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Welding consumables — Covered electrodes for manual metal arc welding of stainless and heat-resisting steels — Classification

*Produits consommables pour le soudage — Électrodes enrobées pour
le soudage manuel à l'arc des aciers inoxydables et résistant aux
températures élevées — Classification*



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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Classification	2
4 Symbols and requirements	4
4.1 Symbol for the product/process	4
4.2 Symbol for the chemical composition of all-weld metal	5
4.3 Symbol for type of electrode covering	5
4.4 Symbol for effective electrode efficiency and type of current	13
4.5 Symbol for welding position	14
5 Chemical analysis	14
6 Mechanical property tests	14
6.1 General	14
6.2 Preheat and interpass temperatures	15
6.3 Pass sequence	15
7 Fillet weld test	16
8 Rounding procedure	16
9 Retests	17
10 Technical delivery conditions	17
11 Examples of designation	17
Annex A (informative) Types of covering	19
Annex B (informative) Considerations on weld metal ferrite contents	20
Bibliography	23

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 on 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.

The committee responsible for this document is ISO/TC 44, *Welding and allied processes*, Subcommittee SC 3, *Welding consumables*.

This third edition cancels and replaces the second edition (ISO 3581:2003), which has been technically revised. It also incorporates the Technical Corrigendum ISO 3581:2003/Cor 1:2008 and the Amendment ISO 3581:2003/Amd 1:2011.

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.

This corrected version of ISO 3581:2016 incorporates the following corrections:

- in Column A of [Table 3](#), the nominal composition corresponding the alloy symbol 2209 has been changed to “22 9 3 NL”;
- Table 6B has been corrected.

Introduction

This International Standard provides a classification system for stainless steel, covered welding electrodes in terms of chemical composition of deposited weld metal and type of electrode covering. Other properties of the electrodes are specified by reference to tables.

This International Standard recognizes that there are two somewhat different approaches in the global market for classifying a given stainless steel, covered electrode, and allows for either or both to be used to suit a particular need. Application of either (or both) type(s) of classification designation identifies a product as classified according to this International Standard. It is important to note that the two systems are not exactly equivalent; therefore, each system must be used independent of the other, without combining designators in any way.

The classification according to ISO 3581, system A, is mainly based upon EN 1600 while the classification according to ISO 3581, system B, is mainly based upon standards used around the Pacific Rim.

Welding consumables — Covered electrodes for manual metal arc welding of stainless and heat-resisting steels — Classification

1 Scope

This International Standard specifies requirements for classification of covered electrodes, based on the all-weld metal chemical composition, the type of electrode covering and other electrode properties, and the all-weld metal mechanical properties, in the as-welded or heat-treated conditions, for manual metal arc welding of stainless and heat-resisting steels.

This International Standard is a combined standard providing for classification utilizing a system based upon classification according to nominal composition or utilizing a system based upon classification according to alloy type.

- a) Paragraphs and tables which carry the label “classification according to nominal composition” or “ISO 3581-A” are applicable only to products classified to that system.
- b) Paragraphs and tables which carry the label “classification according to alloy type” or “ISO 3581-B” are applicable only to products classified to that system.
- c) Paragraphs and tables which carry neither label are applicable to products classified according to either or both systems.

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 2401, *Covered electrodes — Determination of the efficiency, metal recovery and deposition coefficient*

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

ISO 6947:2011, *Welding and allied processes — Welding positions*

ISO 13916, *Welding — Guidance on the measurement of preheating temperature, interpass temperature and preheat maintenance temperature*

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

ISO 15792-1:2000, *Welding consumables — Test methods — Part 1: Test methods for all-weld metal test specimens in steel, nickel and nickel alloys*. Amended by ISO 15792-1:2000/Amd 1:2011

ISO 15792-3, *Welding consumables — Test methods — Part 3: Classification testing of positional capacity and root penetration of welding consumables in a fillet weld*

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