



**NSAI**  
Standards

Irish Standard  
I.S. EN 16711-2:2015

# Textiles - Determination of metal content - Part 2: Determination of metals extracted by acidic artificial perspiration solution

**I.S. EN 16711-2:2015**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):*

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## National Foreword

I.S. EN 16711-2:2015 is the adopted Irish version of the European Document EN 16711-2:2015, Textiles - Determination of metal content - Part 2: Determination of metals extracted by acidic artificial perspiration solution

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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EUROPEAN STANDARD

EN 16711-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2015

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ICS 59.060.01

English Version

**Textiles - Determination of metal content - Part 2:  
Determination of metals extracted by acidic artificial  
perspiration solution**

Textiles - Détermination de la teneur en métaux -  
Partie 2: Dosage des métaux extraits au moyen d'une  
solution de sueur artificielle acide

Textilien - Bestimmung von Metallen - Teil 2:  
Bestimmung von extrahierbaren Metallen mit saurer  
synthetischer Schweißlösung

This European Standard was approved by CEN on 5 September 2015.

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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## European foreword

This document (EN 16711-2:2015) has been prepared by Technical Committee CEN/TC 248 “Textiles and textile products”, the secretariat of which is held by BSI.

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 May 2016, and conflicting national standards shall be withdrawn at the latest by May 2016.

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.

EN 16711, *Textiles — Determination of metal content* is composed of the following parts:

- *Part 1: Determination of metals using microwave digestion;*
- *Part 2: Determination of metals extracted by acidic artificial perspiration solution.*

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.

## EN 16711-2:2015 (E)

### 1 Scope

This European Standard specifies a procedure for determination of antimony (Sb), arsenic (As), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni) in natural and man-made textiles, including coated fabrics and garment components (e.g. buttons, zips, etc.) after extraction with acidic artificial perspiration solution.

### 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 1233, *Water quality — Determination of chromium — Atomic absorption spectrometric methods*

EN ISO 105-E04, *Textiles — Tests for colour fastness — Part E04: Colour fastness to perspiration (ISO 105-E04)*

EN ISO 3071, *Textiles — Determination of pH of aqueous extract (ISO 3071)*

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

EN ISO 11885, *Water quality — Determination of selected elements by inductively coupled plasma optical emission spectrometry (ICP-OES) (ISO 11885)*

EN ISO 12846, *Water quality — Determination of mercury — Method using atomic absorption spectrometry (AAS) with and without enrichment (ISO 12846)*

EN ISO 15586, *Water quality — Determination of trace elements using atomic absorption spectrometry with graphite furnace (ISO 15586)*

EN ISO 17294-2, *Water quality — Application of inductively coupled plasma mass spectrometry (ICP-MS) — Part 2: Determination of 62 elements (ISO 17294-2)*

EN ISO 17852, *Water quality — Determination of mercury — Method using atomic fluorescence spectrometry (ISO 17852)*

ISO 8288, *Water quality — Determination of cobalt, nickel, copper, zinc, cadmium and lead — Flame atomic absorption spectrometric methods*

### 3 Principle

For determination of soluble metals, the textile specimen is cut into small pieces and is extracted with acidic artificial perspiration solution.

Analysis is performed with appropriate analytical techniques of atomic absorption and mass spectrometry (e.g. ICP-MS, ICP-OES, AAS, cold vapour atomic absorption spectrometry, etc.).

### 4 Apparatus

General laboratory equipment for analytical chemistry. In addition, the following is required:

**4.1 Analytical balance**, readability 0,000 1 g.



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