



NSAI
Standards

Irish Standard
I.S. EN ISO 14174:2019

Welding consumables - Fluxes for submerged arc welding and electroslag welding - Classification (ISO 14174:2019)

I.S. EN ISO 14174:2019

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

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN ISO 14174:2019

Published:

2019-05-15

*This document was published
under the authority of the NSAI
and comes into effect on:*

2019-06-02

ICS number:

25.160.20

NOTE: If blank see CEN/CENELEC cover page

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

National Foreword

I.S. EN ISO 14174:2019 is the adopted Irish version of the European Document EN ISO 14174:2019, Welding consumables - Fluxes for submerged arc welding and electroslag welding - Classification (ISO 14174:2019)

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

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

EN ISO 14174

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2019

ICS 25.160.20

Supersedes EN ISO 14174:2012

English Version

Welding consumables - Fluxes for submerged arc welding and electroslag welding - Classification (ISO 14174:2019)

Produits consommables pour le soudage - Flux pour le
soudage à l'arc sous flux et le soudage sous laitier -
Classification (ISO 14174:2019)

Schweißzusätze - Pulver zum Unterpulverschweißen
und Elektroschlackeschweißen - Einteilung (ISO
14174:2019)

This European Standard was approved by CEN on 8 May 2019.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN ISO 14174:2019 (E)

Contents	Page
European foreword.....	3

European foreword

This document (EN ISO 14174:2019) has been prepared by Technical Committee ISO/TC 44 "Welding and allied processes" in collaboration with Technical Committee CEN/TC 121 "Welding and allied processes" 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 November 2019, and conflicting national standards shall be withdrawn at the latest by November 2019.

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

This document supersedes EN ISO 14174:2012.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 14174:2019 has been approved by CEN as EN ISO 14174:2019 without any modification.

This page is intentionally left blank

INTERNATIONAL STANDARD

ISO
14174

Third edition
2019-04

Welding consumables — Fluxes for submerged arc welding and electroslag welding — Classification

*Produits consommables pour le soudage — Flux pour le soudage à
l'arc sous flux et le soudage sous laitier — Classification*



Reference number
ISO 14174:2019(E)

© ISO 2019

ISO 14174:2019(E)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Classification	1
5 Symbols	2
5.1 Symbol for the product/process	2
5.2 Symbol for method of manufacture	2
5.3 Symbol for type of flux, characteristic chemical constituents	2
5.4 Symbol for applications, flux class	2
5.4.1 General	2
5.4.2 Flux class 1	3
5.4.3 Flux classes 2 and 2B	3
5.4.4 Flux class 3	3
5.4.5 Flux class 4	3
5.5 Symbol for metallurgical behaviour	5
5.5.1 General	5
5.5.2 Metallurgical behaviour, flux class 1	5
5.5.3 Metallurgical behaviour, flux classes 2 and 2B	5
5.5.4 Metallurgical behaviour, flux class 3	6
5.5.5 Metallurgical behaviour, flux class 4	6
5.5.6 Determination of symbols for metallurgical behaviour	6
5.6 Symbol for type of current	7
5.7 Symbol for diffusible hydrogen content in deposited weld metal (class 1 fluxes only)	7
6 Particle size range	8
7 Rounding procedure	8
8 Retest	8
9 Technical delivery conditions	9
10 Marking	9
11 Designation	9
Annex A (informative) Characteristic chemical constituents of flux — Example of determination from elemental analysis	11
Annex B (informative) Description of flux types	13
Bibliography	16

ISO 14174:2019(E)

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 on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 3, *Welding consumables*.

This third edition cancels and replaces the second edition (ISO 14174:2012), which has been technically revised. The main changes compared to the previous edition are as follows:

- Subclause [5.4.3](#) now clarifies burn-out;
- ISO 18724 has been added to [Clause 2](#);
- [Table 3](#) has been expanded;
- [Table 5](#) for flux class 2, welding current and voltage have been revised;
- an example of a Z option has been added;
- information on IIW Round robin testing of fluxes has been added to [Annex B](#) and as a bibliographical reference;
- Clause [B.16](#) has been corrected to include CaF₂ (to align with EN 760).

Any feedback, question or request for official interpretation related to any aspect of this document should be directed to the Secretariat of ISO/TC 44/SC 3 via your national standards body. A complete listing of these bodies can be found at www.iso.org/members.html. Official interpretations, where they exist, are available from this page: <https://committee.iso.org/sites/tc44/home/interpretation.html>.

Welding consumables — Fluxes for submerged arc welding and electroslag welding — Classification

1 Scope

This document specifies requirements for classification of fluxes for submerged arc welding and electroslag welding for joining and overlay welding using wire electrodes, tubular cored electrodes, and strip electrodes.

NOTE This document was based on EN 760:1996.

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 3690, *Welding and allied processes — Determination of hydrogen content in arc weld metal*

ISO 14171, *Welding consumables — Solid wire electrodes, tubular cored electrodes and electrode/flux combinations for submerged arc welding of non alloy and fine grain steels — Classification*

ISO 14343, *Welding consumables — Wire electrodes, strip electrodes, wires and rods for arc welding of stainless and heat resisting steels — Classification*

ISO 18274, *Welding consumables — Solid wire electrodes, solid strip electrodes, solid wires and solid rods for fusion welding of nickel and nickel alloys — Classification*

ISO 80000-1:2009, *Quantities and units — Part 1: General* Corrected by ISO 80000-1:2009/Cor 1:2011

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 Classification

Fluxes for submerged arc welding and electroslag welding for joining and overlay welding are granular, fusible products of mainly mineral origin, which are manufactured by various methods. Fluxes influence the chemical composition and the mechanical properties of the weld metal.

The classification of the fluxes is divided into seven parts:

- 1) the first part gives a symbol indicating the product/process (see 5.1);
- 2) the second part gives a symbol indicating the method of manufacture (see 5.2);
- 3) the third part gives a symbol indicating the type of flux, characteristic chemical constituents (see Table 1);

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
-