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PEOPLE'S REPUBLIC OF CHINA**

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**Evaluation method for hydrogen-induced delayed fracture of
high strength steels**

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Foreword

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

This standard uses the redrafting method to amend and adopt ISO 16573.2015 "Steel High Strength Steel Hydrogen-induced Delayed Fracture Evaluation Method".

Compared with ISO 16573.2015, this standard has structural adjustments. Appendix A lists the chapters of this standard and ISO 16573.2015.

Article number comparison list.

Compared with ISO 16573.2015, there are technical differences between this standard, and the clauses involved in these differences have been passed on the outer margins.

The set vertical single line (|) is marked, and a list of the corresponding technical differences and their reasons is given in Appendix B.

This standard has made the following editorial changes.

---Modified the standard name;

---References are deleted.

This standard was proposed by the China Iron and Steel Association.

This standard is under the jurisdiction of the National Steel Standardization Technical Committee (SAC/TC183).

Drafting organizations of this standard. Central Iron and Steel Research Institute, Jiangyin Xingcheng Special Steel Co., Ltd., Xiwang Metal Technology Co., Ltd., Shougang Group Co., Ltd., Beijing Jiaotong University, University of Science and Technology Beijing, Metallurgical Industry Information Standards Research Institute.

1 Scope

This standard specifies the sample, hydrogen charging, constant load tensile test, and slow strain rate tensile test for the evaluation method of hydrogen-induced delayed fracture of high-strength steel.

After inspection, sample processing after breaking, hydrogen content measurement, test report.

This standard applies to high-strength steel with a tensile strength of not less than 800MPa. For high-strength steel with tensile strength lower than 800MPa, please refer to use.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article

Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB/T 228.1 Tensile test of metallic materials Part 1. Room temperature test method (GB/T 228.1-2010, ISO 6892-1.

2009, MOD)

GB/T 2975 Steel and steel product mechanical properties test sampling location and sample preparation (GB/T 2975-2018, ISO 377.

2017, MOD)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Diffusible hydrogen content

The amount of hydrogen that can diffuse in the sample at room temperature.

3.2

Critical hydrogen content

Under the specified stress (0.9 times the tensile strength or 0.9 times the notched tensile strength), the delayed fracture just does not occur after the specified time

When, the content of diffusible hydrogen in the sample.

3.3

Notch tensile strength notched tensile strength; NTS

The ratio of the maximum force during the tensile test of a notched specimen to the original cross-sectional area at the notch.

3.4

Fracture stress ratio

The ratio of the tensile strength (or notched tensile strength) of the hydrogen-charged sample to the tensile strength (or notched tensile strength) of the uncharged sample.

3.5

Constant load tensile test constant load tensile test; CLT

A tensile test method in which the tensile load of the specimen is constant.

3.6

Slow strain rate tensile test slow strain rate tensile test; SSRT

A tensile test method in which the tensile strain rate of the specimen is generally lower than 10⁻⁵/s.