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**BS ISO 13573:2012**



**BSI Standards Publication**

# **Corrosion of metals and alloys — Test method for thermal- cycling exposure testing under high-temperature corrosion conditions for metallic materials**

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This British Standard is the UK implementation of ISO 13573:2012.

The UK participation in its preparation was entrusted to Technical Committee ISE/NFE/8, Corrosion of metals and alloys.

A list of organizations represented on this committee can be obtained on request to its secretary.

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## **Corrosion of metals and alloys — Test method for thermal-cycling exposure testing under high- temperature corrosion conditions for metallic materials**

*Corrosion des métaux et alliages — Méthode pour essais de corrosion  
à haute température, avec exposition à des cycles thermiques, sur des  
matériaux métalliques*



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 13573 was prepared by Technical Committee ISO/TC 156, *Corrosion of metals and alloys*, Working Group 13, *High Temperature Corrosion*.

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# Corrosion of metals and alloys — Test method for thermal-cycling exposure testing under high-temperature corrosion conditions for metallic materials

## 1 Scope

This International Standard describes the methodology for thermal cycling corrosion testing (known as cyclic oxidation testing) of metallic materials in gaseous environments between ambient and elevated temperatures (series of measurements on a single test piece with repeated, regular and controlled temperature cycles). It also may be applicable to other materials with some modifications. Tests with ultra short dwell times in the range of minutes or seconds are outside the scope of this International Standard.

## 2 Normative references

The following referenced documents are indispensable for the application 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.

ANSI B74.12-92, *Specifications for the Size of Abrasive Grain – Grinding Wheels, Polishing and General Industrial Uses*

ASTM E1350-97, *Standard Test Methods for Testing Sheathed Thermocouples Prior to, During, and After Installation*

ASTM E220-02, *Standard Test Method for Calibration of Thermocouples By Comparison Techniques*

ASTM E230-03, *Standard Specification and Temperature-Electromotive Force (EMF) Tables for Standardized Thermocouples*

ASTM E3-01, *Standard Practice for Preparation of Metallographic Specimens*

ASTM E407-07e1, *Standard Practice for Microetching Metals and Alloys*

ASTM E633-00, *Standard Guide for Use of Thermocouples in Creep and Stress Rupture Testing to 1800°F (1000°C) in Air*

FEPA 43-1984 R:1993, *Grit Sizes for Coated Abrasives*

ISO 3611, *Geometrical product specifications (GPS) — Dimensional measuring equipment: Micrometers for external measurements — Design and metrological characteristics*

ISO 6344-3:1998, *Coated abrasives — Grain size analysis — Part 3: Determination of grain size distribution of microgrits P240 to P2500*

ISO 13385-1, *Geometrical product specifications (GPS) — Dimensional measuring equipment — Part 1: Callipers; Design and metrological characteristics*

ISO 26146, *Corrosion of metals and alloys – Method for metallographic examination of samples after exposure to high temperature corrosive environments*

JIS R6001-87, *Bonded abrasive grain sizes*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.