

**Chemicals used for treatment of water
intended for human consumption -
Aluminium sulfate**

Chemicals used for treatment of water intended for
human consumption - Aluminium sulfate

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 878:2004 sisaldab Euroopa standardi EN 878:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.09.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 878:2004 consists of the English text of the European standard EN 878:2004.</p> <p>This document is endorsed on 23.09.2004 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

<p>Käsitlusala:</p> <p>This European Standard is applicable to aluminium sulfate used for treatment of water intended for human consumption. It describes the characteristics of aluminium sulfate and specifies the requirements for aluminium sulfate and gives reference to the analytical methods. It gives information on its use in water treatment. It also determines the rules relating to safe handling and use of aluminium sulfate (see annex B).</p>	<p>Scope:</p> <p>This European Standard is applicable to aluminium sulfate used for treatment of water intended for human consumption. It describes the characteristics of aluminium sulfate and specifies the requirements for aluminium sulfate and gives reference to the analytical methods. It gives information on its use in water treatment. It also determines the rules relating to safe handling and use of aluminium sulfate (see annex B).</p>
--	--

ICS 71.100.80

Võtmesõnad:

English version

Chemicals used for treatment of water intended for human consumption - Aluminium sulfate

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Sulfate d'aluminium

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Aluminiumsulfat

This European Standard was approved by CEN on 16 April 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.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Foreword.....	4
1 Scope	6
2 Normative references	6
3 Description	6
3.1 Identification.....	6
3.1.1 Chemical name.....	6
3.1.2 Synonym or common names.....	6
3.1.3 Relative molecular mass.....	6
3.1.4 Empirical formula.....	6
3.1.5 Chemical formula.....	6
3.1.6 CAS Registry Number	7
3.1.7 EINECS reference	7
3.2 Commercial forms	7
3.3 Physical properties.....	7
3.3.1 Appearance	7
3.3.2 Density	7
3.3.3 Solubility	7
3.3.4 Vapour pressure at 20 °C	8
3.3.5 Boiling point at 100 kPa	8
3.3.6 Crystallization point.....	8
3.3.7 Specific heat.....	8
3.3.8 Viscosity (dynamic)	8
3.3.9 Critical temperature	9
3.3.10 Critical pressure.....	9
3.3.11 Physical hardness	9
3.4 Chemical properties	9
4 Purity criteria.....	9
4.1 General.....	9
4.2 Composition of commercial product.....	9
4.3 Impurities and main by-products.....	10
4.4 Chemical parameters	10
5 Test methods.....	11
5.1 Sampling	11
5.1.1 Solid	11
5.1.2 Liquid	11
5.2 Analyses	12
6 Labelling - Transportation - Storage.....	12
6.1 Means of delivery.....	12
6.2 Risk and safety labelling in accordance with the EU-Directives	12
6.3 Transportation regulations and labelling.....	13
6.4 Marking	13
6.5 Storage.....	13
6.5.1 General.....	13
6.5.2 Long term stability.....	13
6.5.3 Storage incompatibilities	14
Annex A (informative) General information on aluminium sulfate.....	15
A.1 Origin	15
A.1.1 Raw materials.....	15
A.1.2 Manufacturing process	15
A.2 Quality of commercial product.....	15
A.3 Use	18

A.3.1	Function.....	18
A.3.2	Form in which it is used.....	18
A.3.3	Treatment dose.....	19
A.3.4	Means of application	19
A.3.5	Secondary effects.....	19
A.3.6	Removal of excess product.....	19
Annex B	(normative) General rules relating to safety	20
B.1	Rules for safe handling and use	20
B.2	Emergency procedures.....	20
B.2.1	First aid.....	20
B.2.2	Spillage.....	20
B.2.3	Fire	20
Bibliography	21

Foreword

This document (EN 878:2004) 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 December 2004, and conflicting national standards shall be withdrawn at the latest by December 2004.

This document supersedes EN 878:1997.

Significant technical differences between this edition and EN 878:1997 are as follows :

- a) deletion of the reference to EU Directive 80/778/EEC of 15 July 1980 ;
- b) introduction of an annex B (normative) giving general rules relating to safety ;
- c) expansion of annex A by addition of A.2 "Quality of commercial product".

Annex A is informative.

Annex B is normative.

This document includes a Bibliography.

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.

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.

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.

1 Scope

This European Standard is applicable to aluminium sulfate used for treatment of water intended for human consumption. It describes the characteristics of aluminium sulfate and specifies the requirements for aluminium sulfate and gives reference to the analytical methods. It gives information on its use in water treatment. It also determines the rules relating to safe handling and use of aluminium sulfate (see annex B).

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*.

ISO 8213, *Chemical products for industrial use - Sampling techniques - Solid chemical products in the form of particles varying from powders to coarse lumps*.

3 Description

3.1 Identification

3.1.1 Chemical name

Aluminium sulfate.

3.1.2 Synonym or common names

Aluminium sulfate, cake alum, alum.

NOTE In English the generic term "alum" is imprecise and is deprecated and in German the term "Alaun" is misleading.

3.1.3 Relative molecular mass

342,14 for $\text{Al}_2(\text{SO}_4)_3$.

3.1.4 Empirical formula

$\text{Al}_2(\text{SO}_4)_3$.

3.1.5 Chemical formula

$\text{Al}_2(\text{SO}_4)_3 \cdot n \text{H}_2\text{O}$.