

SVENSK STANDARD

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Processkemikalier för beredning av dricksvatten – Natriumpermanganat

**Chemicals used for treatment of water intended for human
consumption – Sodium permanganate**



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Europastandarden EN 15482:2012 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 15482:2012.

Denna standard ersätter SS-EN 15482:2007, utgåva 1.

The European Standard EN 15482:2012 has the status of a Swedish Standard. This document contains the official version of EN 15482:2012.

This standard supersedes the Swedish Standard SS-EN 15482:2007, edition 1.

Nationell information/National information

I enlighet med Livsmedelsverkets föreskrifter (SLVFS 2001:30) om dricksvatten, är natriumpermanganat inte tillåten som processkemikalie för beredning av dricksvatten vid dricksvattenanläggningar som omfattas av föreskrifterna.

According to the National Food Agency's ordinance with regulations on drinking water, SLVFS 2001:30, sodium permanganate is not permitted as a process chemical for treatment of water intended for human consumption in Sweden.

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

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

EUROPEAN STANDARD

EN 15482

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2012

ICS 71.100.80

Supersedes EN 15482:2007

English Version

Chemicals used for treatment of water intended for human consumption - Sodium permanganate

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Permanganate de sodium

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Natriumpermanganat

This European Standard was approved by CEN on 16 September 2012.

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.



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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 15482:2012) 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 May 2013, and conflicting national standards shall be withdrawn at the latest by May 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15482:2007.

Significant technical differences between this edition and EN 15482:2007 are as follows:

- a) Modification of Table 2 to show consistent limits for chemical parameters.
- b) Modification of 6.2 on labelling, deletion of the reference to EU Directive 80/778/EEC of 15 July 1980 in order to take account of the latest Directive in force.

This document is largely based on EN 12672:2008 [3].

According to the CEN/CENELEC Internal Regulations, the national standards organisations 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.

Introduction

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

- a) 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;
- 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 this product remain in force.

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

1 Scope

This European Standard is applicable to sodium permanganate used for the treatment of water intended for human consumption. It describes the characteristics of sodium permanganate and specifies the requirements and the corresponding test methods for sodium permanganate. It provides information on its use in water treatment.

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

ISO 3856-2, *Paints and varnishes — Determination of "soluble" metal content — Part 2: Determination of antimony content — Flame atomic absorption spectrometric method and Rhodamine B spectrophotometric method*

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

ISO 8288, *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

Sodium permanganate

3.1.2 Synonym or common name

Permanganate acid sodium salt

3.1.3 Relative molecular mass

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141,93

3.1.4 Empirical formulaNaMnO₄**3.1.5 Chemical formula**NaMnO₄**3.1.6 CAS Registry Number ¹⁾**

10101-50-5

3.1.7 EINECS reference ²⁾

233-251-1

3.2 Commercial forms

The sodium permanganate is usually available as a concentrated solution with a concentration within the range of mass fraction of 20 % to 40 %.

The density of sodium permanganate solutions is given in Table 1.

Table 1

Solution concentration Mass fraction in %	Density g/ml at 22 °C
10	1,076
15	1,116
20	1,164
25	1,216
30	1,266
35	1,316
40	1,374

3.3 Physical properties**3.3.1 Appearance**

Sodium permanganate solution is a dark purple coloured solution.

3.3.2 Density

The density of 40,00 % sodium permanganate solution is 1,37 g/cm³ at 20 °C.

1) Chemicals Abstracts Service Registry Number.

2) European Inventory of Existing Commercial Chemical Substances.

3.3.3 Solubility (in water)

Sodium permanganate solution is soluble up to 40 % and miscible with water in all proportions.

3.3.4 Vapour pressure

Not determined for sodium permanganate solution, however, very similar to water.

3.3.5 Boiling point at 100 kPa³⁾

Greater than 101 °C.

3.3.6 Melting point

Not applicable.

3.3.7 Specific heat

Not determined.

3.3.8 Viscosity (dynamic)

Less than 0,005 Pa·s for concentrations of 40 % or less

3.3.9 Critical temperature

Not determined.

3.3.10 Critical pressure

Not determined.

3.3.11 Physical hardness

Not applicable.

3.4 Chemical properties

Sodium permanganate is a very strong oxidising agent.

It is soluble in water and dissolves in various organic solvents (methanol, ethanol).

NOTE The reaction with organics can be violent and is not recommended.

It decomposes at a high temperature and also in the presence of concentrated acids, hydrogen peroxide and organic compounds in general.

It hydrolyses very slowly in contact with air, reducing to manganese dioxide (MnO₂), a solid, brown to black colour product.

3) 100 kPa = 1 bar.