

**norm****NEN-EN 15031**

Chemicaliën voor de behandeling van  
zwembadwater - Op aluminium gebaseerde  
coaguleringsmiddelen

Publicatie uitsluitend voor commentaar

Chemicals used for treatment of swimming pool water - Aluminium based  
coagulants

juni 2020  
ICS 71.100.80

Commentaar vóór 2020-07-20

Zal vervangen NEN-EN 15031:2013

Als Europees normontwerp is gepubliceerd: prEN 15031:2020, IDT

Definitief vastgestelde normen zullen als Nederlandse norm gelden. Daarom wordt dit normontwerp in Nederland voor commentaar gepubliceerd. Op het ontwerp ingebracht commentaar zal aan de bevoegde normcommissie worden voorgelegd die hiermee rekening zal houden bij de bepaling van de Nederlandse stem. Indien er geen bezwaar bij NEN wordt gebracht, kan dat leiden tot ongewijzigde definitieve vaststelling van het ontwerp als norm.

Van Europese normen bestaan drie officiële versies: Engels, Frans en Duits. Voor Nederland zal de Engelse versie gelden. Daarnaast kan er gekozen worden voor een andere geautoriseerde versie in het Nederlands.

Normcommissie 349164 'Drinkwatervoorziening'



**THIS PUBLICATION IS COPYRIGHT PROTECTED**

**DEZE PUBLICATIE IS AUTEURSRECHTELIJK BESCHERMD**

Apart from exceptions provided by the law, nothing from this publication may be duplicated and/or published by means of photocopy, microfilm, storage in computer files or otherwise, which also applies to full or partial processing, without the written consent of Stichting Koninklijk Nederlands Normalisatie Instituut.

Stichting Koninklijk Nederlands Normalisatie Instituut shall, with the exclusion of any other beneficiary, collect payments owed by third parties for duplication and/or act in and out of law, where this authority is not transferred or falls by right to Stichting Reprerecht.

Auteursrecht voorbehouden. Behoudens uitzondering door de wet gesteld mag zonder schriftelijke toestemming van Stichting Koninklijk Nederlands Normalisatie Instituut niets uit deze uitgave worden verveelvoudigd en/of openbaar gemaakt door middel van fotokopie, microfilm, opslag in computerbestanden of anderszins, hetgeen ook van toepassing is op gehele of gedeeltelijke bewerking.

Stichting Koninklijk Nederlands Normalisatie Instituut is met uitsluiting van ieder ander gerechtigd de door derden verschuldigde vergoedingen voor verveelvoudiging te innen en/of daartoe in en buiten rechte op te treden, voor zover deze bevoegdheid niet is overgedragen c.q. rechtens toekomt aan Stichting Reprerecht.

Although the utmost care has been taken with this publication, errors and omissions cannot be entirely excluded. Stichting Koninklijk Nederlands Normalisatie Instituut and/or the members of the committees therefore accept no liability, not even for direct or indirect damage, occurring due to or in relation with the application of publications issued by Stichting Koninklijk Nederlands Normalisatie Instituut.

Hoewel bij deze uitgave de uiterste zorg is nagestreefd, kunnen fouten en onvolledigheden niet geheel worden uitgesloten. Stichting Koninklijk Nederlands Normalisatie Instituut en/of de leden van de commissies aanvaarden derhalve geen enkele aansprakelijkheid, ook niet voor directe of indirecte schade, ontstaan door of verband houdend met toepassing van door Stichting Koninklijk Nederlands Normalisatie Instituut gepubliceerde uitgaven.

Voorbeeld  
Preview

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 15031**

May 2020

ICS 71.100.80

Will supersede EN 15031:2013

English Version

**Chemicals used for treatment of swimming pool water -  
Aluminium based coagulants**

Produits chimiques utilisés pour le traitement de l'eau  
des piscines - Coagulants à base d'aluminium

Produkte zur Aufbereitung von Schwimm- und  
Badebeckenwasser - Flockungsmittel auf  
Aluminiumbasis

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 164.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

**Warning** : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

<b>Contents</b>	<b>Page</b>
<b>European foreword</b> .....	<b>3</b>
<b>Introduction</b> .....	<b>4</b>
<b>1 Scope</b> .....	<b>5</b>
<b>2 Normative references</b> .....	<b>5</b>
<b>3 Terms and definitions</b> .....	<b>5</b>
<b>4 Description</b> .....	<b>5</b>
4.1 Aluminium sulfate.....	<b>5</b>
4.2 Aluminium chloride (monomeric), aluminium chloride hydroxide (monomeric) and aluminium chloride hydroxide sulfate (monomeric).....	<b>8</b>
4.3 Sodium aluminate.....	<b>11</b>
4.4 Polyaluminium chloride hydroxide and polyaluminium chloride hydroxide sulfate.....	<b>13</b>
<b>5 Purity criteria</b> .....	<b>16</b>
5.1 General.....	<b>16</b>
5.2 Composition of commercial product.....	<b>16</b>
5.3 Impurities and main by-products.....	<b>17</b>
5.4 Chemical parameters.....	<b>17</b>
<b>6 Test methods</b> .....	<b>18</b>
6.1 Sampling.....	<b>18</b>
6.2 Analyses.....	<b>19</b>
<b>7 Labelling - transportation - storage</b> .....	<b>19</b>
7.1 Means of delivery.....	<b>19</b>
7.2 Risk and safety labelling in accordance with the EU directives.....	<b>19</b>
7.3 Transportation regulations and labelling.....	<b>22</b>
7.4 Marking.....	<b>23</b>
7.5 Storage.....	<b>23</b>
<b>Annex A (informative) General information on aluminium based coagulants</b> .....	<b>25</b>
<b>Annex B (normative) General rules relating to safety</b> .....	<b>27</b>
<b>Bibliography</b> .....	<b>28</b>

## European foreword

This document (prEN 15031:2020) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15031:2013.

In comparison with the previous edition, the following technical modifications have been made:

- modification of 7.3 on transportation regulations and labelling, adding the sentence “The user must be aware of the incompatibilities between transported products.”;
- modification of 7.4 on marking. The requirements of marking are also applied to the accompanying documents.

Preview

## Introduction

In respect of potential adverse effects on the quality of water for swimming pools, caused by the products covered by this document:

- a) this document provides no information as to whether the products 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 these products remain in force.

NOTE Conformity with this document does not confer or imply acceptance or approval of the products in any of the Member States of the EU or EFTA. The use of the products covered by this document is subject to regulation or control by National Authorities.

Copyright  
Preview

## 1 Scope

This document is applicable to aluminium based coagulants (aluminium sulfate, aluminium chloride (monomeric), aluminium chloride hydroxide (monomeric), aluminium chloride hydroxide sulfate (monomeric), sodium aluminate and polyaluminium chloride hydroxide and polyaluminium chloride hydroxide sulfate) used directly or for the production of formulations for treatment of water for swimming pools.

It describes the characteristics of aluminium based coagulants and specifies the requirements and the corresponding test methods for aluminium based coagulants. It gives information on their use in swimming pool water treatment. It also determines the rules relating to safe handling and use (see Annex B).

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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*

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

## 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

## 4 Description

### 4.1 Aluminium sulfate

#### 4.1.1 Identification

##### 4.1.1.1 Chemical name

Aluminium sulfate.

##### 4.1.1.2 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.

**prEN 15031:2020 (E)****4.1.1.3 Relative molecular mass**342,14 for  $\text{Al}_2(\text{SO}_4)_3$ .**4.1.1.4 Empirical formula** $\text{Al}_2(\text{SO}_4)_3$ .**4.1.1.5 Chemical formula** $\text{Al}_2(\text{SO}_4)_3 \cdot n\text{H}_2\text{O}$ .**4.1.1.6 CAS Registry Number <sup>1</sup>** $\text{Al}_2(\text{SO}_4)_3$ : 10043-01-3. $\text{Al}_2(\text{SO}_4)_3 \cdot 16 \text{H}_2\text{O}$ : 16828-11-8. $\text{Al}_2(\text{SO}_4)_3 \cdot 18 \text{H}_2\text{O}$ : 7784-31-8.**4.1.1.7 EINECS reference <sup>2</sup>** $\text{Al}_2(\text{SO}_4)_3$ : 233-135-0.**4.1.2 Commercial forms**

Aluminium sulfate is available in solid hydrated forms, with different particle sizes (slabs, kibbled, ground, granulated) and in aqueous solutions.

**4.1.3 Physical properties****4.1.3.1 Appearance**

The product is a white solid or colourless to yellow, clear liquid.

**4.1.3.2 Density**

The density of a typical aluminium sulfate solution is given in Table 1 and varies depending on the concentration of the active matter (aluminium content), expressed in grams per kilogram of solution (Al g/kg).

**Table 1 — Density of solution**

Al g/kg of solution	Density at 15 °C g/ml
40,8	1,310
41,6	1,315
42,5	1,320
43,3	1,325
44,2	1,330
45,0	1,335

<sup>1</sup> Chemical Abstracts Service Registry Number.

<sup>2</sup> European Inventory of Existing Commercial Chemical Substances.



### 4.1.3.3 Solubility

The theoretical limit of active matter content for a typical solution is given in Table 2.

**Table 2 — Solubility**

Temperature °C	Active matter in Al g/kg of solution
- 1	44,7
24	44,8

The practical limit of solubility depends on the temperature and the device used for solubilisation of the solid form (slabs, kibbled, ground or granulated).

An indication of practical limits is given in Table 3.

**Table 3 — Indication of practical limits of solubility**

Temperature °C	Active matter Al g/kg of solution	Solubility in grams solid form (containing Al 90 g/kg of solid) per kilogram of solution
15	37	410

### 4.1.3.4 Vapour pressure at 20 °C

Not known.

### 4.1.3.5 Boiling point at 100 kPa<sup>3</sup>

Not known.

### 4.1.3.6 Crystallization point

The crystallization point of aluminium sulfate varies, depending on the concentration of the active matter.

For example:

— - 7 °C for a typical solution of aluminium content of 42,4 g/kg of solution.

### 4.1.3.7 Specific heat

Not known.

### 4.1.3.8 Viscosity (dynamic)

The viscosity of aluminium sulfate solution varies greatly, depending on the concentration of the active matter.

For a typical solution of aluminium content of 42,4 g/kg of solution, the viscosity is given in Table 4.

<sup>3</sup> 100 kPa = 1 bar.

# ALTIJD DE ACTUELE NORM IN UW BEZIT HEBBEN?

Nooit meer zoeken in de systemen en uzelf de vraag stellen:  
'Is NEN-EN 15031:2020 Ontw. en de laatste versie?'

Via het digitale platform NEN Connect heeft u altijd toegang tot de meest actuele versie van deze norm. Vervallen versies blijven ook beschikbaar. **U en uw collega's** kunnen de norm via NEN Connect makkelijk raadplagen, online en offline.

Kies voor slimmer werken en bekijk onze mogelijkheden op [www.nenconnect.nl](http://www.nenconnect.nl).

## Heeft u vragen?

Onze Klantenservice is bereikbaar maandag tot en met vrijdag, van 8.30 tot 17.00 uur.

Telefoon: 015 2 690 391

E-mail: [klantenservice@nen.nl](mailto:klantenservice@nen.nl)

