
**Corrosion of metals and alloys —
Standard test method for particle-
free erosion corrosion of metallic
materials by jet-in-slit**

*Corrosion des métaux et alliages — Méthode d'essai normalisée de
corrosion-érosion en l'absence de particules par jet issu d'une fente*



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Foreword

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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.

Introduction

Particle-free erosion corrosion is a major problem in metallic materials of industries which handle liquids flowing rapidly that are corrosive. Specifically, the metallic materials include copper, copper alloys and steels, and the liquids are various types of liquids such as seawater, tap water, industrial water, chemical water (e.g. acid and alkali aqueous solution), waste water, etc. Particle-free erosion corrosion usually leads to rapid metal loss with possibly catastrophic consequences. In order to either prevent, mitigate or control, or all, the problems, it is important to determine the particle-free erosion corrosion behaviour of materials for plant construction. This can be achieved by standardizing the test methods which can reproduce the specific mode of corrosion in those materials. This test method can be applied to various types of metallic materials by choosing appropriate test solutions and conditions.

Corrosion of metals and alloys — Standard test method for particle-free erosion corrosion of metallic materials by jet-in-slit

1 Scope

This document specifies a test method for particle-free erosion corrosion of metallic materials by use of jet-in-slit which is flow induced corrosion in single phase flowing liquids. The test method can be used for ranking materials performance, selecting candidate materials and testing the effects of corrosion inhibitors.

2 Normative references

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 8044, *Corrosion of metals and alloys — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8044 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/>

3.1

erosion

progressive loss of original material from a solid surface due to mechanical interaction between that surface and a fluid, a multicomponent fluid, an impinging liquid or solid particles

Note 1 to entry: For more details, see Reference [1].

3.2

erosion corrosion

process involving conjoint corrosion and *erosion* (3.1)

3.3

particle-free erosion corrosion

erosion corrosion (3.2) of metallic materials in single phase flowing liquids free of solid particles and gas bubbles

4 Principles

4.1 Schematic of jet-in-slit test

The schematic of jet-in-slit test can be seen in [Figure 1](#). Two circular discs with the same dimensions are set face-to-face to form a narrow gap (slit) between them. A bore hole is drilled-through at the centre of the upper disc to make a nozzle. A jet of test solution from the nozzle impinges at a right angle to the specimen and then to flow in a radial direction through the slit.