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

Produits consommables pour le soudage — Fils-électrodes pleins, feuillards pleins, fils pleins et baguettes pleines pour le soudage par fusion du nickel et des alliages de nickel — Classification

Reference number
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Foreword

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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 third edition cancels and replaces the second edition (ISO 18274:2010), which has been technically revised.

The main changes are as follows:

— new restricted alloy symbols, commonly used in the USA, added to Table 1 and Table C.1;

— alloy symbols updated in Table 1 and Table C.1;

— a new EXAMPLE 4 added to Clause 11 for a Z classification.

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.

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Introduction

For nickel welding consumables, there is no unique relationship between the product form, for example:

— solid wire electrode;

— solid strip electrode;

— solid wire;

— solid rod;

and the welding process used, for example:

— gas-shielded metal arc welding;

— gas tungsten arc welding;

— plasma arc welding;

— submerged arc welding;

— strip overlay welding;

— laser welding;

— other welding processes.

Consequently, solid wire electrodes, solid strip electrodes, solid wires or solid rods can be classified on the basis of any of these product forms and can be used, as appropriate, for more than one of these processes (see also Annex B).

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

1 Scope

This document specifies requirements for classification of solid wire electrodes, solid strip electrodes, solid wires and solid rods for fusion welding of nickel and nickel alloys. The classification of the solid wire electrodes, solid strip electrodes, solid wires and solid rods is based on their chemical composition. It includes those compositions in which the nickel content exceeds that of any other element.

The principles of this document can be applied to metal powders for cladding, hard facing and additive manufacturing.

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 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

No terms and definitions are listed in this document.

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

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

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

4 Classification

The symbol for the classification is divided into two parts:

a) the first part indicates the product form, being solid wire electrode, solid strip electrode, solid wire or solid rod, see 5.1;

b) the second part gives a numerical symbol indicating the chemical composition of the solid wire electrode, solid strip electrode, solid wire or solid rod, see Table 1.

5 Symbols and requirements

5.1 Symbols for the product form

The symbol for the solid wire electrode, solid wire or solid rod shall be “S”.

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