

Welding consumables - Determination of moisture resistance of manual metal arc welding electrodes by measurement of diffusible hydrogen (ISO 14372:2011)

EESTI STANDARDI EESSÕNA

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English Version

Welding consumables - Determination of moisture resistance of
manual metal arc welding electrodes by measurement of
diffusible hydrogen (ISO 14372:2011)

Produits consommables pour le soudage - Détermination
de la reprise d'humidité des électrodes utilisées en
soudage manuel à l'arc avec électrode enrobée, par
mesurage de l'hydrogène diffusible (ISO 14372:2011)

Schweißzusätze - Bestimmung der Feuchteresistenz von
Elektroden für das Lichtbogenhandschweißen durch
Messung des diffusiblen Wasserstoffs (ISO 14372:2011)

This European Standard was approved by CEN on 30 June 2011.

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Foreword

This document (EN ISO 14372:2011) has been prepared by IIW "International Institute of Welding" in collaboration with Technical Committee CEN/TC 121 "Welding" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2012, and conflicting national standards shall be withdrawn at the latest by January 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 14372:2001.

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Endorsement notice

The text of ISO 14372:2011 has been approved by CEN as a EN ISO 14372:2011 without any modification.

Introduction

This test method is based on procedures originally put forward within Sub-commission II-A of the International Institute of Welding (IIW) by the delegation from Argentina. It was subsequently evaluated in a round robin exercise within IIW Sub-commission II-A, and served as the basis for ISO 14372:2000. This International Standard was developed with Sub-commissions II-A and II-E of the International Institute of Welding (IIW).

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1 Scope

This International Standard specifies a method for the relative ranking, by 24 h exposure to humid air and subsequent diffusible hydrogen testing, of manual metal arc electrode coatings related to their tendency to absorb moisture. This test method has limited potential applicability since it is unlikely to be capable of being scaled up for large volumes of testing.

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 3690, *Welding and allied processes — Determination of hydrogen content in arc weld metal*¹⁾

3 Principle

This procedure is presented as a standard method for exposure and control of welding consumables in preparation for, and during, diffusible hydrogen testing. After drying (if applicable), the electrodes are exposed to an air atmosphere of controlled temperature and humidity [27 °C, 80 % relative humidity²⁾ (RH)] by enclosing them in a box containing a saturated solution of ammonium sulfate.

4 Equipment

4.1 Humidity box, made of acrylic or similar inert material, consisting of a box within which test electrodes, a thermometer, and protecting tubes (maximum $\sim 1,5d$, where d is the overall diameter of the electrode, and appropriate length to fit) for holding the electrodes after exposure can be suspended over a saturated solution of ammonium sulfate (see Figure 1).

IMPORTANT — Any attempt to measure relative humidity, if used, shall not cause air circulation within the humidity box.

4.2 Temperature control cabinet, capable of being maintained at a temperature of $27\text{ °C} \pm 1\text{ °C}$. Good results have been achieved using a draught-proof enclosure heated by low-power (40 W) light bulbs, controlled by a calibrated thermostat, or by another suitable thermal source, with a fan for circulating air to maintain uniform air temperature.

1) To be published. (Revision of ISO 3690:2000.)

2) It is not necessary to measure relative humidity within the humidity box. The test conditions are the temperature and the presence of the saturated salt bath. Well-established physical principles relate the relative humidity to these two conditions.