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**Welding consumables — Covered  
electrodes for manual metal arc welding  
of nickel and nickel alloys —  
Classification**

*Produits consommables pour le soudage — Électrodes enrobées pour  
le soudage manuel à l'arc 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 14172 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 3, *Welding consumables*.

This second edition cancels and replaces the first edition (ISO 14172:2003), which has been technically revised. It also incorporates the Technical Corrigenda ISO 14172:2003/Cor.1:2004 and ISO 14172:2003/Cor.2:2005.

Requests for official interpretations of any aspect of this International Standard 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](http://www.iso.org).

## Introduction

This International Standard has been prepared with the assistance of Commission II of the International Institute of Welding (IIW).

This International Standard has been revised to assist an alignment between the documents prepared by CEN/TC 121/SC 3 in their work towards a CEN standard for covered electrodes for nickel-base alloys and those drawn up by Commission II of the IIW. The classifications in the IIW proposals remain largely unaltered, but the designations now allow for the optional use of a chemical symbol in the form widely favoured in Europe.

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# Welding consumables — Covered electrodes for manual metal arc welding of nickel and nickel alloys — Classification

## 1 Scope

This International Standard prescribes requirements for the classification of nickel- and nickel-alloy-covered electrodes for manual metal arc welding and overlaying. It includes those compositions in which the nickel content exceeds that of any other element.

## 2 Normative references

The following referenced documents are indispensable for the application 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 31-0:1992, *Quantities and units — Part 0: General principles*

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

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

ISO 14344, *Welding and allied processes — Flux and gas shielded electrical welding processes — Procurement guidelines for consumables*

ISO 15792-1:2000, *Welding consumables — Test methods — Part 1: Test methods for all-weld metal test specimens in steel, nickel and nickel alloys*

## 3 Classification

A covered electrode shall be classified in accordance with the chemical composition of the all-weld metal as given in Table 1 and the mechanical properties listed in Table 2. The symbol for the classification is divided into two parts:

- a) the first part gives a symbol indicating the product/process to be used;
- b) the second part gives a symbol indicating the chemical composition of the all-weld metal.

## 4 Symbols and requirements

### 4.1 Symbol for the product/process

The symbol for covered electrodes used for manual metal arc welding shall be the letter “E”.