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Welding consumables — Tubular-cored electrodes for gas-shielded and non-gas-shielded metal arc welding of nickel and nickel alloys — Classification

Produits consommables pour le soudage — Fils-électrodes fourrés pour soudage à l'arc avec ou sans gaz de protection du nickel et des alliages de nickel — 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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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 second edition cancels and replaces the first edition (ISO 12153:2011), which has been technically revised.

The main changes are as follows:

— dated references updated to the latest editions;

— the chemistries of a number of classifications revised in Table 1;

— a new alloy symbol, Ni 6023 (numerical), NiCr13Mo13W3 (chemical) added in Table 1, Table 2 and Table A.1;

— a restricted numerical alloy symbol Ni 6117R and chemistry added to Table 1;

— the minimum elongation for Ni 1013 revised in Table 2;

— Table A.1 updated to reflect the above changes and provide missing data.

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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Welding consumables — Tubular-cored electrodes for gas-shielded and non-gas-shielded metal arc welding of nickel and nickel alloys — Classification

1 Scope

This document specifies requirements for the classification of tubular-cored electrodes for metal arc welding with or without a gas shield of nickel and nickel alloys. It includes those compositions in which the nickel content exceeds that of any other element.

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 6847, *Welding consumables — Deposition of a weld metal pad for chemical analysis*

ISO 6947, *Welding and allied processes — Welding positions*

ISO 14175, *Welding consumables — Gases and gas mixtures for fusion welding and allied processes*

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

ISO 15792-1:2020, *Welding consumables — Test methods — Part 1: Preparation of all-weld metal test pieces and specimens in steel, nickel and nickel alloys*

ISO 80000-1:2009, *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

Tubular-cored electrodes shall be classified according to the chemical composition of the all-weld metal as given in Table 1 and the mechanical properties of the all-weld metal listed in Table 2.

The classification designation is divided into five parts:

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

b) the second part gives a symbol indicating the chemical composition of the all-weld metal;

c) the third part gives a symbol indicating the type of electrode core;

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