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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 26107-2010

**Metallic and other inorganic coatings -- Test for residual
embrittlement in both metallic-coated and uncoated
externally-threaded articles and rods -- Inclined wedge method**

金属与其他无机覆盖层 镀覆和未镀覆金属的外螺纹和螺杆的残余氢脆试验 斜楔
法

(English Translation)

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Foreword

This standard is identical with ISO 10587:2000 "Metals and other inorganic coatings plated and uncoated metal outer thread and the screw Residual hydrogen embrittlement test wedge Law "(in English).

The standard ISO 10587:2000, made the following editorial changes.

--- Cancel the ISO 10587:2000 preface, foreword increased our standards.

--- Use the "standard" instead of "this International Standard."

--- Canceled 4.2 inch sizes in Table 1, to the International System of Units.

Appendix A of this standard is an informative annex.

The standard proposed by China Machinery Industry Federation.

This standard layer Standardization Technical Committee (SAC/TC57) administered by the National Metal and non-metal cover.

This standard drafting of the main unit. Wuhan Institute of Material Protection, Wuhan Hong McNair Technology Development Co., Ltd., Ningbo, Shanghai and Ningbo Power Equipment Shares Ltd., Tongxiang City Rail Line Equipment Co., Ltd. Sheng, China Aerospace Science and Industry Corporation ninth Institute Honglin Machinery Plant, Jiangsu Santa COSCO electricity Gas Limited.

Introduction

When atomic hydrogen into the steel and certain alloys can cause loss or cracking ductility or load capacity (usually submicroscopic cracks), or in the applied stress is much lower than the yield strength of the alloy, even destructive brittle failure occurs when the normal design strength. This phenomenon often occurs in tension when the alloy ductility strength test analyzes without significant loss, often referred to as hydrogen induced delayed brittle

fracture, stress cracking or hydrogen embrittlement. Hydrogen can be Cleaning, pickling, phosphating, electroplating and electroless plating process and penetrate steel and other alloys in the environment of use, this is the reaction of cathodic protection or anti-corrosion shall be due. Hydrogen is also in the process, for example, roll forming, mechanical cutting and drilling process due to the destruction of the lubricant, as well as welding or Brazing operation infiltration.

Threaded portion of the structure of its various parts, tools, fixtures such as metal and wood processing, metal vise, curved clip and tap; and Various metal catapult, explosive devices, rifles, spring tension adjuster and piano stool chair threaded fittings are some examples.

Industrial Practice screw threaded member and three tests have been developed to assess the strength to ensure that the reduction in risk of hydrogen embrittlement (see Chapter 2). These ones the main difference in intensity, there are different degrees of critical state in terms of commercial applications. In essence, they represent the credibility of water required level. Also on behalf of the fine trim prior to shipment and use to save time. At this plant will certainly increase the fine trim additional costs.

Metals and other inorganic coatings Male and coated and uncoated metals Screw residual hydrogen embrittlement test wedge method Important. The implementation of this standard to be especially careful. Hydrogen embrittlement top member or lever will suddenly destroyed and formed projectiles fly, may cause Blindness or other serious injury. This may be dangerous after tests for up to 200h, should provide shelter or other means, to avoid such injuries.

1 Scope

This standard specifies the statistically determined on the basis of the following or hydrogen embrittlement damage probability of the existence of methods.

- a) batch barrel plating, chemical plating, phosphate or screw chemically treated;
- b) rack or screw threaded member.

This standard applies to the tensile strength $\geq 1000\text{MPa}$ (corresponding hardness. 300HV, 303HB or 31HRC) steel screw threaded member or Hardfacing rod and threaded member or screw. Not fasteners for fastener.

The method of heat treatment after removal of hydrogen embrittlement implementation. This method can also be used to evaluate the differences in treatment solution, conditions of use and technologies.

This test method has two main functions.

- a) When using a statistical sampling method can determine the bulk accept or reject;

b) can be used as the control test in order to determine the effective various processing steps, including to reduce the hydrogen concentration of the screw threaded member and the former, After the heat treatment.

Although this test method can determine the degree of hydrogen embrittlement of parts, but it does not ensure complete no hydrogen embrittlement.

This standard does not absolve plating personnel, technologists or producer implementing and monitoring the appropriate process control.

Note 1: Add the pickling bath inhibitors does not necessarily ensure avoidance of hydrogen embrittlement.

Note 2: Appendix A provides a hydrogen penetration threaded member Cause Analysis.

2 Terms and Definitions

The following terms and definitions apply to this standard.

Hydrogen embrittlement member embrittledarticle Trial began immediately fail the test or failure to 48h only parts or components.

48 Test batch level grade48proofbatch

After 48h test without breaking batches.

96 Test batch level grade96proofbatch

After 96h test without breaking batches.

200 test batch level grade200proofbatch After 200h test without breaking batches.

Batch batch

Hanging by the same or different parts of the same process roller treated in the same time.