SLOVENSKI STANDARD
SIST EN 13194:2015

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Kemikalije, ki se uporabljajo za pripravo pitne vode - Ocetna kislina

Chemicals used for treatment of water intended for human consumption - Acetic Acid

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Essigsäure

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

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Chemicals used for treatment of water intended for human consumption - Acetic Acid

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

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Essigsäure

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Foreword

This document (EN 13194:2015) 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of an identical text or by endorsement, at the latest by September 2015, and conflicting national standards shall be withdrawn at the latest by September 2015.

This document supersedes EN 13194:2008.

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.

Significant technical difference between this edition and EN 13194:2008 is as follows:

a) deletion of reference to EU Directive 67/548/EEC of June 27, 1967 in order to take into account the latest Regulation in force (see [3]);

b) 6.2 – updating of risk and safety labelling according to EU Regulation [3] and its latest Adaptations to Technical Progress).

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.

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 acetic acid used for treatment of water intended for human consumption. It describes the characteristics of acetic acid and specifies the requirements and the corresponding test methods for acetic acid. 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 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 12846, *Water quality — Determination of mercury — Method using atomic absorption spectrometry (AAS) with and without enrichment (ISO 12846)*

ISO 17378-1, *Water quality — Determination of arsenic and antimony — Part 1: Method using hydride generation atomic fluorescence spectrometry (HG-AFS)*

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

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

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

Acetic acid, ethanoic acid.

3.1.2 Synonym or common name

Glacial acetic acid.

3.1.3 Relative molecular mass

60,05

3.1.4 Empirical formula

$C_2H_4O_2$

3.1.5 Chemical formula

CH_3COOH

3.1.6 CAS Registry Number [1)]

64-19-7

3.1.7 EINECS reference [2)]

200-580-7

3.2 Commercial form

The product is available as colourless liquid.

3.3 Physical properties

3.3.1 Appearance

The product is colourless liquid at 20 °C.

3.3.2 Density

The density at 20 °C is given in Table 1.

Table 1 — Density

Concentration mass fraction %	Density g/ml
80	1,068 to 1,072
99,85	1,049 to 1,050

3.3.3 Solubility in water

Miscible.

3.3.4 Vapour pressure (at 20 °C)

1,57 kPa (for pure acetic acid)

3.3.5 Boiling point at 100 kPa [3)]

118 °C (for pure acetic acid)

3.3.6 Melting point

16,2 °C (for pure acetic acid)

3.3.7 Specific heat

2,047 kJ/(kg K) at 20 °C (for pure acetic acid)

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1) Chemical Abstracts Service Registry Number.

2) European Inventory of Existing Commercial Chemical Substances.

3) 100 kPa = 1 bar.

3.3.8 Viscosity, dynamic

1,222 mPa.s at 20 °C (for pure acetic acid)

3.3.9 Critical temperature (for gas)

Not applicable.

3.3.10 Critical pressure (for gas)

Not applicable.

3.3.11 Physical hardness

Not applicable.

3.4 Chemical properties

Acetic acid is a weak acid.

4 Purity criteria

4.1 General

This European Standard specifies the minimum purity requirements for acetic acid 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 relevant authorities.

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 product shall contain a minimum mass fraction of 80 percent acetic acid.

NOTE The commercial product may contain up to a mass fraction of 20 % water.

4.3 Impurities and main by-products

The product shall conform to the requirements specified in Table 2.

Table 2 — Impurities

Impurity		Limit in mg/kg of pure acetic acid
Formic acid	max.	500
Acetaldehyde	max.	50

4.4 Chemical parameters

NOTE For the purpose of this European Standard, “chemical parameters” are those defined in the EU Directive 98/83/EC of 3 November 1998 (see [2]).

The content of chemical parameters shall conform to the requirements specified in Table 3.

Table 3 — Chemical parameters

Parameter		Limit in mg/kg of pure acetic acid
Arsenic (As)	max.	0,5
Cadmium (Cd)	max.	0,5
Chromium (Cr)	max.	0,5
Mercury (Hg)	max.	0,5
Nickel (Ni)	max.	0,5
Lead (Pb)	max.	0,5
Antimony (Sb)	max.	0,5
Selenium (Se)	max.	0,5
NOTE Cyanide does not exist in the acetic acid medium. Pesticides and polycyclic aromatic hydrocarbons are not by-products of the manufacturing process.		

5 Test methods

5.1 Sampling

5.1.1 Relevant Standards

Observe the general recommendations of ISO 3165 and take account of ISO 6206.

5.1.2 Sampling from drums and bottles

5.1.2.1 General

5.1.2.1.1 Mix the contents of the container to be sampled by shaking the container, by rolling it or by rocking it from side to side, taking care not to damage the container or spill any of the liquid.

5.1.2.1.2 If the design of the container is such (for example, a narrow-necked bottle) that it is impracticable to use a sampling implement, take a sample by pouring after the contents have been thoroughly mixed. Otherwise, proceed as described in 5.1.2.1.3.

5.1.2.1.3 Examine the surface of the liquid. If there are signs of surface contamination, take samples from the surface as described in 5.1.2.2; otherwise, take samples as described in 5.1.2.3.