BS EN 878:2016

BSI Standards Publication

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

Documents
Document Sharing Hub

Full document details: BS EN 878:2016

National foreword

This British Standard is the UK implementation of EN 878:2016. It supersedes BS EN 878:2004 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee CII/59, Chemicals for drinking water treatment.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2016. Published by BSI Standards Limited 2016

ISBN 978 0 580 90465 3

ICS 13.060.20; 71.100.80

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 April 2016.

Amendments issued since publication

Date	Text affected

Documents
Document Sharing Hub

Full document details: BS EN 878:2016

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 878

March 2016

ICS 71.100.80

Supersedes EN 878:2004

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 18 January 2016.

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.

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

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

© 2016 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN 878:2016 E

Documents
Document Sharing Hub

Full document details: BS EN 878:2016

Contents

Page

European foreword ... 4

1 Scope ... 5

2 Normative references ... 5

3 Description ... 5
3.1 Identification ... 5
3.1.1 Chemical name ... 5
3.1.2 Synonym or common names ... 5
3.1.3 Relative molecular mass ... 5
3.1.4 Empirical formula ... 5
3.1.5 Chemical formula ... 5
3.1.6 CAS Registry Number ... 5
3.1.7 EINECS reference ... 6
3.2 Commercial forms ... 6
3.3 Physical properties ... 6
3.3.1 Appearance ... 6
3.3.2 Density ... 6
3.3.3 Solubility ... 6
3.3.4 Vapour pressure at 20 °C ... 7
3.3.5 Boiling point at 100 kPa ... 7
3.3.6 Crystallization point ... 7
3.3.7 Specific heat ... 7
3.3.8 Viscosity (dynamic) ... 7
3.3.9 Critical temperature ... 7
3.3.10 Critical pressure ... 7
3.3.11 Physical hardness ... 8
3.4 Chemical properties ... 8

4 Purity criteria ... 8
4.1 General ... 8
4.2 Composition of commercial product ... 8
4.3 Impurities and main by-products ... 8
4.4 Chemical parameters ... 9

5 Test methods ... 9
5.1 Sampling ... 9
5.1.1 Solid ... 9
5.1.2 Liquid ... 9
5.2 Analyses ... 10

6 Labelling - Transportation - Storage ... 10
6.1 Means of delivery ... 10
6.2 Labelling in accordance with the EU legislation ... 10
6.3 Transportation regulations and labelling ... 11
6.4 Marking ... 12
6.5 Storage ... 12
6.5.1 General ... 12
6.5.2 Long term stability ... 12
6.5.3 Storage incompatibilities ... 12

AVA Documents
Document Sharing Hub

Full document details: BS EN 878:2016

Annex A (informative) General information on aluminium sulfate 13
A.1 Origin 13
A.1.1 Raw materials 13
A.1.2 Manufacturing process 13
A.2 Quality of commercial product 13
A.3 Use 15
A.3.1 Function 15
A.3.2 Form in which it is used 15
A.3.3 Treatment dose 15
A.3.4 Means of application 15
A.3.5 Secondary effects 15
A.3.6 Removal of excess product 16
Annex B (normative) General rules relating to safety 17
B.1 Rules for safe handling and use 17
B.2 Emergency procedures 17
B.2.1 First aid 17
B.2.2 Spillage 17
B.2.3 Fire 17
Bibliography 18

Documents
Document Sharing Hub
Full document details: BS EN 878:2016

European foreword

This document (EN 878:2016) 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 2016, and conflicting national standards shall be withdrawn at the latest by September 2016.

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 878:2004.

Significant technical differences between this edition and EN 878:2004 are as follows:

a) addition of CAS Registry Number for tetradecahydrate;

b) information relating to the crystallization point added;

c) replacement of warning and safety precautions notes by labelling according to Regulation (EC) No 1272/2008;

d) modification of the concentration of the solutions used.

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the product covered by this standard:

1) 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;

2) 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.

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.

Documents
Document Sharing Hub
Full document details: BS EN 878:2016

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

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 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 $Al_2(SO_4)_3$.

3.1.4 Empirical formula

$Al_2(SO_4)_3$.

3.1.5 Chemical formula

$Al_2(SO_4)_3 \cdot n\ H_2O$.

3.1.6 CAS Registry Number [1)]

$Al_2(SO_4)_3$: 10043-01-3.

1) Chemical Abstracts Service Registry Number.

Documents
Document Sharing Hub
Full document details: BS EN 878:2016