

**SLOVENSKI STANDARD****SIST EN 14368:2015****01-junij-2015****Nadomešča:****SIST EN 14368:2004****Proizvodi za pripravo pitne vode - Apnenec, prevlečen z manganovim dioksidom**

Products used for treatment of water intended for human consumption - Manganese dioxide coated limestone

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Mit Mangandioxid beschichteter Kalkstein

(standards.iteh.ai)

Produits utilisés pour le traitement de l'eau destinée à la consommation humaine - Carbonate de calcium revêtu de dioxyde de manganèse

<https://standards.iteh.ai/catalog/standards/sist/c02e2332-df56-4541-85cd-96f4d63325ff/sist-en-14368-2015>

**Ta slovenski standard je istoveten z: EN 14368:2015**

**ICS:**

13.060.20	Pitna voda	Drinking water
71.100.80	Kemikalije za čiščenje vode	Chemicals for purification of water

**SIST EN 14368:2015****en,fr,de**

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 14368:2015](#)

<https://standards.iteh.ai/catalog/standards/sist/c02e2332-df56-4541-85cd-96f4d63325ff/sist-en-14368-2015>

**EUROPEAN STANDARD**  
**NORME EUROPÉENNE**  
**EUROPÄISCHE NORM**

**EN 14368**

April 2015

ICS 71.100.80

Supersedes EN 14368:2003

English Version

**Products used for treatment of water intended for human  
consumption - Manganese dioxide coated limestone**

Produits utilisés pour le traitement de l'eau destinée à la consommation humaine - Carbonate de calcium revêtu de dioxyde de manganèse

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Mit Mangandioxid beschichteter Kalkstein

This European Standard was approved by CEN on 12 March 2015.

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.

SIST EN 14368:2015

<https://standards.iteh.ai/catalog/standards/sist/c02e2332-df56-4541-85cd-96f4d63325ff/sist-en-14368-2015>



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

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

## Contents

	page
<b>Foreword</b> .....	<b>4</b>
<b>Introduction</b> .....	<b>5</b>
<b>1 Scope</b> .....	<b>6</b>
<b>2 Normative references</b> .....	<b>6</b>
<b>3 Terms, definitions and symbols</b> .....	<b>6</b>
<b>4 Description</b> .....	<b>6</b>
<b>4.1 Identification</b> .....	<b>6</b>
<b>4.1.1 Chemical name</b> .....	<b>6</b>
<b>4.1.2 Synonyms or common names</b> .....	<b>6</b>
<b>4.1.3 Chemical formula</b> .....	<b>6</b>
<b>4.1.4 CAS Registry number</b> .....	<b>7</b>
<b>4.1.5 EINECS reference</b> .....	<b>7</b>
<b>4.2 Commercial form</b> .....	<b>7</b>
<b>5 Physical properties</b> .....	<b>iTeh STANDARD PREVIEW</b> <b>(standards.iteh.ai)</b>
<b>5.1 Appearance</b> .....	<b>7</b>
<b>5.2 Particle size distribution</b> .....	<b>7</b>
<b>5.3 Density</b> .....	<b>7</b>
<b>5.3.1 Bulk density loose</b> .....	<b>SIST EN 14368:2015</b>
<b>5.3.2 Bulk density packed</b> .....	<b><a href="https://standards.iteh.ai/catalog/standards/sist/c02e2332-df56-4541-85cd-96f4d63325ff/sist-en-14368-2015">https://standards.iteh.ai/catalog/standards/sist/c02e2332-df56-4541-85cd-96f4d63325ff/sist-en-14368-2015</a></b>
<b>6 Chemical properties</b> .....	<b>8</b>
<b>7 Specific properties</b> .....	<b>8</b>
<b>8 Test methods</b> .....	<b>8</b>
<b>8.1 Sampling</b> .....	<b>8</b>
<b>8.2 Analysis</b> .....	<b>8</b>
<b>8.2.1 Particle size distribution</b> .....	<b>8</b>
<b>8.2.2 Bulk density loose</b> .....	<b>8</b>
<b>8.2.3 Bulk density packed</b> .....	<b>8</b>
<b>8.2.4 Oxidation capacity</b> .....	<b>9</b>
<b>9 Labelling, transportation and storage</b> .....	<b>10</b>
<b>9.1 Means of delivery</b> .....	<b>10</b>
<b>9.2 Labelling according to the EU legislation</b> .....	<b>10</b>
<b>9.3 Transportation regulations and labelling</b> .....	<b>10</b>
<b>9.4 Marking</b> .....	<b>11</b>
<b>9.5 Storage</b> .....	<b>11</b>
<b>9.5.1 Long term chemical stability</b> .....	<b>11</b>
<b>9.5.2 Storage incompatibility</b> .....	<b>11</b>
<b>Annex A (informative) General information on manganese dioxide coated limestone</b> .....	<b>12</b>
<b>A.1 Origin</b> .....	<b>12</b>
<b>A.1.1 Raw material</b> .....	<b>12</b>
<b>A.1.2 Manufacturing process</b> .....	<b>12</b>
<b>A.2 Typical properties</b> .....	<b>12</b>
<b>A.2.1 Chemical composition</b> .....	<b>12</b>

