
**Corrosion of metals and alloys —
Method for determination of the
uniform corrosion rate of stainless
steels and nickel based alloys in
liquids**

*Corrosion des métaux et alliages — Méthode pour la détermination
du taux de corrosion uniforme des aciers inoxydables et des alliages à
base de nickel dans les liquides*

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Foreword

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The committee responsible for this document is ISO/TC 156, *Corrosion of metals and alloys*.

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Introduction

Stainless steel and nickel based alloys generally show good corrosion resistance but uniform corrosion can occur in acidic and alkaline solutions. The uniform corrosion rate in aqueous solutions is usually considered to be a fairly stable process as long as the corrosive environment is constant with respect to chemical composition, temperature, and flow conditions. The uniform corrosion resistance of stainless steels and nickel based alloys is thus often determined by short-term laboratory coupons immersion tests carried out under controlled conditions. However, in real applications, some variation in service conditions can occur which might cause a temporary activation of the stainless steel or nickel based alloy surface. Temperature variations, fluctuation in the access of air or other oxidants, contact to less noble materials, e.g. mild steel, or to certain cleaning agents are all factors which under certain circumstances could cause activation.

One important property to investigate is therefore the ability for the material to passivate after activation and accordingly, this method includes activation of the specimens. The corrosion rate determined by this test can be used as a basis for material selection and to estimate the lifetime of the material.

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