



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

GB/T 15970.6-2007

Replacing GB/T 15970.6-1998

**Corrosion of metals and alloys -- Stress corrosion testing --
Part 6: Preparation and use of pre-cracked specimens for tests
under constant load or constant displacement**

金属和合金的腐蚀 应力腐蚀试验 第6部分：恒载荷或恒位移下的预裂纹试样的制备和应用

(English Translation)

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Foreword

GB/T 15970 consists of the following parts under the general title of "Corrosion of metals and alloys - Stress corrosion testing". Part 1. General guidance on testing procedures (GB/T 15970.1-1995); Part 2. Preparation and use of bent-beam specimens (GB/T 15970.2-2000); Part 3. Preparation and use of U-bend specimens (GB/T 15970.3-1995); Part 4. Preparation and use of uniaxially loaded tension specimens (GB/T 15970.4-2000); Part 5. Preparation and use of C-ring specimens (GB/T 15970.5-1998); Part 6. Preparation and use of pre-cracked specimens for tests under constant load or constant displacement (GB/T 15970.6-2007); Part 7. Slow strain rate testing (GB/T 15970.7-2017);

Part 8. Preparation and use of specimens to evaluate weldments (GB/T 15970.8-2005);

Part 9. Preparation and use of pre-cracked specimens for tests under rising load or rising displacement (GB/T 15970.9-2007).

This Part is identical to the International Standard ISO 7539-6:2003 "Corrosion of metals and alloys - Stress corrosion testing - Part 6. Preparation and use of pre-cracked specimens for tests under constant load or constant displacement". This Part has made the following editorial modification.

- DELETE the foreword of the International Standard;

This Part replaces GB/T 15970.6-1998 "Corrosion of metals and alloys - Stress corrosion

testing - Part 6: Preparation and use of pre-cracked specimens" Compared with GB/T 15970.6-1998, the main changes are as follows.

- DELETE the content related to incremental load or incremental displacement;
- ADD the influence of residual stress and electrode potential change on the test results;
- ADD a description of the possible influence of residual stress during

1 Scope

1.1

This Part of GB/T 15970 covers procedures for designing, preparing and using pre-cracked specimens for investigating susceptibility to stress corrosion.

It gives recommendations for the design, preparation and use of pre-cracked specimens for investigating susceptibility to stress corrosion.

Recommendations concerning notched specimens are given in Annex A. The term "metal" as used in this Part includes alloys.

1.2

Because of the need to confine plasticity at the crack tip, pre-cracked specimens are not suitable for the evaluation of thin products such as sheet or wire and are generally used for thicker products including plate bar and forgings. They can also be used for parts joined by welding.

1.3

Pre-cracked specimens may be loaded with equipment for application of a constant load or can incorporate a device to produce a constant displacement at the loading points. Tests conducted under increasing displacement or increasing load are dealt with in GB/T 15970.9.

1.4

A particular advantage of pre-cracked specimens is that they allow data to be acquired from which critical defect sizes, above which stress corrosion cracking may occur, can be estimated for components of known geometry subjected to known stresses. They also enable rates of stress corrosion crack propagation to be determined. The latter data may be taken into account when monitoring parts containing defects during service.

2 Normative reference

The following documents contain the provisions which, through reference in this Part of GB/T 15970, become the provisions of this Part. For dated references, their subsequent amendments (excluding corrigendum) or revisions do not apply to this Part. However, the

parties who enter into agreement based on this Part are encouraged to investigate whether the latest versions of these documents are applicable. For undated reference documents, the latest versions apply to this Part.