A.2.2	Mechanical strength .....	12
A.2.3	Alternative description of particle size distribution.....	12
A.3	Use .....	13
A.3.1	Function.....	13
A.3.2	Oxidation capacity.....	13
A.3.3	Amount used.....	13
A.3.4	Means of application .....	13
A.3.5	Secondary effects .....	13
A.4	Hydraulic characteristics .....	13
A.4.1	Interstitial volume .....	13
A.4.2	Headloss in filtration .....	14
A.4.3	Expansion in up-flow washing .....	14
Annex B (normative)	General rules relating to safety .....	15
B.1	Rules for safe handling and use .....	15
B.2	Emergency procedures.....	15
B.2.1	First aid .....	15
B.2.2	Spillage .....	15
B.2.3	Fire .....	15
Bibliography .....		16

SIST EN 14368:2015

<https://standards.iteh.ai/catalog/standards/sist/c02e2332-df56-4541-85cd-96f4d63325ff/sist-en-14368-2015>

**EN 14368:2015 (E)****Foreword**

This document (EN 14368:2015) 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 October 2015, and conflicting national standards shall be withdrawn at the latest by October 2015.

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 14368:2003.

The main technical difference between this edition and EN 14368:2003 is the updating of 9.2 in line with current legislation.

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.

**iTeh STANDARD PREVIEW  
(standards.iteh.ai)**

[SIST EN 14368:2015](#)

<https://standards.iteh.ai/catalog/standards/sist/c02e2332-df56-4541-85cd-96f4d63325ff/sist-en-14368-2015>

## 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 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.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 14368:2015

<https://standards.iteh.ai/catalog/standards/sist/c02e2332-df56-4541-85cd-96f4d63325ff/sist-en-14368-2015>

## EN 14368:2015 (E)

### 1 Scope

This European Standard is applicable to manganese dioxide coated limestone used for treatment of water intended for human consumption. It describes the characteristics of manganese dioxide coated limestone and specifies the requirements and the corresponding test methods for manganese dioxide coated limestone. It gives 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 1018, *Chemicals used for treatment of water intended for human consumption — Calcium carbonate*

EN 12901:1999, *Products used for treatment of water intended for human consumption — Inorganic supporting and filtering materials — Definitions*

EN 12902, *Products used for treatment of water intended for human consumption — Inorganic supporting and filtering materials — Methods of test*

EN 13752, *Products used for treatment of water intended for human consumption — Manganese dioxide*

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

ISO 6333, *Water quality — Determination of manganese — Formaldoxime spectrometric method*

SIST EN 14368:2015

<https://standards.iteh.ai/catalog/standards/sist/c02e2332-df56-4541-85cd-96f4d63325ff/sist-en-14368-2015>

### 3 Terms, definitions and symbols

For the purposes of this document, the terms, definitions and symbols given in EN 12901:1999 apply.

### 4 Description

#### 4.1 Identification

##### 4.1.1 Chemical name

Manganese dioxide on limestone support material.

##### 4.1.2 Synonyms or common names

Manganese (IV) oxide, pyrolusite on limestone support material.

##### 4.1.3 Chemical formula

$\text{MnO}_2$  and  $\text{CaCO}_3$ .

#### 4.1.4 CAS Registry number<sup>1)</sup>

Manganese dioxide: 1313-13-9.

Calcium carbonate: 471-34-1.

#### 4.1.5 EINECS reference<sup>2)</sup>

Manganese dioxide: 215-202-6.

Calcium carbonate: 207-439-9.

### 4.2 Commercial form

Manganese dioxide coated limestone is a granular material available in different particle size ranges.

## 5 Physical properties

### 5.1 Appearance

The product is a granular material varying in colour from dark grey to black.

The product shall be generally homogeneous and shall be visibly free of extraneous matter.

### 5.2 Particle size distribution ~~(standards.iteh.ai)~~

The particle size distribution shall be described either ~~SIST EN 14368:2015~~

<https://standards.iteh.ai/catalog/standards/sist/c02e2332-df56-4541-85cd-96f4d63325ff/sist-en-14368-2015>

- a)
  - effective size:  $(d_{10})$  with a maximum deviation of  $\pm 5\%$ ;
  - uniformity coefficient:  $(U)$  less than 2,0;
  - minimum size:  $(d_1)$  with a maximum deviation of  $\pm 5\%$ .

or

- b) particle size range and mass fraction of oversize and undersize particles according to application.

The maximum contents of oversize and undersize shall be a mass fraction of 5 % for the application of the product in multimedia filters and a mass fraction of 10 % for use in single media filters. See A.2.3 for examples of available particle sizes that are used.

NOTE 1 The particle size can decrease during transportation and handling.

NOTE 2 Other values can be necessary for certain applications.

### 5.3 Density

#### 5.3.1 Bulk density loose

The bulk density loose shall be in the range of 1 500 kg/m<sup>3</sup> to 1 700 kg/m<sup>3</sup>.

1) Chemical Abstracts Service Registry Number.

2) European Inventory of Existing Commercial Chemical Substances.