

SVENSK STANDARD

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Processkemikalier för beredning av dricksvatten – Kaliumperoxomonosulfat

Chemicals used for treatment of water intended for human consumption – Potassium peroxomonosulfate

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Denna standard ersätter SS-EN 12678, utgåva 1.

I enlighet med Livsmedelsverkets kungörelse om dricksvatten, SLV FS 2001:30, är kaliumperoxomonosulfat för närvarande inte tillåten som processkemikalie för beredning av dricksvatten.

The European Standard EN 12678:2008 has the status of a Swedish Standard. This document contains the official English version of EN 12678:2008.

This standard supersedes the Swedish Standard SS-EN 12678, edition 1.

According to The National Food Administration's Ordinance with regulations and general advice on drinking water, SLV FS 2001:30, potassium peroxomonosulfate is not permitted in Sweden as a process chemical for treatment of water intended for human consumption.

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EUROPEAN STANDARD

EN 12678

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2008

ICS 71.100.80

Supersedes EN 12678:2000

English Version

Chemicals used for treatment of water intended for human consumption - Potassium peroxomonosulfate

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

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Kaliumperoxomonosulfat

This European Standard was approved by CEN on 28 June 2008.

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 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 Management Centre has the same status as the official versions.

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



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Foreword

This document (EN 12678:2008) 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 January 2009, and conflicting national standards shall be withdrawn at the latest by January 2009.

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 12678:2000.

Significant technical difference between this edition and EN 12678:2000 is as follows:

- Deletion of reference to EU Directive 80/778/EEC of July 15, 1980 in order to take into account the latest Directive in force (see [1]).

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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Introduction

In respect of 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 potassium peroxomonosulfate used for treatment of water intended for human consumption. It describes the characteristics of potassium peroxomonosulfate and specifies the requirements and the corresponding test methods for potassium peroxomonosulfate. It gives information on its use in water treatment.

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

EN 1483, *Water quality - Determination of mercury – Method using atomic absorption spectrometry*

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

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

ISO 6206, *Chemical products for industrial use - Sampling – Vocabulary*

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*

3 Description

3.1 Identification

3.1.1 Chemical name

Potassium peroxomonosulfate triple salt.

3.1.2 Synonym or common name

Potassium peroxomonosulfate, Potassium monopersulfate, Potassium hydrogenperoxomonosulfate, Pentapotassium-bis(peroxomonosulfate)bis(sulfate).

3.1.3 Relative molecular mass

Triple salt: 614,76.

(Active ingredient KHSO_5 : 152,17)

3.1.4 Empirical formula of triple salt

$\text{K}_5\text{H}_3\text{S}_4\text{O}_{18}$ (2 KHSO_5 . KHSO_4 . K_2SO_4)

Active ingredient KHSO_5 .

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3.1.5 CAS Registry Number¹⁾

70693-62-8

3.1.6 EINECS reference²⁾

274-778-7

3.2 Commercial form

Potassium peroxomonosulfate as commercial product exists as a triple salt comprising potassium peroxomonosulfate (2KHSO_5) potassium hydrogen sulfate (KHSO_4) and potassium sulfate (K_2SO_4).

3.3 Physical properties of triple salt

3.3.1 Appearance and odour

The product is white, odourless, granular, free-flowing salt.

3.3.2 Density

The bulk density of the product is approximately between 1 g/cm³ and 1,2 g/cm³.

3.3.3 Solubility in water

The solubility of the product is:

- approximately 250 g/l at 20 °C;
- approximately 300 g/l at 50 °C;
- approximately 330 g/l at 70 °C.

3.3.4 Vapour pressure

Not applicable.

3.3.5 Boiling point at 100 kPa³⁾

Not applicable.

3.3.6 Melting point

The product decomposes above 60 °C.

3.3.7 Specific heat

Not applicable.

¹⁾ Chemical Abstracts Service Registry Number.

²⁾ European Inventory of Existing Commercial Chemical Substances.

³⁾ 100 kPa = 1 bar

3.3.8 Viscosity (dynamic)

Not applicable.

3.3.9 Critical temperature

Not applicable.

3.3.10 Critical pressure

Not applicable.

3.3.11 Physical hardness

Not applicable.

3.4 Chemical properties

Potassium peroxomonosulfate is a powerful oxidizing agent. Aqueous solutions of the product exhibit a strongly acid reaction; a mass fraction solution of 3 % has a pH value of 2 at 20 °C.

The standard reduction potential E_0 of potassium peroxomonosulfate for the reaction:



is:

+ 1,82 V at 25°C

4 Purity criteria

4.1 General

This European Standard specifies the minimum purity requirements for Potassium peroxomonosulfate used for the treatment of water intended for human consumption. Limits are given for impurities commonly present in the product. Depending on the raw material and the manufacturing process other impurities may be present and, if so, this shall be notified to the user and when necessary to the relevant authorities.

NOTE Users of this product should check the national regulations in order to clarify whether it is of appropriate purity for treatment of water intended for human consumption, taking into account raw water quality, required dosage, contents of other impurities and additives used in the product not stated in the product standard.

Limits have been given for impurities and chemicals parameters where these are likely to be present in significant quantities from the current production process and raw materials. If the production process or raw materials leads to significant quantities of impurities, by-products or additives being present, this shall be notified to the user.

4.2 Composition of commercial product

The commercial product shall contain KHSO_5 (potassium peroxomonosulfate) at a mass fraction greater than 45 per cent or the manufacturer's declared values.

NOTE Typical composition in mass fraction should be approximately 45 % KHSO_5 , potassium hydrogen sulfate (KHSO_4), 25 % and potassium sulfate (K_2SO_4) 30 % .