SLOVENSKI STANDARD
oSIST prEN ISO 14343:2024

01-junij-2024

Dodajni in pomožni materiali za varjenje - Žične elektrode, tračne elektrode, žice in palice za obločno varjenje nerjavnih in ognjeodpornih jekel - Razvrstitev (ISO/DIS 14343:2024)

Welding consumables - Wire electrodes, strip electrodes, wires and rods for arc welding of stainless and heat resisting steels - Classification (ISO/DIS 14343:2024)

Schweißzusätze - Drahtelektroden, Bandelektroden, Drähte und Stäbe zum Lichtbogenschweißen von nichtrostenden und hitzebeständigen Stählen - Einteilung (ISO/DIS 14343:2024)

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/DIS 14343:2024)

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25.160.20 Potrošni material pri varjenju Welding consumables

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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).

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 of 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 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*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 121, *Welding and allied processes*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 14343:2017), which has been technically revised.

The main changes are as follows:

— addition of 19 L Mo Nb Si Ti, 27 7 5 N L and 29 8 2 N L in Table 1 and in Table A.1;

— addition of the designation 18 L Ti for the alloy type 439;

— change of the footnote a on the symbol classifications in parentheses;

— replacement of "G" by "SS" for the product or process symbol in example 5.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Official interpretations of ISO/TC 44 documents, where they exist, are available from this page: https://committee.iso.org/sites/tc44/home/interpretation.html.

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, was 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 “system 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 “system 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 80000-1:2022, *Quantities and units — Part 1: General*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
rod
form of welding filler metal, normally packaged in straight lengths, that does not conduct the welding current, used in gas tungsten arc and plasma arc welding

3.2
strip electrode
form of welding filler metal, normally packaged as coils, having a rectangular cross-section of width much greater than thickness, that becomes part of the welding circuit through which current is conducted, and that terminates at the arc for submerged arc welding, or at the slag bath for electroslag welding

3.3
wire
form of welding filler metal, normally packaged as coils, spools or drums, that does not conduct the welding current, for gas tungsten arc, plasma arc welding and laser beam welding

3.4
wire electrode
form of welding filler metal, normally packaged as coils, spools or drums, that becomes part of the welding circuit through which electrical current is conducted, and that terminates at the arc, used in gas-shielded metal arc and submerged arc welding

4 Classification

4.1 General

A wire electrode, strip electrode, wire or rod shall be classified according to its chemical composition as given in Table 1.

The classification is divided into two parts:

a) the first gives a symbol indicating the product/process to be identified;

b) the second gives a symbol indicating the chemical composition of the wire electrode, strip electrode, wire or rod.

4.2 Symbols for products/processes

4.2.1 Classification according to nominal composition – system A

The symbol for the wire electrode, strip electrode, wire or rod used in the arc welding process shall be the letter

— G for gas metal arc welding,

— W for gas tungsten arc welding,

— P for plasma arc welding,

— S for submerged arc welding,

— B for submerged arc welding or electroslag welding with strip electrode, or

— L for laser beam welding, placed at the beginning of the designation.

See Clause 10 for designation examples.

4.2.2 Classification according to alloy type – system B

No symbol is used to indicate the welding process.

The symbol for solid stainless and heat-resisting steel wire electrodes, wires and rods for use in all welding processes shall be the letters “SS”. The initial “S” indicates solid wire as distinguished from covered electrodes or from tubular cored wires or tubular cored rods.