AS/NZS ISO 24598:2013
ISO 24598:2012

AS/NZS ISO 24598:2013

Australian/New Zealand Standard™

Welding consumables—Solid wire electrodes, tubular cored electrodes and electrode-flux combinations for submerged arc welding of creep-resisting steels—Classification

STANDARDS Australia

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This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee WD-002, Welding Consumables. It was approved on behalf of the Council of Standards Australia on 25 January 2013 and on behalf of the Council of Standards New Zealand on 23 January 2013.
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The following are represented on Committee WD-002:

Australian Chamber of Commerce and Industry
Bureau of Steel Manufacturers of Australia
Business New Zealand
New Zealand Heavy Engineering Research Association
Welding Technology Institute of Australia

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This Standard was issued in draft form for comment as DR AS/NZS ISO 24598.

Australian/New Zealand Standard™

Welding consumables—Solid wire electrodes, tubular cored electrodes and electrode-flux combinations for submerged arc welding of creep-resisting steels—Classification

Originated in Australia as part of AS 1858.2—1989.
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee WD-002, Welding Consumables, to supersede, in part, AS 1858.2—1989, *Electrodes and fluxes for submerged-arc welding*, Part 2: *Low and intermediate alloy steels.*

The objective of this Standard is to specify requirements for manufacturers and users on the classification of solid wire electrodes, tubular cored electrodes and the electrode/flux combinations (all-weld metal deposits) for submerged arc welding of creep-resisting and low-alloy elevated-temperature steels.

This Standard is identical with, and has been reproduced from, ISO 24598:2012, *Welding consumables—Solid wire electrodes, tubular cored electrodes and electrode-flux combinations for submerged arc welding of creep-resisting steels—Classification.*

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number appears on the cover and title page while the International Standard number appears only on the cover.

(b) In the source text 'this International Standard' should read 'this Australian/New Zealand Standard'.

(c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian or Australian/New Zealand Standard*	
ISO		AS/NZS ISO	
14174	Welding consumables—Fluxes for submerged arc welding and electroslag welding—Classification	14174	Welding consumables—Fluxes for submerged arc welding and electroslag welding—Classification
		AS ISO	
13916	Welding—Guidance on the measurement of preheating temperature, interpass temperature and preheat maintenance temperature	13916	Welding—Guide on the measurement of preheating temperature, interpass temperature and preheat maintenance temperature

Only international references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

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INTRODUCTION

This International Standard recognizes that there are two somewhat different approaches in the global market to classifying a given wire electrode, tubular cored electrode or electrode/flux combination, and allows for either or both to be used to suit a particular market need. Application of either type of classification designation (or of both where suitable) identifies a product as classified in accordance with this International Standard. The classification in accordance with system A is mainly based on EN 12070:1999[2]. The classification in accordance with system B is mainly based upon standards used around the Pacific Rim.

This International Standard provides a classification system for solid wire electrodes in terms of their chemical composition, solid wire electrodes and tubular cored electrodes in terms of the deposit composition obtained with a particular submerged arc flux and, where required, electrode-flux combinations in terms of the yield strength, tensile strength and elongation of the all-weld metal deposit. The ratio of yield to tensile strength of weld metal is generally higher than that of parent metal. Users should note that matching weld metal yield strength to parent metal yield strength does not necessarily ensure that the weld metal tensile strength matches that of the parent material. Where the application requires matching tensile strength, therefore, selection of the consumable should be made by reference to column 3 of Table 1A or Table 1B, as appropriate.

Although combinations of wire electrodes and fluxes supplied by individual companies can have the same classification, the individual wire electrodes and fluxes from different companies are not interchangeable unless verified in accordance with this International Standard.

It should be noted that the mechanical properties of all-weld metal test pieces used to classify the wire electrodes vary from those obtained in production joints because of differences in welding procedure, such as electrode size, welding position and material composition.

AUSTRALIAN/NEW ZEALAND STANDARD

Welding consumables—Solid wire electrodes, tubular cored electrodes and electrode-flux combinations for submerged arc welding of creep-resisting steels—Classification

1 Scope

This International Standard specifies requirements for classification of solid wire electrodes, tubular cored electrodes and electrode/flux combinations (all-weld metal deposits) for submerged arc welding of creep resisting and low-alloy elevated-temperature steels. One electrode can be tested and classified with different fluxes. The solid wire electrode is also classified separately based on its chemical composition.

This International Standard is a combined specification providing for classification utilizing a system based upon the chemical composition of the solid wire electrode and all-weld metal deposit, or utilizing a system based upon the tensile strength of the all-weld metal deposit and the chemical composition of the solid wire electrode and all-weld metal deposit obtained with the electrode/flux combination.

a) Clauses, subclauses and tables which carry the suffix letter “A” are applicable only to solid wire electrodes, tubular cored electrodes and all-weld metal deposits classified in accordance with the system based upon chemical composition.

b) Clauses, subclauses and tables which carry the suffix letter “B” are applicable only to solid wire electrodes, tubular cored electrodes and all-weld metal deposits classified in accordance with the system based upon the tensile strength of all-weld metal deposits and the chemical composition of solid wire electrodes and all-weld metal deposits.

c) Clauses, subclauses and tables which do not have either the suffix letter “A” or the suffix letter “B” are applicable to all solid wire electrodes, tubular cored electrodes and electrode/flux combinations classified under this International Standard.

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

ISO 14174, *Welding consumables — Fluxes for submerged arc welding and electroslag welding — Classification*

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