
Kemikalije, ki se uporabljajo za pripravo pitne vode – Aluminijev železov (III) klorid in aluminijev železov (III) klorid hidroksid

Chemicals used for treatment of water intended for human consumption - Aluminium iron (III) chloride (monomeric) and aluminium iron(III) chloride hydroxide (monomeric)

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Aluminium-Eisen(III)chlorid (Monomer) und Aluminium-Eisen(III)hydroxydchlorid (Monomer)

Produits chimiques utilisés pour le traitement de l'eau destinée a la consommation humaine - Chlorure et hydroxychlorure d'aluminium et de fer(III) (monomeres)

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71.100.80	Kemikalije za čiščenje vode	Chemicals for purification of water

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EUROPEAN STANDARD
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English version

Chemicals used for treatment of water intended for human consumption - Aluminium iron(III) chloride (monomeric) and aluminium iron(III) chloride hydroxide (monomeric)

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Chlorure et hydroxychlorure d'aluminium et de fer(III) (monomères)

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Aluminium-Eisen(III) Chlorid (Monomer) und Aluminium-Eisen(III) Hydroxydchlorid (Monomer)

This European Standard was approved by CEN on 29 September 2001.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

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Foreword

This European Standard 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 April 2002, and conflicting national standards shall be withdrawn at the latest by April 2002.

This European Standard refers to the EU Directive 80/778/EEC (see [1]) of 15 July 1980, however it will be revised in future in order to take account of the new EU Directive 98/83/EEC (see [3]).

Annex A is informative.

Annex B is normative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, 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 standard :

- a) this 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.

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1 Scope

This European Standard is applicable to aluminium iron(III) chloride (monomeric) and aluminium iron(III) chloride hydroxide (monomeric) used for treatment of water intended for human consumption. It describes the characteristics and specifies the requirements for aluminium iron(III) chloride (monomeric) and aluminium iron(III) chloride hydroxide (monomeric) and refers to the corresponding test methods. It also gives information on their use in water treatment.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 1302, *Chemicals used for treatment of water intended for human consumption – Aluminium-based coagulants – Analytical methods*.

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

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

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3 Description

3.1 Identification

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3.1.1 Chemical name

- a) Aluminium iron(III) chloride (monomeric);
- b) Aluminium iron(III) chloride hydroxide (monomeric).

3.1.2 Synonym or common names

For Aluminium iron(III) chloride hydroxide (monomeric): bauxite or clay hydroxide chloride.

3.1.3 Relative molecular mass

Variable (see 3.1.4).

3.1.4 Empirical formula

$\text{Al}_x\text{Fe}_{1-x}(\text{OH})_a\text{Cl}_b$ with $(a + b) = 3$ and

$x = 0,67$ to $0,99$ for aluminium iron chlorides

$x = 0,80$ to $0,99$ for aluminium iron chloride hydroxides

$a = 0$ to $1,05$

$b = 3$ to $1,95$

$a = 0$ for aluminium iron(III) chloride (monomeric) products, and these products normally have a detectable free acidity (see 5.2)

EN 935:2001 (E)**3.1.5 Chemical formula**

Variable (see 3.1.4).

3.1.6 CAS Registry Number ¹⁾

The following is a list of CAS Registry Numbers for products or their components.

AlCl_3 : 7446-70-0.

FeCl_3 : 7705-08-0.

$\text{Al(OH)}_a\text{Cl}_b$: 1327-41-9 with $(a + b) = 3$ and a less than 1,05.

Al(OH)Cl_2 : 14215-15-7.

3.1.7 EINECS reference ²⁾

The following is a list of EINECS reference numbers for products or their components.

AlCl_3 : 231-208-1.

FeCl_3 : 231-729-4.

$\text{Al(OH)}_a\text{Cl}_b$: 215-477-2.

Al(OH)Cl_2 : 238-071-7.

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3.2 Commercial form

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The products are available as liquids.

3.3 Physical properties**3.3.1 Appearance**

The products are a yellow to brown liquids.

3.3.2 Density

The density depends on the particular composition, especially the aluminium ion content, expressed as percentage by mass (% (*m/m*)) of aluminium.

Typical value : 1,3 g/ml for Al 5,3 % (*m/m*).

3.3.3 Solubility in water

Aluminium iron(III) chloride (monomeric) and aluminium iron(III) chloride hydroxide (monomeric) are fully miscible with water.

NOTE Depending on the particular product, dilute solutions can hydrolyze and form a precipitate.

¹⁾ Chemical Abstracts Service Registry Number.

²⁾ European inventory of Existing Commercial chemical Substances.

3.3.4 Vapour pressure at 20 °C

Not known.

3.3.5 Boiling point at 100 kPa ³⁾

Not known.

3.3.6 Crystallization point

Typical value is - 20 °C for Al 5,3 % (*m/m*).

3.3.7 Specific heat

Not known.

3.3.8 Viscosity (dynamic)

Typical value is 20 mPa·s for Al 5,3 % (*m/m*) at 20 °C.

3.3.9 Critical temperature

Not applicable.

3.3.10 Critical pressure

Not applicable.

3.3.11 Physical hardness

Not applicable.

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3.4 Chemical properties

Aluminium iron(III) chloride (monomeric) and aluminium iron(III) chloride hydroxide (monomeric) are acidic liquids which hydrolyze and form a precipitate of aluminium hydroxide and iron hydroxide when diluted beyond a particular concentration.

NOTE The solubility of aluminium and the solubility of iron depend on the pH value and the product should be used within an appropriate pH range.

4 Purity criteria

4.1 General

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

³⁾ 100 kPa = 1 bar.