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

**Part 8:
Field determination of water-soluble
chlorides**

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Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Reagent	1
5 Apparatus	2
6 Sampling	2
7 Procedure	2
8 Confirmation of results	2
9 Test results	3
Annex A (informative) International standards for non-metallic blast-cleaning abrasives	4
Bibliography	5

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*.

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

The use of non-metallic abrasive blast media is common practice for dry and wet surface cleaning and blasting for substrate preparation prior to coating application. The non-metallic abrasive media are taken from their natural environment which may contain various soluble salt contaminants including chloride salts. High chloride salt concentrations in the abrasive blast media may provide for transfer of the chloride ions to the substrate during the blasting process which would then cause premature failure of the applied coating.

To limit the risk of contaminating the steel surface from contaminants in the abrasive media, the chloride levels are quantified with ion specific testing methods that are referenced in this document. This document provides guidance on analysing specifically for the chloride ion in the presence of other less / non-corrosive salts such as nitrates and carbonates.

This document is a part of the ISO 11127 series that deals 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 documents on non-metallic blast-cleaning abrasives. Information on all parts of both series is given in [Annex A](#).

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

Part 8: Field determination of water-soluble chlorides

1 Scope

This document specifies a field method for the determination of water-soluble chlorides in non-metallic blast-cleaning abrasives. This field method is provided as a kit with all components and premeasured extraction solution.

This document differs from ISO 11127-7 in that equal volumes of the sample of abrasive and extraction solution are used for the determination of chloride level in the abrasive. In comparison, ISO 11127-7 uses a weight to volume ratio of abrasive to solvent (deionized water) to extract soluble salts from the abrasive. It is intended for use in the field as compared to ISO 11127-7, which is well suited for use in the laboratory.

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 8502-5, *Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness — Part 5: Measurement of chloride on steel surfaces prepared for painting (ion detection tube method)*

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*

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 <http://www.electropedia.org/>

4 Reagent

Acidic solvent, (pH $3,6 \pm 0,2$), non-buffered, which is premeasured and provided in the field kit; is biodegradable for convenience of disposal.

The weak acid utilized for extraction of the chloride ions from the media is selected from carboxylic acids such as glycolic, acetic and citric acids.

5 Apparatus

- 5.1 **Small empty container**, for obtaining a premeasured amount of sample.
- 5.2 **Larger testing container**, with premeasured extract solution.
- 5.3 **Glass chloride ion detection tube**, as described in ISO 8502-5.
- 5.4 **Snapper**, for breaking off both ends of the detection tube (5.3).

6 Sampling

Take a representative sample of the product to be tested, as described in ISO 11127-1.

7 Procedure

- 7.1 Using the small empty container (5.1), fill with a representative sample and level off to the top of the container.
- 7.2 Remove the lid of the larger testing container (5.2): pour the premeasured sample from the small container (5.1) into the larger testing container (5.2) containing a premeasured extraction solvent and replace the lid tightly.
- 7.3 Shake the testing container vigorously for 2 min. Allow the container to set approximately 5 min or until 1 cm of clear test solution at the top before proceeding. Alternatively, an aliquot of sufficient volume of the test solution (approximately 10 ml) can be filtered through a filter (preferably <0,2 µm) and used for testing of soluble contaminants.
- 7.4 Using caution to not touch the arrow end of the detection tube (5.3), break both end of the detection tube with the snapper (5.4), insert the arrow end of the tube and hold in the clear solution of the testing container.

CAUTION — Do not insert the detection tube into the abrasive as it can plug the opening made in the bottom.

- 7.5 By capillary action, the test solution rises to the top of the detection tube after approximately 90 s. The cotton retaining swab at the top of the detection tube then becomes saturated and amber in colour when fully saturated.
- 7.6 Remove and read the graduation number on the side of the tube at the colour change. Pink is the original normal colour and white is the chloride level. This number is the level of chloride in the test solution in mg/kg.

NOTE To elaborate on comments made in [Clause 1](#), this method allows the user to measure a level volume of abrasive with an equal volume of extraction reagent as compared to ISO 11127-7, which uses a weight to volume ratio. The extraction reagent for ISO 11127-7 is deionized water, whereas the reagent provided in this field kit is an acidic solution as stated. The user is advised that it is not possible to make direct comparisons between the results of these two different methods of analysis.

8 Confirmation of results

In the event of a dispute of results using this document, sampled material should be referred for testing according to ISO 11127-7 as the limits and requirements for non-metallic abrasives established in the ISO 11126 series are based on testing parameters of ISO 11127-7.

9 Test results

The test report shall contain at least the following information:

- a) all details necessary to identify the product tested, in accordance with the appropriate part of ISO 11126 (see [Annex A](#)), if applicable;
- b) reference to this document (i.e. ISO 11127-8:2020);
- c) the result of the test;
- d) any deviation from the test method specified;
- e) any unusual features observed;
- f) the date of the test;
- g) the name of the person who carried out the test.

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