SLOVENSKI STANDARD
SIST EN ISO 18127:2026

01-junij-2026

Kakovost vode - Določanje organsko vezanega fluora, klora, broma in joda, sposobnega adsorpcije (AOF, AOCl, AOBr, AOI) - Metoda z zgorevanjem in ionsko kromatografijo (ISO 18127:2026)

Water quality - Determination of adsorbable organically bound fluorine, chlorine, bromine and iodine (AOF, AOCl, AOBr, AOI) - Method using combustion and subsequent ion chromatographic measurement (ISO 18127:2026)

Wasserbeschaffenheit - Bestimmung von adsorbierbarem organisch gebundenem Fluor, Chlor, Brom und Iod (AOF, AOCl, AOBr, AOI) - Verfahrens mittels Verbrennung und nachfolgender Ionenchromatographischer Messung (ISO 18127:2026)

Qualité de l'eau - Dosage des composés organiques adsorbables contenant du fluor, du chlore, du brome et de l'iode (AOF, AOCl, AOBr, AOI) - Méthode de combustion suivie d'un mesurage par chromatographie ionique (ISO 18127:2026)

Ta slovenski standard je istoveten z: **EN ISO 18127:2026**

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

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EUROPEAN STANDARD

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EN ISO 18127

February 2026

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English Version

Water quality - Determination of adsorbable organically bound fluorine, chlorine, bromine and iodine (AOF, AOCl, AOBr, AOI) - Method using combustion and subsequent ion chromatographic measurement (ISO 18127:2026)

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This European Standard was approved by CEN on 1 December 2025.

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

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European foreword

This document (EN ISO 18127:2026) has been prepared by Technical Committee ISO/TC 147 "Water quality" in collaboration with 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of an identical text or by endorsement, at the latest by August 2026, and conflicting national standards shall be withdrawn at the latest by August 2026.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

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Endorsement notice

The text of ISO 18127:2026 has been approved by CEN as EN ISO 18127:2026 without any modification.

International Standard

ISO 18127

First edition
2026-02

Water quality — Determination of adsorbable organically bound fluorine, chlorine, bromine and iodine (AOF, AOCl, AOBr, AOI) — Method using combustion and subsequent ion chromatographic measurement

Qualité de l'eau — Dosage des composés organiques adsorbables contenant du fluor, du chlore, du brome et de l'iode (AOF, AOCl, AOBr, AOI) — Méthode de combustion suivie d'un mesurage par chromatographie ionique

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 2, *Physical, chemical and biochemical methods,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 230, *Water analysis,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Adsorbable organically bound fluorine, chlorine, bromine and iodine are analytical convention parameters used to monitor water quality. They represent the sum of organically bound fluorine, chlorine, bromine and iodine that can be adsorbed on activated carbon under specified conditions and, if the sample has not been filtered, can also be attached to or contained in suspended substances.

In contrast to the adsorbable organically bound halogen (AOX) method according to ISO 9562, this method can be applied to determine the sum of organofluorine compounds in addition to the determination of the organically bound chlorine, bromine and iodine and detected halogen-specific separately.

The method is carried out by combustion ion chromatography (CIC).

Procedures for each separate parameter are described in Annex A, Annex B, Annex C and Annex D.

Alternatively, the adsorption of the organic substances contained in the water sample on activated carbon can also be carried out by the shaking method (see Annex E).

Samples with a high content of suspended solids can be analysed using the shaking method (see Annex E).

Samples with a high content of inorganic halides can be analysed using the solid phase extraction (SPE) method (see Annex F).

Results for samples analysed according to Annex E (shaking procedure) or Annex F (SPE procedure) can differ significantly from those of the method specified in the main part.

With some waters, interference can occur that cannot be eliminated. These waters cannot be measured with the method.

The AOCl, AOBr and AOI results according to Annex B, Annex C and Annex D can also be reported as adsorbable organically bound halogens determined by combustion ion chromatography (CIC-AOX) (see Annex J).

Water quality — Determination of adsorbable organically bound fluorine, chlorine, bromine and iodine (AOF, AOCl, AOBr, AOI) — Method using combustion and subsequent ion chromatographic measurement

WARNING — Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices.

IMPORTANT — It is absolutely essential that tests conducted in accordance with this document be carried out by suitably qualified staff.

1 Scope

This document specifies a method for the determination of organically bound halogens fluorine, chlorine, bromine and iodine which are adsorbable on activated carbon. Adsorption takes place on activated carbon packed in columns.

The method is applicable for the determination of:

— ≥ 2 µg/l AOF, expressed as F;

— ≥ 10 µg/l AOCl, expressed as Cl;

— ≥ 1 µg/l AOBr, expressed as Br;

— ≥ 1 µg/l AOI, expressed as I.

The method is applicable for the determination of adsorbable organically bound fluorine, chlorine, bromine and iodine in water, e.g. in groundwater, surface water, bank filtrate, drinking water, aqueous eluates, cooling water and wastewater.

