

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 14343

April 2017

ICS 25.160.20

Supersedes EN ISO 14343:2009

English Version

**Welding consumables - Wire electrodes, strip electrodes,
wires and rods for arc welding of stainless and heat
resisting steels - Classification (ISO 14343:2017)**

Produits consommables pour le soudage - Fils-
électrodes, électrodes en feuillard, fils d'apport et
baguettes de soudage pour le soudage à l'arc des aciers
inoxydables et des aciers résistant aux températures
élevées - Classification (ISO 14343:2017)

Schweißzusätze - Drahtelektroden, Bandelektroden,
Drähte und Stäbe zum Lichtbogenschweißen von
nichtrostenden und hitzebeständigen Stählen -
Einteilung (ISO 14343:2017)

This European Standard was approved by CEN on 13 March 2017.

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

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European foreword

This document (EN ISO 14343:2017) 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of an identical text or by endorsement, at the latest by October 2017 and conflicting national standards shall be withdrawn at the latest by October 2017.

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 ISO 14343:2009.

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 14343:2017 has been approved by CEN as EN ISO 14343:2017 without any modification.

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

Produits consommables pour le soudage — Fils-électrodes, électrodes en feuillard, fils d'apport et baguettes de soudage pour le soudage à l'arc des aciers inoxydables et des aciers résistant aux températures élevées — Classification





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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).

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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 14343:2009), which has been technically revised and contains the following changes:

- a number of new alloy designations have been added to [Table 1](#) and [Table A.1](#);
- the chemistries of some alloy designations have been revised in [Table 1](#);
- the mechanical properties of some alloy designations have been revised in [Table A.1](#);
- [Clause 7](#) has been updated to new text for all new and revised standards;
- examples for Z designations have been added to [Clause 10](#).

Requests for official interpretations of 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.

Introduction

This document provides a classification system for wire electrodes, strip electrodes, wires and rods for arc welding of stainless and heat resisting steels. It recognizes that there are two somewhat different approaches in the global market to classifying a given welding consumable, and allows for either or both to be used, to suit a particular market need. Many, but not all, commercial products addressed by this document can be classified using both approaches, and suitable products can also be marked.

System A uses the *nominal composition* approach with designators to indicate the principal alloying elements at their nominal levels, in a particular sequence, and which is sometimes followed by chemical element symbols to indicate compositional modifications to the original grade. System B uses the *alloy type* approach with three- or four-digit designations for certain grades, sometimes followed by one or more chemical element symbols indicating compositional modifications of the grade. In both approaches, classification is based upon the chemical composition of the product. In many cases, a given product can be classified using both approaches, because the composition ranges, although slightly different, overlap to a considerable extent between the two.

For stainless steel welding consumables, there is no unique relationship between the product form (wire electrode, strip electrode, wire or rod) and the welding process used (gas-shielded metal arc welding, gas tungsten arc welding, plasma arc welding, submerged arc welding, electroslag welding and laser beam welding). For this reason, the wire electrodes, strip electrodes, wires or rods can be classified on the basis of any of the above product forms and can be used, as appropriate, for more than one of the above processes.

Classification according to system A, by nominal composition, is based mainly on EN 12072^[1], while that of system B, by alloy type, is mainly based upon standards used around the Pacific Rim.

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

1 Scope

This document specifies requirements for classification of wire electrodes, strip electrodes, wires and rods for gas-shielded metal arc welding, gas tungsten arc welding, plasma arc welding, submerged arc welding, electroslag welding and laser beam welding of stainless and heat-resisting steels. The classification of the wire electrodes, strip electrodes, wires and rods is based upon their chemical composition.

This document is a combined specification providing for classification utilizing a system based upon nominal composition (system A), or utilizing a system based upon alloy type (system B).

- a) Paragraphs which carry the label “classification according to nominal composition” and the suffix letter “A”, or “ISO 14343-A”, are applicable only to products classified according to system A;
- b) Paragraphs which carry the label “classification according to alloy type” and the suffix letter “B”, or “ISO 14343-B”, are applicable only to products classified according to system B.
- c) Paragraphs which carry neither label nor suffix letter are applicable to products that can be classified according to either system A or B or both.

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.

ISO 544, *Welding consumables — Technical delivery conditions for filler materials and fluxes— Type of product, dimensions, tolerances and markings*

ISO 14344, *Welding consumables — Procurement of filler materials and fluxes*

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

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