



NSAI
Standards

Irish Standard
I.S. EN 13603:2013

Copper and copper alloys - Test methods for assessing protective tin coatings on drawn round copper wire for electrical purposes

I.S. EN 13603:2013

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

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:
EN 13603:2002

This document is based on: EN 13603:2013
Published: 12 June, 2013

This document was published under the authority of the NSAI and comes into effect on:
12 June, 2013

ICS number:

25.220.40
77.150.30

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

English Version

Copper and copper alloys - Test methods for assessing protective tin coatings on drawn round copper wire for electrical purposes

Cuivre et alliages de cuivre - Méthodes d'évaluation des revêtements en étain sur les fils ronds étirés en cuivre pour usages électriques

Kupfer und Kupferlegierungen - Prüfverfahren zur Beurteilung von Schutzüberzügen aus Zinn auf gezogenen Runddrähten aus Kupfer für die Anwendung in der Elektrotechnik

This European Standard was approved by CEN on 25 April 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.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents		Page
Foreword		3
1	Scope	4
2	Normative references	4
3	Terms and definitions	4
4	Thickness of the unalloyed tin coating	4
5	Continuity of the tin coating	10
6	Adherence of the tin coating	12
7	Test report	14
Bibliography		15
Figures		
Figure 1 — Alternative method for supporting fine wire or wire which cannot be straightened		6
Figure 2 — Preparation of the test piece		13
Tables		
Table 1 — Test parameters		11

Foreword

This document (EN 13603:2013) has been prepared by Technical Committee CEN/TC 133 "Copper and copper", 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 December 2013, and conflicting national standards shall be withdrawn at the latest by December 2013.

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.

This document supersedes EN 13603:2002.

In comparison with EN 13603:2002, the following changes have been made:

— Editorial modifications.

Within its programme of work, Technical Committee CEN/TC 133 requested CEN/TC 133/WG 4 "Extruded and drawn products, forgings and scrap" to prepare the revision of the following standard:

EN 13603:2002, *Copper and copper alloys — Test methods for assessing protective tin coatings on drawn round copper wire for electrical purposes*

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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.

1 Scope

This European Standard specifies methods for assessing the tin coating on drawn round copper wire for the manufacture of electrical conductors, e.g. according to EN 13602.

This European Standard includes test methods for the determination of the following characteristics:

- a) thickness of the unalloyed tin coating;
- b) continuity of the tin coating;
- c) adherence of the tin coating.

WARNING — This European Standard can involve the use of hazardous materials, operations, and equipment. This standard does not purport to address all of the safety problems associated with their use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

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 610, *Tin and tin alloys — Ingot tin*

3 Terms and definitions

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

- 3.1 unalloyed tin coating**
layer of pure tin on the surface of tinned wire
- 3.2 alloyed tin coating**
diffusion layer of copper and tin formed at the copper wire and tin coating interface during tinning and subsequent drawing and annealing processes
- 3.3 total tin coating**
sum of the thicknesses of the unalloyed tin coating and the alloyed tin coating
- 3.4 measuring area**
area of the surface over which a single measurement is made

4 Thickness of the unalloyed tin coating

4.1 Principle

Anodic dissolution of a well-defined area of the unalloyed coating using a suitable electrolyte, followed by detection of the virtually complete dissolution of the unalloyed coating by a rapid change in cell voltage.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-