The working range is limited by the capacity of the activated carbon, the process blank and the capacity of the chromatographic separation column. Sample dilution into the working range can be required.

The range of application can be extended to lower concentrations with lower process blanks e.g. using low blank activated carbons.

The method can also be applied for samples containing suspended solids. Halogens adsorbed on the suspended solids (e.g. undissolved halides) are also determined. Filtration of the sample prior to analysis using a membrane filter (0,45 µm) allows the separate determination of dissolved adsorbable and particulate bound fractions of organically bound fluorine, chlorine, bromine or iodine.

Results from an international interlaboratory trial are presented in Annex K.

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.

ISO 8466-1, *Water quality — Calibration and evaluation of analytical methods — Part 1: Linear calibration function*

ISO 8466-2, *Water quality — Calibration and evaluation of analytical methods and estimation of performance characteristics — Part 2: Calibration strategy for non-linear second-order calibration functions*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology 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/

3.1
adsorbable organically bound fluorine
AOF
equivalent mass of fluorine in organic halogen compounds, expressed as fluorine, measured under the conditions of this procedure

3.2
adsorbable organically bound chlorine
AOCl
equivalent mass of chlorine in organic halogen compounds, expressed as chlorine, measured under the conditions of this procedure

3.3
adsorbable organically bound bromine
AOBr
equivalent mass of bromine in organic halogen compounds, expressed as bromine, measured under the conditions of this procedure

3.4
adsorbable organically bound iodine
AOI
equivalent mass of iodine in organic halogen compounds, expressed as iodine, measured under the conditions of this procedure

3.5
adsorbable organically bound halogens
AOX
equivalent mass of the halogens chlorine, bromine and iodine in organic compounds, determined according to ISO 9562 and expressed as chloride

3.6
test sample
sample obtained from the original sample after preparation and dilution, if necessary, and fed into the adsorption process

3.7
combustion ion chromatography
CIC
technique comprising oxidative high-temperature combustion followed by absorption of formed hydrogen halides and subsequent ion chromatographic detection of the halide ions

3.8
adsorbable organically bound halogens, determined by combustion ion chromatography
CIC-AOX
equivalent mass of the halogens chlorine, bromine and iodine in organic compounds, measured under the conditions of this procedure and expressed as chlorine

4 Interferences

4.1 Interferences during adsorption

AOF, AOCl, AOBr or AOI values can arise from the presence of inorganic halides in the sample. If the test sample contains as well as organohalogens in low concentration and inorganic halides in high concentration, the halides can add significant contribution to the result. These contributions can be dependent on the matrix and halogenide concentration. It is not possible to specify any information on the concentrations of inorganic halides at which significant contributions to the result for the AOF, AOCl, AOBr or AOI can be expected. These can depend on various factors, such as the properties e.g. characteristics of the activated carbon or contaminated laboratory air. Annex A, Annex B, Annex C and Annex D give examples of halide concentrations that give significant contributions to the result for the AOF, AOCl, AOBr or AOI.

Sample matrix characteristics [e.g. high concentrations of dissolved organic carbon (DOC)] can cause interference with the adsorption of the organically bound halogens and result in negative bias. These effects can be solved by sample dilution or spiking experiments, if necessary. Information on whether the DOC content of the sample influences the adsorption of AOF, AOCl, AOBr or AOI from the sample can be provided by current measurements or previous testing of the sampling point. For unfiltered samples, the total organic carbon (TOC) can also be used as information.

Samples containing living cells (e.g. microorganisms or algae) can cause a positive bias due to their halide content on AOCl, AOBr and AOI (chloride, bromide and iodide). In this case, the acidified sample should not be analysed until at least 8 h after sampling.

Particulate inorganic halogen compounds with a melting point < 1 000 °C can cause a positive bias. This can be avoided by filtering the sample.

High contents of undissolved substances can cause interference with the column method. In these cases, the use of activated carbon according to 9.4 or the shaking procedure (see Annex E) should be considered.

The recovery of some polar and hydrophilic compounds (e.g. trifluoroacetate or monochloroacetate) or volatile compounds is incomplete.

Contamination of the laboratory air due to chemicals or other sources can cause positive bias.

4.2 Interferences during combustion

Alkali metals present can cause premature devitrification of a quartz glass combustion tube.

NOTE The use of a ceramic inner tube can increase the lifetime of the combustion tube significantly.

A deficiency or insufficient quantity of water added for hydropyrolysis during AOF determination can lead to a negative bias.

4.3 Interferences during ion chromatography

Any substance that generates a detector signal similar to that of the analyte ion can cause interference. Additionally, a high concentration of ions can influence the peak resolution and the retention time of the analyte. Gradient elution can minimize many of these interferences.

5 Principle

To determine the organically bound halogens, the substances contained in the water sample are adsorbed onto activated carbon. Enriched halides are displaced from the activated carbon by washing with a nitrate wash solution. The loaded activated carbon is combusted in an oxygen stream. The resulting hydrogen halides are sorbed in an absorption solution. The halide ions are then determined by ion chromatography. The basic requirements for the procedure are: