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National Standards  
Authority of Ireland  
Dublin 9  
Ireland

Tel: (01) 807 3800  
Tel: (01) 807 3838

**METALLIC AND OTHER INORGANIC  
COATINGS - DEFINITIONS AND  
CONVENTIONS CONCERNING POROSITY**

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## Metallic and other inorganic coatings - Definitions and conventions concerning porosity

Revêtements métalliques et autres revêtements non organiques - Définitions et principes concernant la porosité

Metallische und andere anorganische Überzüge - Definitionen und Festlegungen, die die Porigkeit betreffen

This European Standard was approved by CEN on 27 December 2002.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**Management Centre: rue de Stassart, 36 B-1050 Brussels**

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## **Foreword**

This document (EN 13143:2003) has been prepared by Technical Committee CEN/TC 262, "Metallic and other inorganic coatings", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2003, and conflicting national standards shall be withdrawn at the latest by September 2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

## EN 13143:2003 (E)

### 1 Scope

This European Standard defines porosity and its associated terms and outlines the principles involved in porosity testing of metallic and related inorganic coatings. It also considers the purpose of porosity testing, thereby assisting the user to select the most suitable test for the product and its service application.

The porosity test cannot be used to establish corrosion performance standards.

### 2 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply:

#### 2.1

##### **porosity**

holes, pores, cracks or other **discontinuities** (2.3) in the coating that expose the substrate or basis metal to the environment

#### 2.2

##### **pore (of a coating)**

essentially circular **discontinuity** (2.3)

#### 2.3

##### **discontinuity**

opening in an otherwise continuous coating extending through the underlying coating to the basis metal

NOTE Typically, the openings are pores, cracks or pits in the coating. They can also be voids or breaks in the coating caused by mechanical damage such as scratches or non-conductive inclusions in the basis metal (see ISO 10308).

#### 2.4

##### **tarnish**

a) dulling, staining or discoloration of metals due to superficial corrosion

b) film so formed

[ISO 2080:1981, definition 652]

#### 2.5

##### **corrosion product**

substance formed as a result of corrosion

#### 2.6

##### **open porosity in coating**

**discontinuities** (2.3) in the coating surface

NOTE Such discontinuities include cracks, micro-holes, pits, scratches or any opening in the coating surface that exposes either the undercoat or the basis metal.

### 3 Purpose of porosity testing

The main purpose of porosity testing is to determine the quality of the coating and its freedom from porosity, particularly on those areas of the significant surface that demand a functional requirement, for example, as electrical contacts.

For the purpose of porosity testing of metallic and related inorganic coatings, there are two modes of corrosion that need to be considered, i.e. electrochemical and chemical. Either type of test can be used to identify the presence,

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