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Utgåva 1

**Vattenförsörjning – Invändig utrustning – System  
för elektrolytisk behandling med aluminium-  
anoder – Utförandekrav, säkerhet och provning**

**Water conditions equipment inside buildings –  
Electrolytic treatment systems with aluminium  
anodes – Requirements for performance, safety  
and testing**

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English version

## Water conditioning equipment inside buildings - Electrolytic treatment systems with aluminium anodes - Requirements for performance, safety and testing

Appareils de conditionnement d'eau à l'intérieur des bâtiments - Installations électrolytiques avec anodes en aluminium - Exigences de performances, de sécurité et d'essais

Anlagen zur Behandlung von Trinkwasser innerhalb von Gebäuden - Elektrolytische Dosierungsanlagen mit Aluminiumanoden - Anforderungen an Ausführung und Sicherheit, Prüfung

This European Standard was approved by CEN on 14 November 2003.

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 Management Centre 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 Management Centre has the same status as the official versions.

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



EUROPEAN COMMITTEE FOR STANDARDIZATION  
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**EN 14095:2003 (E)**

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## **Foreword**

This document (EN 14095:2003) 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of an identical text or by endorsement, at the latest by June 2004, and conflicting national standards shall be withdrawn at the latest by June 2004.

Annex A is informative.

This document includes a bibliography.

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

## **EN 14095:2003 (E)**

### **Introduction**

In respect to potential adverse effects of the quality of water intended for human consumption, caused by the product covered by this standard:

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

## 1 Scope

This European Standard applies to electrolytic dosing systems for conditioning water intended for human consumption inside buildings and based on dissolution of aluminium anodes (with imposed DC current). It specifies constructional (but not dimensional) and operational requirements. It describes relevant methods for testing performance and safety. It only concerns units which are permanently connected to the mains supply.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 573-3, *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Part 3: Chemical composition.*

EN 602, *Aluminium and aluminium alloys — Wrought products — Chemical composition of semi products used for the fabrication of articles for use in contact with food.*

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

EN 12499, *Internal cathodic protection of metallic structures*

prEN 12897, *Water supply - Specification for indirectly heated unvented (closed) storage water heaters.*

EN 55011, *Industrial, scientific and medical (ISM) radio-frequency equipment - Radio disturbance characteristics - Limits and methods of measurement (CISPR 11:1997, modified)*

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

ISO 7858-1, *Measurement of water flow in closed conduits -- Combination meters for cold potable water -- Part 1: Specifications*

ISO 7858-2, *Measurement of water flow in closed conduits -- Combination meters for cold potable water -- Part 2: Installation requirements*

## 3 Terms and definitions

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

### 3.1

#### **conditioning of water intended for human consumption**

modification of the characteristics of drinking water for a special purpose within the limits stipulated in the Directive 98/83/EEC, adopted in national legislation of the Member States

## EN 14095:2003 (E)

### 3.2

#### **anode**

electrode connected to the positive (+) output from the direct current generator

### 3.3

#### **anode lifetime**

time interval between replacements of the aluminium anodes

### 3.4

#### **cathode**

electrode connected to the negative (-) output from the direct current generator

### 3.5

#### **direct current generator**

device which supplies low voltage direct current to the anodic dissolution of the aluminium anodes

### 3.6

#### **hydrated aluminium oxide**

dosing agent first reaction product, which is formed by the dissolution of the aluminium anodes as a function of the Direct Current with water

### 3.7

#### **conditioning tank**

vessel in which the anodic dissolution of the aluminium anodes occurs. It is located in the main hot water line after re-heating, in front of the distribution network which is to be protected

### 3.8

#### **conditioning time**

residence time of the conditioning tank. It is the volume of the conditioning tank divided by the cumulative flow rate of water

## 4 Materials design and requirements

### 4.1 Dosage of hydrated aluminium oxide

The reaction products of the aluminium anodes shall not give rise to concentrations beyond the limit in accordance with the National and European regulations concerning the quality of water intended for human consumption (e.g. EC. Directive 98/83/EEC) (see 4.4).

The maximum aluminium concentration (expressed as Al) shall not exceed 0,2 mg/l in cold water and 0,5 mg/l in heated water (see 4.2).

### 4.2 Direct current generator

The electrical apparatus, connections and mountings on site shall be in accordance with EN 60335-1. The Direct Current Generator with its connections to anodes, cathodes and other appliances shall be in accordance with EN 55011.

The DC output shall be controlled as a function of the water consumption.

The current shall be limited to ensure that the amount of dissolved aluminium concentration does not exceed the permitted value of the national regulations.

There shall be visual indication of the operating status of the DC generator.

The DC generator shall be designed to allow the summation of the necessary current demand for each treated water circuit.