Irish Standard
I.S. EN 14617-13:2013

# Agglomerated stone - Test methods - Part 13: Determination of electrical resistivity

# I.S. EN 14617-13:2013

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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EUROPEAN STANDARD

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# EN 14617-13

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English Version

# Agglomerated stone - Test methods - Part 13: Determination of electrical resistivity

Pierre agglomérée - Méthodes d'essai - Partie 13 : Détermination de la résistivité électrique

Künstlich hergestellter Stein - Prüfverfahren - Teil 13: Bestimmung des spezifischen elektrischen Widerstands

This European Standard was approved by CEN on 1 March 2013.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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# Foreword

This document (EN 14617-13:2013) has been prepared by Technical Committee CEN/TC 246 “Natural stones”, the secretariat of which is held by UNI.

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of an identical text or by endorsement, at the latest by October 2013, and conflicting national standards shall be withdrawn at the latest by October 2013.

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

This document supersedes EN 14617-13:2005.

Clauses 6, 7, 8, 9 and 10 have been modified and a new Annex C has been added since the last edition of this European Standard.

This European Standard is one of a series of standards for test methods for agglomerated stones which includes the following:

— *Part 1: Determination of apparent density and water absorption*

— *Part 2: Determination of flexural strength (bending)*

— *Part 4: Determination of the abrasion resistance*

— *Part 5: Determination of freeze and thaw resistance*

— *Part 6: Determination of thermal shock resistance*

— *Part 8: Determination of resistance to fixing (dowel hole)*

— *Part 9: Determination of impact resistance*

— *Part 10: Determination of chemical resistance*

— *Part 11: Determination of linear thermal expansion coefficient*

— *Part 12: Determination of dimensional stability*

— *Part 13: Determination of electrical resistivity*

— *Part 15: Determination of compressive strength*

— *Part 16: Determination of dimensions, geometric characteristics and surface quality of modular tiles*

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

# 1 Scope

This European Standard covers the determination of DC insulation resistance, surface resistance and resistivity, and the corresponding electrical conductance and conductivity of specimens of agglomerated stone products conforming to the definition reported in EN 14618. These products are usually made by stone aggregates bound via either resin and filler or cement and water (paste components), or a mixture of polymer/cement and related addition (such as reinforcing fibres, electrically insulating/conducting fillers, etc.).

Resistivity/conductivity may also be used as an indirect measure of some properties of agglomerated stone products (see Annex A - informative).

Volume resistance and resistivity test method and the corresponding electrical conductance and conductivity of specimens of agglomerated stone products are also included (see Annex C - informative).

# 2 Normative references

Not applicable.

# 3 Principle

The resistance/conductance of an agglomerated stone specimen is evaluated by the measurement of direct current (DC) flow in the specimen under specified conditions by appropriate electrode systems. The resistivity/conductivity shall be calculated from specimen and electrode dimensions and shapes.

# 4 Terms and definitions and symbols

**4.1**
**insulation resistance**
$\Omega \rightarrow \Omega$ = ohm
insulation resistance between two electrodes that are in electrical contact with an agglomerated stone specimen, calculated as the ratio of the direct voltage applied to the electrodes to the total current flowing between them

Note 1 to entry: It is dependent upon the shape and size as well as the volume and surface resistance of the specimen.

**4.2**
**surface resistance**
$R_S$ ($\Omega$)
surface resistance between two electrodes that are in electrical contact with the surface of an agglomerated stone specimen, calculated as the ratio of the direct voltage applied to the electrodes to that portion of the current between them which is primarily distributed on the specimen surface and a thin material layer beneath the specimen surface

Note 1 to entry: Surface conductivity cannot be accurately known, only conventionally, because more or less volume contribution is usually involved in the measurement, depending on the nature of the specimen and environment.

**4.3**
**surface resistivity**
$\rho_s$ ($\Omega$)
surface resistivity of the agglomerated stone material, which is calculated as the ratio of the potential gradient parallel to the current direction along its surface to the current per unit width of the surface