
**Welding consumables — Solid wires and
rods for fusion welding of titanium and
titanium alloys — Classification**

*Produits consommables pour le soudage — Fils pleins et baguettes
pleines pour le soudage par fusion du titane et des alliages de titane —
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.

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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 24034 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 3, *Welding consumables*.

Introduction

This International Standard proposes a classification in order to designate wire electrodes, wires and rods in terms of their chemical composition.

For titanium-welding consumables, there is no unique relationship between the product form (wire electrodes, wires or rods) and the welding process used (gas-shielded metal arc welding, gas tungsten arc welding, plasma arc welding or laser welding). For this reason, wire electrodes, wires and rods may be classified in terms of their chemical composition.

In this International Standard, the symbol of the welding process is not used, because

- a) different joining processes are performed with the same chemical component consumable, and
- b) the producer is not able to determine the process symbol before shipping.

Also, it should be noted that the mechanical properties of all-weld metal test specimens or welded joints produced by welding consumables will vary from those obtained in production joints because of differences in welding procedure and the base-metal alloy. For this reason, the mechanical properties of all-weld metal or welded joints for titanium-welding consumables are not specified in this classification.

Requests for an official interpretation of technical aspects of this International Standard should be directed to the secretariat of ISO/TC 44/SC 3 via the user's member body in the user's country; a listing of these bodies can be found at www.iso.org.

Welding consumables — Solid wires and rods for fusion welding of titanium and titanium alloys — Classification

1 Scope

This International Standard specifies requirements for the classification of solid wires and rods for fusion welding of titanium and titanium alloys. The classification of the solid wires and rods is based on their chemical composition.

For titanium-welding consumables, the compositions of the wire electrodes for the MIG process (metal inert gas welding) are the same as for the TIG process (tungsten inert-gas arc welding), the plasma arc process, the laser beam process, and other fusion welding processes. Therefore, the use of the word “wires/rods” in this classification refers to both “wire electrodes” and “wires and rods” in this International Standard.

NOTE In this International Standard, the word “titanium” is used for “titanium and titanium alloys”.

The classification of titanium wires/rods is based upon the chemical composition of the wires/rods.

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

3 Classification

The classification is divided into two parts:

- a) the first part gives a symbol indicating the product to be identified, see 4.1.
- b) the second part gives a symbol indicating the chemical composition of the wires/rods, see Table 1.

4 Symbols and requirements

4.1 Symbol for the product

The symbol for the solid wire and rod shall be S.