

ICS 77.060
CCS H 25



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

GB/T 29088-2012

**Corrosion of metals and alloys -- Electrochemical
potentiokinetic reactivation measurement using the double
loop method**

金属和合金的腐蚀 双环电化学动电位再活化测量方法
(English Translation)

Issued on: December 31, 2012

Implemented on: October 1, 2013

Issued by: Standardization Administration of China

Table of Contents

Foreword
1 Scope
2 Normative references
3 Terms and Definitions

Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

This standard uses redrafted Law Amendment uses ISO 12732:2006 "Corrosion of metals and alloys bicyclic electrochemical potentiodynamic reactivation measure Volume method. " this standard and ISO 12732:2006 technical differences and for the following reasons.

--- On normative references, this standard has been adjusted technical differences, in order to adapt our technical conditions, the adjusted situation the reaction conditions concentrated in Chapter 2, "Normative references", the specific adjustments are as follows.

- with the modified use ASTM E112:1996 of GB/T 6394-2002 instead of ISO 643-2003 (see Chapter 10, D.2). There are some differences ASTM E112-1996 with ISO 643-2003 standard, but this standard citations There is no technical difference between the two standards.

- use equivalent to international standards GB/T 10123-2001 instead of ISO 8044:1999 (see Chapter 3).

--- With steel and alloy Grade unified digital code (ISC) instead of metal and alloys unified digital numbering system (UNS) (see Chapter 11).

This standard made the following editorial changes.

--- Delete international standard directory, foreword and introduction;

--- Delete Chapter 1 appendix C for a description;

Appendix D --- delete references ASTM G108 reference, direct reference to ASTM G108-1994 as 9.2

Note D.2.

The standard proposed by China Iron and Steel Association.

This standard by the National Steel Standardization Technical Committee (SAC/TC183) centralized.

This standard was drafted. Baoshan Iron & Steel Co., Ltd., Metallurgical Industry Information Standards Institute.

1 Scope

This standard specifies the use of bicyclic electrochemical potentiodynamic reactivation (DL-EPR) test evaluation stainless steel and nickel-based alloys sensitization degree (DOS) approach.

This standard applies to the grain boundaries or quantitative measurement of alloying elements in the matrix-poor region formed by the impact of adverse thermal effects.

Because sensitized area along the fusion line distribution may be non-uniform, it should be in the test weld HAZ extra attention.

The test results could be used as stainless steel and nickel alloys to intergranular corrosion, pitting potential sensitive indicators and intergranular stress corrosion cracking, but during the corrosion type of prediction it will also be required for the specific supplementary tests.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 6394-2002 average grain metal assay GB/T 10123-2001 Corrosion of metals and alloys number of basic terms and definitions (eqv ISO 8044:1999)

3 Terms and Definitions

GB/T 10123-2001 define the following terms and definitions apply to this document.

Power electricquantity Passivation process of electricity (Q_p) and re-activation of the power (Q_r), respectively through the passivation peak and peak power on the reactivation of the calculated curve the time integral of the flow drawn.

Principle 4

Of corrosion resistant alloy is heat-treated (including welding) appears tiny particles precipitate, such as 304 stainless steel or duplex stainless chromium carbide Steel sigma phase (FeCrMo). The extent of alloying elements in the matrix diffusion is determined by the temperature, when small particles are not formed if the matrix Diffusion of alloying elements added, will make poor neighborhood of alloying elements. This process is usually referred to as sensitization. Alloying elements poor Regional poor corrosion resistance, but also prone to stress corrosion cracking, expansion of the extent of this failure mechanism depends on the degree of alloying elements and poor Alloying elements poor density

region. Therefore, a simple test method to quickly determine whether stainless steel and nickel-based alloys have the potential Harmful thermal effects. Electrochemical potentiodynamic reactivation test (EPR) was developed for this purpose. Currently both laboratory applications electrification Learn potentiodynamic reactivation test methods are monocyclic and bicyclic Law Act. Single Tour de France despite ranging from the passive state to the activated state of polarization Scanning, but there are too sensitive to the degree of surface finish shortcomings. After assembly of the cell and may be appropriately improved electrochemical potentiodynamic Reactivation test (EPR) is also applicable to field test.