

# SVENSK STANDARD

## SS-EN 15040:2014

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### **Processkemikalier för beredning av dricksvatten – Antiskalanter för membran – Fosfonsyror och dess salter**

**Chemicals used for treatment of water intended for human consumption – Antiscalants for membranes – Phosphonic acids and salts**



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Europastandarden EN 15040:2014 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 15040:2014.

Denna standard ersätter SS-EN 15040:2006, utgåva 1.

The European Standard EN 15040:2014 has the status of a Swedish Standard. This document contains the official version of EN 15040:2014.

This standard supersedes the Swedish Standard SS-EN 15040:2006, edition 1.

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Denna standard är framtagen av kommittén för Vattenreningskemikalier och industrikalk, SIS/TK 431.

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EUROPEAN STANDARD

**EN 15040**

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2014

ICS 71.100.80

Supersedes EN 15040:2006

English Version

## Chemicals used for treatment of water intended for human consumption - Antiscalants for membranes - Phosphonic acids and salts

Produits chimiques pour le traitement de l'eau destinée à la consommation humaine - Produits antitartre pour membranes - Acides phosphoniques et sels

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Antiscalants für Membranen - Phosphonsäuren und deren Salze

This European Standard was approved by CEN on 5 January 2014.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

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



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## Foreword

This document (EN 15040:2014) 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 September 2014 and conflicting national standards shall be withdrawn at the latest by September 2014.

This document supersedes EN 15040:2006.

Significant technical differences between this edition and EN 15040:2006 are as follows:

- replacement of warning and safety precautions notes by labelling according to REGULATION (EC) No 1272/2008.

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

**WARNING – The use of this standard may involve hazardous materials, operations and equipment. This standard does not purport to address all the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.**

## Introduction

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the products covered by this European Standard:

- a) this European Standard provides no information as to whether the products 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 national regulations concerning the use and/or the characteristics of these products remain in force.

NOTE Conformity with this European Standard does not confer or imply acceptance or approval of the products in any of the Member States of the EU or EFTA. The use of the products covered by this European Standard is subject to regulation or control by National Authorities.



## 1 Scope

This European Standard is applicable to phosphonic acids and salts used as antiscalants for membranes in the treatment of water intended for human consumption. It describes the characteristics and specifies the requirements and the corresponding analytical methods for phosphonic acids and salts. It gives information on their use as antiscalants for membranes in water treatment. It also determines the rules relating to safe handling and use (see Annex B).

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1233, *Water quality — Determination of chromium — Atomic absorption spectrometric methods*

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

EN ISO 5961, *Water quality - Determination of cadmium by atomic absorption spectrometry (ISO 5961)*

EN ISO 11885, *Water quality - Determination of selected elements by inductively coupled plasma optical emission spectrometry (ICP-OES) (ISO 11885)*

EN ISO 11969, *Water quality - Determination of arsenic - Atomic absorption spectrometric method (hydride technique) (ISO 11969)*

EN ISO 12846, *Water quality - Determination of mercury - Method using atomic absorption spectrometry (AAS) with and without enrichment (ISO 12846)*

ISO 2997, *Phosphoric acid for industrial use — Determination of sulphate content — Method by reduction and titrimetry*

ISO 3165, *Sampling of chemical products for industrial use — Safety in sampling*

ISO 3360, *Phosphoric acid and sodium phosphates for industrial use (including foodstuffs) — Determination of fluorine content — Alizarin complexone and lanthanum nitrate photometric method*

ISO 6206, *Chemical products for industrial use — Sampling — Vocabulary*

ISO 6703-1, *Water quality — Determination of cyanide — Part 1: Determination of total cyanide*

ISO 8213, *Chemical products for industrial use — Sampling techniques — Solid chemical products in the form of particles varying from powders to coarse lumps*

ISO 8288:1986, *Water quality — Determination of cobalt, nickel, copper, zinc, cadmium and lead — Flame atomic absorption spectrometric methods*

ISO 9965, *Water quality — Determination of selenium — Atomic absorption spectrometric method (hydride technique)*

### 3 Description

#### 3.1 Identification

##### 3.1.1 Chemical name

- a) Morpholinomethane diphosphonic acid,
- b) Aminotrismethylene phosphonic acid,
- c) Hydroxyethane diphosphonic acid,
- d) Diethylene triamine pentamethylene phosphonic acid,
- e) Ethylene diamine tetramethylene phosphonic acid,
- f) Ethanol aminobismethylene phosphonic acid,
- g) Phosphonobutane tricarboxylic acid,
- h) Hexamethylenediamine tetramethylene phosphonic acid.

These acids can also be used as sodium, potassium, and ammonium salts.

##### 3.1.2 Synonym or common names

- a) MOMP,
- b) ATMP,
- c) HEDP,
- d) DETAPMP,
- e) EDATMP,
- f) EABMP,
- g) PBTC,
- h) HDTMP

##### 3.1.3 Relative molecular mass

- a) 260,15
- b) 299,04
- c) 206,02
- d) 572,95
- e) 436,06
- f) 249,02
- g) 270,82

h) 492,23

### 3.1.4 Empirical formula

a)  $C_5H_{13}O_7P_2N$ ,

b)  $C_3H_{12}O_9P_3N$ ,

c)  $C_2H_8O_7P_2$ ,

d)  $C_9H_{28}O_{15}N_3P_5$ ,

e)  $C_6H_{20}O_{12}N_2P_4$ ,

f)  $C_4H_{13}O_7P_2N$ ,

g)  $C_7H_{11}O_9P$ ,

h)  $C_{10}H_{28}N_2O_{12}P_4$ .

### 3.1.5 Chemical formula

a)  $C_5H_{13}O_7P_2N$ ,

b)  $C_3H_{12}O_9P_3N$ ,

c)  $C_2H_8O_7P_2$ ,

d)  $C_9H_{28}O_{15}N_3P_5$ ,

e)  $C_6H_{20}O_{12}N_2P_4$ ,

f)  $C_4H_{13}O_7P_2N$ ,

g)  $C_7H_{11}O_9P$ ,

h)  $C_{10}H_{28}N_2O_{12}P_4$ .

### 3.1.6 CAS Registry Number <sup>1)</sup>

a) 32545-75-8,

b) 6419-19-8,

c) 2809-21-4,

d) 15827-60-8,

e) 1429-50-1,

f) 5995-42-6,

g) 37971-36-1,

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<sup>1)</sup> Chemical Abstracts Service Registry Number.