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Copper-hydrogen embrittlement test method

铜氢脆检验方法

(English Translation)

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Foreword

This revised standard adopts ISO 2626. 1973 "Copper - Hydrogen embrittlement test" on the main technical content and ISO 2626. 1973 same, but some Technical indicators and requirements increase, part of a more detailed and specific, write structure does not correspond exactly. The number of standard clauses ISO 2626. 1973 reg number of the standard controls see Appendix A, specific technical differences between this standard, see Appendix B.

The Standard Appendix A, Appendix B is an informative annex.

The standard proposed by China Nonferrous Metals Industry Association.

This standard Nonferrous Metals by the National Standardization Technical Committee.

The standard by Chinalco Luoyang Copper Co., Ltd. is responsible for drafting.

1 Scope

This standard specifies the method deoxidized copper and oxygen-free hydrogen embrittlement tests.

This standard applies to deoxidized copper and oxygen-free hydrogen embrittlement test.

Principle 2

Samples heated in an atmosphere containing hydrogen, oxygen copper reaction with hydrogen, which causes brittleness, in the case of the sample without contact with the cooling air to room temperature, the use of closed bending, repeated bending or by the method of metallurgical testing to determine the status of copper hydrogen embrittlement.

3 Terms and Definitions

The following terms and definitions apply to this standard.

Hydrogen embrittlement refers to the copper at high temperatures exposed to a reducing atmosphere of hydrogen, since the reaction of copper oxide with a reducing gas containing hydrogen causes Grain boundary cracking caused by plastic lower phenomenon.

4 Test device

4.1

hydrogen annealing apparatus.

4.2

bending test machine.

4.3

vise.

4.4

microscope.

4.5

electrolytic polishing and mechanical polishing apparatus.

5.1 General Requirements

5.1.1

General length parallel to the machine direction using a longitudinal sample.

5.1.2

The number of samples of each batch of generally two, if the product standard or user requires otherwise, the number of test specimens by both parties through consultation.

5.1.3

sample sizes should be consistent with the requirements of 5.2 and 5.3. When you need from a large-size cast article or processed products cut when a sample, the sample should be kept at least one of the original surface of the article, the sample should play a round corners or polished.

5.2 Closed bending, repeated bending test sample

5.2.1

For plate, strip, foil, strip products, the thickness of the sample of product thickness, but not more than 12.7mm, width of 12.7mm, length Degrees 152mm.

5.2.2

for distance rods, wire products, the diameter of the specimen or two parallel surfaces between the actual size of the product, but not exceeding 12.7mm, a length of 152mm.

5.2.3

pipe products for distance, diameter, or two parallel surfaces being less than equal to 8mm, take a sample of the entire pipe cross section; diameter or two the distance between the parallel planes when the 8mm ~ 25.4mm, take a sample of the half pipe surface; diameter or distance between two parallel surfaces is greater than 25.4mm when, cut the sample width 12.7mm, a thickness of the wall thickness, but not more than 12.7mm, length is 152mm.

5.3 Sample for metallurgical testing

5.3.1

sample size should be appropriate, subject surface is generally 10mm x 10mm, as the case may be flexible intercepted. And the subject surface Face a 90 ° angle should be original material surface, and should contain at least one of the original surface of this material.