdrawn at the latest by April 2006.

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the product covered by 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.

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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1 Scope

This European Standard specifies requirements relating to the construction and mode of operation and relevant methods of testing of automatic, salt-regenerated, cation exchange softeners for drinking water installations inside buildings which are permanently connected to the mains supply.

Until EAS comes into force, the current national regulations remain applicable.

NOTE Products intended for use in water supply systems should comply, when existing, with national regulations and testing arrangements that ensure fitness for contact with drinking water. The Member States relevant regulators and the EC Commission agreed on the principle of a future unique European Acceptance Scheme (EAS) which would provide a common testing and approval arrangement at European level.

If and when the EAS is adopted, European Standards on products will be amended by the addition of an Annex Z/EAS under Mandate M/136 which will contain formal references to the testing, certification and product marking requirements of the EAS.

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 973, *Chemicals used for treatment of water intended for human consumption — Sodium chloride for regeneration of ion exchangers*

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

EN 60335-1, *Household and similar electrical appliances — Safety — Part 1: General requirements (IEC 60335-1:2001, modified)*

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 3822-1, *Acoustics — Laboratory tests on noise emission from appliances and equipment used in water supply installations — Part 1: Method of measurement (ISO 3822-1:1999)*

EN ISO 3822-3, *Acoustics — Laboratory tests on noise emission from appliances and equipment used in water supply installations — Part 3: Mounting and operating conditions for in-line valves and appliances*

EN ISO 10304-1, *Water quality - Determination of dissolved fluoride, chloride, nitrite, orthophosphate, bromide, nitrate and sulfate ions, using liquid chromatography of ions - Part 1: Method for water with low contamination (ISO 10304-1:1992)*

EN ISO 11885, *Water quality — Determination of 33 elements by inductively coupled plasma atomic emission spectroscopy (ISO 11885:1996)*

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

EN 14743:2005 (E)

3 Terms and definitions

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

3.1

blending device

internal or external device used to adjust the hardness of supplied water by mixing hard water with softened water

3.2

brining

main phase of the regeneration process, during the course of which the brine flows through the bed of resin for the purpose of exchanging the alkaline earth ions by sodium ions during the regeneration run, and thereby recovering the exchange capacity of the resin bed

3.3

brining efficiency

link, expressed in grams of calcium carbonate (CaCO_3) per kilogram of salt, between the exchange capacity and the salt consumption

3.4

cation exchange resin

synthetic material which has the capability to exchange cations reversibly

3.5

continuous flow rate

maximum flow rate at which a duplex appliance can operate continuously (24 h per day) without premature break-through of hardness

3.6

duplex appliance

softening system employing two resin tanks, enabling the production of uninterrupted softened water supply

NOTE A transient hard water supply during change-over from tank to tank is permissible.

3.7

exchange capacity of the softening unit

quantity of alkaline earths, expressed in grams of calcium carbonate, fixed by the softener between the end of the last regeneration and the beginning of the exhaustion of the resin

NOTE 1 The end of the regeneration is defined as the moment when the softener is available for service.

NOTE 2 The resin is considered to be exhausted when the residual hardness of the softened water increases above a defined value.

3.8

monitoring device

time controller, flow integrator, resin exhaustion sensor or a combination of these, used to determine the appropriate moment in the operating cycle for regeneration to begin, and to initiate that regeneration

3.9

nominal flow rate

flow rate of water, expressed in cubic metres per hour, at which a pressure drop of maximum 100 kPa is established

3.10

operating cycle

two successive and repetitive runs: the softened water run (or service) and the regeneration run

3.11**operating range**

physical conditions (temperature, pressure, flow rate) within which a softening unit can operate and meet its performance guarantees

3.12**pressure drop**

decrease in pressure between the inlet and outlet of the softener, expressed in kilopascals, at nominal flow rate

3.13**regeneration process**

part of softener operating cycle, during which all the operations needed to restore the ion exchange capacity of a resin bed are carried out

3.14**regeneration water**

quantity of water, expressed in litres (or in cubic meters), necessary for a complete regeneration process, including water used for the preparation of the brine

3.15**residual hardness**

hardness of water sampled at the outlet of a softener during the service run

3.16**salt consumption**

quantity of salt, expressed in kilograms, used for each regeneration

3.17**salt tank**

tank containing the regenerating salt and the brine-production device

3.18**softener**

complete installation necessary for the ongoing production of softened water

3.19**softening**

reduction of the hardness of water by exchange of alkaline earths ions (mainly calcium and magnesium) with sodium ions, by passing through a bed of cation exchange resin in the sodium form

3.20**softening unit**

appliance employing the softening principle and which generally comprises the following constituent parts:

- pressure vessel containing the cationic ion exchange resin and devices for distributing and collecting hydraulic flows,
- devices for monitoring hydraulic flows (water and brine) through a multi-way valve or a set of pipes and multiple valves,
- tank (called salt-tank) for storage of the regeneration salt and production of the brine

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