

SVENSK STANDARD

SS-EN 935:2004

Fastställt/Approved: 2004-12-17

Publicerad/Published: 2009-01-30

Utgåva/Edition: 2

Språk/Language: engelska/English

ICS: 13.060.20; 71.100.80

Processkemikalier för beredning av dricksvatten – Aluminiumjárn (III) klorid (monomerisk) och aluminiumjárn (III) kloridhydroxid (monomerisk)

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

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Denna standard ersätter SS-EN 935, utgåva 1.

I enlighet med Statens livsmedelsverks föreskrifter om dricksvatten, SLV FS 2001:30, är de kemikalier som beskrivs i standarden inte tillåtna som processkemikalier för beredning av dricksvatten i Sverige.

The European Standard EN 935:2004 has the status of a Swedish Standard. This document contains the official English version of EN 935:2004.

This standard supersedes the Swedish Standard S-EN 935, edition 1.

According to The National Food Administration's Ordinance with regulations and general advice on drinking water, SLV FS 2001:30, the chemicals described in this European Standard are not permitted in Sweden as process chemicals for treatment of water intended for human consumption.

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 935

November 2004

ICS 71.100.80

Supersedes EN 935:2001

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)hydroxidchlorid (Monomer)

This European Standard was approved by CEN on 30 September 2004.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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



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Foreword

This document (EN 935:2004) 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 2005, and conflicting national standards shall be withdrawn at the latest by May 2005.

This document supersedes EN 935:2001.

Significant technical differences between this edition and EN 935:2001 are as follows:

- a) replacement of the reference to EU Directive 80/778/EEC of July, 15 1980 with the latest Directive in force (see[1]);
- b) expansion of annex A by addition of A.2 "quality of commercial product".

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and 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 document:

- a) this document 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 document is subject to regulation or control by National Authorities.

1 Scope

This document 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 gives information on their use in water treatment. It also determines the rules relating to safe handling and use of aluminium iron (III) chloride (monomeric) and aluminium iron (III) chloride hydroxide (monomeric) (see annex B).

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 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.*

3 Description

3.1 Identification

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).

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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).

3.1.5 Chemical formula

Variable (see 3.1.4).

3.1.6 CAS Registry Number¹⁾

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

AlCl_3 : 7446-70-0.

FeCl_3 : 7705-08-0.

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

$\text{Al}(\text{OH})\text{Cl}_2$: 14215-15-7.

3.1.7 EINECS reference²⁾

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

AlCl_3 : 231-208-1.

FeCl_3 : 231-729-4.

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

$\text{Al}(\text{OH})\text{Cl}_2$: 238-071-7.

3.2 Commercial form

The products are available as liquids.

3.3 Physical properties

3.3.1 Appearance

The products are yellow to brown liquids.

1) Chemical Abstracts Service Registry Number.

2) European inventory of Existing Commercial chemical Substances.

3.3.2 Density

The density depends on the particular composition, especially the aluminium ion content, expressed as a mass fraction of aluminium in %.

Typical value: 1,3 g/ml for 5,3 % Al.

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.

3.3.4 Vapour pressure at 20 °C

Not known.

3.3.5 Boiling point at 100 kPa³⁾

Not known.

3.3.6 Crystallization point

Typical value is - 20 °C for 5,3 % Al.

3.3.7 Specific heat

Not known.

3.3.8 Viscosity (dynamic)

Typical value is 20 mPa·s for 5,3 % Al at 20 °C.

3.3.9 Critical temperature

Not applicable.

3.3.10 Critical pressure

Not applicable.

3.3.11 Physical hardness

Not applicable.

3) 100 kPa = 1 bar.