

SLOVENSKI STANDARD
oSIST prEN ISO 11127-7:2022
01-januar-2022

Priprava jeklenih podlag pred nanašanjem barv in sorodnih premazov - Preskusne metode za nekovinske granulate za peskanje - 7. del: Določevanje klorida, topnega v vodi (ISO/DIS 11127-7:2021)

Preparation of steel substrates before application of paints and related products - Test methods for non-metallic blast-cleaning abrasives - Part 7: Determination of water-soluble chlorides (ISO/DIS 11127-7:2021)

Vorbereitung von Stahloberflächen vor dem Auftragen von Beschichtungsstoffen - Prüfverfahren für nichtmetallische Strahlmittel Teil 7: Bestimmung der wasserlöslichen Chloride (ISO/DIS 11127-7:2021)

Préparation des subjectiles d'acier avant application de peintures et de produits assimilés - Méthodes d'essai pour abrasifs non métalliques destinés à la préparation par projection - Partie 7: Détermination des chlorures solubles dans l'eau (ISO/DIS 11127-7:2021)

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ICS:

25.220.10 Priprava površine Surface preparation

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Preparation of steel substrates before application of paints and related products — Test methods for non-metallic blast-cleaning abrasives —

Part 7: Determination of water-soluble chlorides

Préparation des subjectiles d'acier avant application de peintures et de produits assimilés — Méthodes d'essai pour abrasifs non métalliques destinés à la préparation par projection —

Partie 7: Détermination des chlorures solubles dans l'eau

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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 documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 35, *Paints and varnishes*, Subcommittee SC 12, *Preparation of steel substrates before application of paints and related products*.

This third edition cancels and replaces the second edition (ISO 11127-7:2011), which has been technically and editorially revised.

The main changes compared to the previous edition are as follows:

- An Introduction has been added
- The Scope has been expanded to include spectrophotometric and ion chromatographic methods of analysis
- [Clause 3](#) has been added
- [Clause 9](#) has been added
- [Clause 10](#) has been added
- [Annex A](#) has been updated

A list of all parts in the ISO 11127 series can be found on the ISO website.

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

Amperometric titration against silver nitrate has been the established method of determining water-soluble chlorides in non-metallic abrasives since this document was first published. Latterly, other methods of analysis offering faster and more sensitive determinations, namely ion chromatography and spectrophotometry, have gained popularity. This document specifies three methods of analysis for water-soluble chlorides.

The spectrophotometric determination of water-soluble chloride relies on the dissociation of mercuric thiocyanate by chloride ions and in the presence of ferric ion the liberated thiocyanate ion forms the dark red coloured ferric thiocyanate complex in a concentration which is proportional to the original chloride ion concentration. The concentration of the ferric thiocyanate concentration is determined by measuring the absorbance at 450nm. This method can be used to determine chloride concentrations as low as 0.1mg/l. Commercially available reagent kits offer determinations in the ranges 0.1-25 and 1-70mg/l. Portable spectrophotometers allow the adoption of this method as field method of determination of water-soluble chloride. This method has also been adapted for flow injection analysis.

The determination of chloride by ion chromatograph separates the chloride from other water-soluble anions by liquid chromatography, applying an anion exchange resin as stationary phase, and aqueous solutions of carbonate, hydrogencarbonate, hydroxide as eluent. The detection is carried out using a conductivity detector (CD). This method permits the determination of both chloride and sulphate at the same time. The determination can be used for chloride concentrations down to 0.1 mg/L.

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Preparation of steel substrates before application of paints and related products — Test methods for non-metallic blast-cleaning abrasives —

Part 7: Determination of water-soluble chlorides

1 Scope

This part of ISO 11127 specifies a three methods for the determination of water-soluble chlorides in non-metallic blast-cleaning abrasives, namely, amperometric titration, spectro-photometry and ion chromatography..

This is one of a number of parts of ISO 11127 dealing with the sampling and testing of non-metallic abrasives for blast-cleaning.

The types of non-metallic abrasive and requirements on each are contained in ISO 11126.

The ISO 11126 and ISO 11127 series have been drafted as a coherent set of International Standards on non-metallic blast-cleaning abrasives. Information on all parts of both series is given in [Annex A](#).

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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 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 11127-1, *Preparation of steel substrates before application of paints and related products — Test methods for non-metallic blast-cleaning abrasives — Part 1: Sampling*

ISO 10304-1, *Water quality — Determination of dissolved anions by liquid chromatography of ions — Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate*

3 Terms and definitions

cuvette, absorption cell

eluent, liquid phase used to achieve separation and transport of analytes

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 Reagent

Use only reagents of recognized analytical grade and only water of at least grade 3 purity as defined in ISO 3696 (for ion chromatography water of grade 1 purity as defined in ISO 3696 is needed).

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- 4.1 **Sulfuric acid**, concentrated, approximately 96 % (by mass), $\rho \approx 1,84$ g/ml.
- 4.2 **Silver nitrate**, standard volumetric solution, $c(\text{AgNO}_3) = 0,01$ mol/l.
- 4.3 **Chloride reagent kit**, as supplied by manufacturer comprising
 - 4.3.1 **Mercuric thiocyanate**, in methyl alcohol
 - 4.3.2 **Ferric nitrate, in perchloric acid**
- 4.4 **Chloride standard solution**, $\rho = 1000$ mg/l
- 4.5 **Sodium hydrogen carbonate**, NaHCO_3
- 4.6 **Sodium carbonate**, Na_2CO_3
- 4.7 **Potassium hydroxide**, KOH

5 Apparatus

Ordinary laboratory apparatus and glassware, together with the following:

- 5.1 **Equipment for amperometric titration**, any commercial equipment being suitable.
- 5.2 **Microburette**.
- 5.3 **Balance**, capable of weighing to an accuracy of 0,1 g.
- 5.4 **Grade A measuring cylinder**, graduated 100:1 ml
- 5.5 **Micro-pipette**, capable of measuring 0.1-1.0 ml
- 5.6 **Spectrophotometer**, any commercial equipment being suitable
- 5.7 **Cuvette**
- 5.8 **Ion chromatograph system**, generally comprising the following components
 - 5.8.1 **Eluent reservoir**, and a degassing unit
 - 5.8.2 **Metal-free HPLC pump**
 - 5.8.3 **Sample injection system**, incorporating a sample loop of appropriate volume (e.g. 0,02 ml)
 - 5.8.4 **Anion column**, with specified separating performance ()
 - 5.8.5 **Conductivity detector**
 - 5.8.6 **Recording device**,
 - 5.8.7 **Pre-columns**