



# SLOVENSKI STANDARD SIST EN ISO 12020:2000

01-december-2000

Nadomešča:  
SIST ISO 12020:1998

---

**Kakovost vode - Določevanje aluminija - Atomska absorpcijska spektrometrijska metoda (ISO 12020:1997)**

Water quality - Determination of aluminium - Atomic absorption spectrometric methods (ISO 12020:1997)

Wasserbeschaffenheit - Bestimmung von Aluminium - Verfahren mittels Atomabsorptionsspektrometrie (ISO 12020:1997)

Qualité de l'eau - Dosage de l'aluminium - Méthodes par spectrométrie d'absorption atomique (ISO 12020:1997)

**Ta slovenski standard je istoveten z: EN ISO 12020:2000**

---

**ICS:**

13.060.50	Preiskava vode na kemične snovi	Examination of water for chemical substances
-----------	---------------------------------	--

**SIST EN ISO 12020:2000**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 12020:2000](#)

<https://standards.iteh.ai/catalog/standards/sist/333391d9-57fd-4c09-95cf-0e4441a82389/sist-en-iso-12020-2000>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN ISO 12020

January 2000

ICS 13.060.01

English version

## Water quality - Determination of aluminium - Atomic absorption spectrometric methods (ISO 12020:1997)

Qualité de l'eau - Dosage de l'aluminium - Méthodes par spectrométrie d'absorption atomique (ISO 12020:1997)

Wasserbeschaffenheit - Bestimmung von Aluminium - Verfahren mittels Atomabsorptionsspektrometrie (ISO 12020:1997)

This European Standard was approved by CEN on 20 January 2000.

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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

[SIST EN ISO 12020:2000](https://standards.iteh.ai/catalog/standards/sist/333391d9-57fd-4c09-95cf-0e4441a82389/sist-en-iso-12020-2000)

<https://standards.iteh.ai/catalog/standards/sist/333391d9-57fd-4c09-95cf-0e4441a82389/sist-en-iso-12020-2000>



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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Page 2  
EN ISO 12020:2000

## Foreword

The text of the International Standard from Technical Committee ISO/TC 147 "Water quality" of the International Organization for Standardization (ISO) has been taken over as an European Standard by Technical Committee CEN/TC 230 "Water analysis", the secretariat of which is held by DIN.

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 July 2000, and conflicting national standards shall be withdrawn at the latest by July 2000.

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.

## Endorsement notice

The text of the International Standard ISO 12020:1997 has been approved by CEN as a European Standard without any modification.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN ISO 12020:2000

<https://standards.iteh.ai/catalog/standards/sist/333391d9-57fd-4c09-95cf-0e4441a82389/sist-en-iso-12020-2000>

# INTERNATIONAL STANDARD

**ISO  
12020**

First edition  
1997-03-01

---

---

## **Water quality — Determination of aluminium — Atomic absorption spectrometric methods**

*Qualité de l'eau — Dosage de l'aluminium — Méthodes par spectrométrie  
d'absorption atomique*

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 12020:2000](https://standards.iteh.ai/catalog/standards/sist/333391d9-57fd-4c09-95cf-0e4441a82389/sist-en-iso-12020-2000)

<https://standards.iteh.ai/catalog/standards/sist/333391d9-57fd-4c09-95cf-0e4441a82389/sist-en-iso-12020-2000>



Reference number  
ISO 12020:1997(E)

## ISO 12020:1997(E)

**Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 12020 was prepared by Technical Committee ISO/TC 147, *Water Quality*, Subcommittee SC 2, *Physical, chemical and biochemical methods*.

Annexes A and B of this International Standard are for information only.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 12020:2000](https://standards.iteh.ai/catalog/standards/sist/333391d9-57fd-4c09-95cf-0e4441a82389/sist-en-iso-12020-2000)

<https://standards.iteh.ai/catalog/standards/sist/333391d9-57fd-4c09-95cf-0e4441a82389/sist-en-iso-12020-2000>

© ISO 1997

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization  
Case postale 56 • CH-1211 Genève 20 • Switzerland  
Internet [central@iso.ch](mailto:central@iso.ch)  
X.400 c=ch; a=400net; p=iso; o=isocs; s=central

Printed in Switzerland

## Introduction

Aluminium may be present in water in ionic or complex form. It may be dissolved or finely dispersed. Even with the digestion described in 2.5.3, silicates and oxidic aluminium compounds may not in all cases be quantitatively covered by these methods. Clause 2 refers to the determination of aluminium by flame atomic absorption spectrometry (AAS); in clause 3 a graphite furnace AAS method is described.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 12020:2000](https://standards.iteh.ai/catalog/standards/sist/333391d9-57fd-4c09-95cf-0e4441a82389/sist-en-iso-12020-2000)

<https://standards.iteh.ai/catalog/standards/sist/333391d9-57fd-4c09-95cf-0e4441a82389/sist-en-iso-12020-2000>

**iTeh STANDARD PREVIEW**  
This page intentionally left blank  
**(standards.iteh.ai)**

SIST EN ISO 12020:2000

<https://standards.iteh.ai/catalog/standards/sist/333391d9-57fd-4c09-95cf-0e4441a82389/sist-en-iso-12020-2000>



# Water quality – Determination of aluminium – Atomic absorption spectrometric methods

## 1 Scope

This International Standard describes two atomic absorption spectrometric (AAS) methods for the determination of aluminium in water.

### 1.1 Flame AAS

The flame AAS method (clause 2) is applicable for the determination of aluminium in water in mass concentrations from 5 mg/l to 100 mg/l. Higher concentrations may be determined after an appropriate dilution of the sample. Careful evaporation of the sample, acidified with nitric acid, may be used to extend the working range of the method to lower concentrations as long as no precipitation is observed.

NOTE – If the linear range of the instrument is sufficiently large, concentrations < 5 mg/l may be determined with this method; otherwise the determination needs to be carried out in the graphite furnace, as described in clause 3.

If the determination of the total content of aluminium is required, a digestion of the sample according to 2.5.3 is necessary. Silicates and aluminium oxide compounds may, however, not be quantitatively determined with this digestion procedure.

### 1.2 Graphite furnace

The graphite furnace AAS method (clause 3) is applicable for the determination of aluminium in waters and waste waters in mass concentrations from 10 µg/l to 100 µg/l applying a dosing volume of 20 µl. The working range can be shifted to higher concentrations either by dilution of the sample or by using a smaller sample volume.

## 2 Determination of aluminium by atomic absorption spectrometry in a nitrous oxide/acetylene flame

### 2.1 Interferences

The following ions can interfere with the flame AAS method, if the concentrations listed below are exceeded:

Sulfate	10 000 mg/l
Chloride	10 000 mg/l
Phosphate	10 000 mg/l
Sodium	10 000 mg/l
Potassium	10 000 mg/l
Magnesium	10 000 mg/l
Calcium	10 000 mg/l
Iron	10 000 mg/l
Nickel	10 000 mg/l
Cobalt	10 000 mg/l
Cadmium	3 000 mg/l
Lead	10 000 mg/l