
**Corrosion of metals and alloys —
Uniaxial constant-load test method
for evaluating susceptibility of
metals and alloys to stress corrosion
cracking in high-purity water at high
temperatures**

*Corrosion des métaux et alliages — Méthode d'essai sous charge
uniaxiale pour l'évaluation de la sensibilité des métaux et des alliages
à la fissuration par corrosion sous contrainte dans l'eau de haute
pureté à hautes températures*



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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

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Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html

Corrosion of metals and alloys — Uniaxial constant-load test method for evaluating susceptibility of metals and alloys to stress corrosion cracking in high-purity water at high temperatures

WARNING — This document can involve hazardous materials, operations and equipment. It is the responsibility of the user of this document to consult and establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.

1 Scope

The document specifies a method for undertaking uniaxial constant load testing of the susceptibility of a metal, or an alloy, to stress corrosion cracking (SCC) in high-purity water environments at high temperature (above the boiling point of water at normal pressures) and pressure. The test method is particularly applicable to simulated primary water environments of light water reactors (LWRs).

The test method enables assessment of the relative resistance to SCC of a material in different environments and the comparative resistance of different materials (using the same environment, specimen dimensions and loading).

The terms “metal” and “alloy”, as used in the document, include weld metals and weld heat affected zones.

2 Normative reference

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7539-1, *Corrosion of metals and alloys — Stress corrosion testing — Part 1: General guidance on testing procedures*

ISO 7539-4, *Corrosion of metals and alloys — Stress corrosion testing — Part 4: Preparation and use of uniaxially loaded tension specimens*

ISO 8044, *Corrosion of metals and alloys — Vocabulary*

ISO 3785, *Metallic materials — Designation of test specimen axes in relation to product texture*

ISO 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 7539-1, ISO 8044, ISO 3785 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>