



SLOVENSKI STANDARD

SIST EN 4503:2014

01-februar-2014

Aeronavtika - Nekovinski materiali - Tekstilije - Preskusne metode - Določanje vodotopnega klorida in sulfata v vodni raztopini

Aerospace series - Non-metallic materials - Textiles - Test method - Determination of water soluble chloride and sulfate of aqueous extracts

Luft- und Raumfahrt - Nichtmetallische Werkstoffe - Textilien - Prüfverfahren - Bestimmung von wasserlöslichem Chlorid und Sulfat in wässrigen Lösungen

Série aérospatiale - Matériaux non-métalliques - Textiles - Méthode d'essai - Détermination des chlorures et des sulfates des résidus aqueux

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Ta slovenski standard je istoveten z: EN 4503:2013

ICS:

49.025.60 Tekstilije Textiles

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 4503

July 2013

ICS 49.025.60

English Version

**Aerospace series - Non-metallic materials - Textiles - Test
method - Determination of water soluble chloride and sulfate of
aqueous extracts**

Série aérospatiale - Matériaux non-métalliques - Textiles -
Méthode d'essai - Détermination des chlorures et des
sulfates des résidus aqueux

Luft- und Raumfahrt - Nichtmetallische Werkstoffe -
Textilien - Prüfverfahren - Bestimmung von
wasserlöslichem Chlorid und Sulfat in wässrigen
Lösungen

This European Standard was approved by CEN on 8 May 2013.

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 CEN-CENELEC Management Centre 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 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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Foreword

This document (EN 4503:2013) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

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 January 2014, and conflicting national standards shall be withdrawn at the latest by January 2014.

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

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

This standard is part of the series of EN non-metallic materials standards for aerospace applications. The general organisation of this series is described in EN 4385. This standard is a level 3 document as defined in EN 4385.

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1 Scope

This European Standard specifies the determination of water soluble chloride and sulphate of aqueous extracts of textile materials.

This method has been written in response to an aerospace requirement for a method of extraction using hot water, this method should be used in conjunction with EN 4426.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 4385, *Aerospace series — Non-metallic materials – General organisation of standardization — Links between types of standards*

EN 4426, *Aerospace series — Non-metallic materials — Textiles — Test method — Determination of conductivity and pH of aqueous extracts* ¹⁾

EN 20139, *Textiles — Standard atmospheres for conditioning and testing (ISO 139)*

EN ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696)*

ISO 383, *Laboratory glassware — Interchangeable conical ground joints*

ISO 4793, *Laboratory sintered (fritted) filters — Porosity grading, classification and designation*

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3 Terms and definitions

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

3.1 chloride

free water soluble Cl^- ion which could combine with free H^+ ions to produce acidic conditions which would be detrimental to the ageing of fabrics

3.2 sulfates

free water soluble SO_4^{2-} ion which could combine with free H^+ ions to produce acidic conditions which would be detrimental to the ageing of fabrics

1) Published as ASD-STAN Prestandard at the date of publication of this standard

EN 4503:2013 (E)**4 Health, safety and environment**

This standard does not necessarily include all health and safety requirements associated with its use.

Persons using this standard shall be familiar with normal laboratory/test house practices.

It is the responsibility of the user to establish satisfactory health and safety practices and to ensure conformity with any European, National or local laws/regulations.

5 Principle/Technique

An aqueous extract is prepared using distilled water. The soluble chloride and sulphate are then measured by gravimetric method. A volumetric method may also be used to determine the amount of soluble chloride.

6 Resources**6.1 Apparatus/facilities**

6.1.1 Round bottomed flasks of chemically resistant glass with a volume of 250 ml and a ground glass neck of size 24/29 in accordance with ISO 383

6.1.2 A glass stopper incorporating a stopcock with P.T.F.E. core liner to prevent sticking of the glass core in the neck of the stopcock

NOTE Grease shall not be used for this purpose.

6.1.3 Water-cooled condensers

6.1.4 Laboratory balance, accurate to 0,000 2 g

6.1.5 Sinter glass crucibles, porosity 4 in accordance with ISO 4793

6.1.6 Titration vessel and reference half-cell, with suitable pH meter as used with glass electrodes, set to read in mV

NOTE The half-cell is filled with silver oxalate suspension.

6.1.7 Sintered porcelain or silica gooch filter crucibles, porosity 4 in accordance with ISO 4793

6.1.8 Filter paper with the following nominal characteristics:

- mass of 100 g/m²
- retention 2,5 µm
- initial filtration speed – slow
- thickness 0,2 mm
- ash content 0,007 %

NOTE Whatman 42 has been found suitable.

6.2 Materials/reagents

The following reagents are required and shall be of recognized analytical quality.

6.2.1 Potassium chloride solution, of concentration 0,001 mol/l, which has a conductivity of 12,780 mS/m at 20 °C

6.2.2 Distilled or deionized water, in accordance with EN ISO 3696. It should have a maximum conductivity of 1 mS/m. For pH determinations remove carbon dioxide from the water by boiling for 5 min, then cool in the absence of air before use.

6.2.3 Silver oxalate suspension, made by dissolving 14 g of sodium oxalate and 10 g of potassium nitrate in 1 litre of water (6.2.2) adding with constant stirring, 100 ml of silver nitrate (7.2.7). The stock suspension shall be kept in a dark glass bottle.

6.2.4 Nitric acid solution, concentrated

6.2.5 Nitric acid solution, approximately 0,5 % v/v

6.2.6 Nitric acid solution, approximately 10 % v/v

6.2.7 Silver nitrate solution, 0,1 mol/l

6.2.8 Silver nitrate solution, 0,01 mol/l

6.2.9 Sodium chloride solution, approximately 100 g/l

6.2.10 Hydrochloric acid solution, concentrated

6.2.11 Barium chloride solution, 20 g/l

6.3 Qualification of personnel

No specific technical requirements.

7 Test samples/test pieces

Samples shall be taken representative of the bulk and of sufficient size to provide all the test specimens required. All samples shall be kept identifiable to the bulk textiles which they represent. Cut the sample under test into pieces of such size that all parts readily wet out.

Care shall be taken to avoid contamination of samples and handling shall be kept to an absolute minimum.

NOTE Nominal 10 mm squares have been found suitable.

The samples are conditioned and tested in a standard atmosphere of (65 ± 2) % r.h. and (20 ± 2) °C in accordance with EN 20139 – Standard Temperate Atmosphere For Testing.