Irish Standard
I.S. EN ISO 17172:2021

Fine ceramics (advanced ceramics, advanced technical ceramics) - Determination of compaction properties of ceramic powders (ISO 17172:2014)

I.S. EN ISO 17172:2021

Incorporating amendments/corrigenda/National Annexes issued since publication:

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NSAI	T +353 1 807 3800	Sales:
1 Swift Square,	F +353 1 807 3838	T +353 1 857 6730
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National Foreword

I.S. EN ISO 17172:2021 is the adopted Irish version of the European Document EN ISO 17172:2021, Fine ceramics (advanced ceramics, advanced technical ceramics) - Determination of compaction properties of ceramic powders (ISO 17172:2014)

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 17172

January 2021

ICS 81.060.30

English Version

Fine ceramics (advanced ceramics, advanced technical ceramics) - Determination of compaction properties of ceramic powders (ISO 17172:2014)

Céramiques techniques - Détermination des propriétés de compactage des poudres céramiques (ISO 17172:2014)

Hochleistungskeramik - Bestimmung der Verdichtungseigenschaften keramischer Pulver (ISO 17172:2014)

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

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European foreword

The text of ISO 17172:2014 has been prepared by Technical Committee ISO/TC 206 "Fine ceramics" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 17172:2021 by Technical Committee CEN/TC 184 "Advanced technical ceramics" the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by July 2021, and conflicting national standards shall be withdrawn at the latest by July 2021.

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The text of ISO 17172:2014 has been approved by CEN as EN ISO 17172:2021 without any modification.

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I.S. EN ISO 17172:2021

INTERNATIONAL STANDARD

ISO 17172

First edition
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Fine ceramics (advanced ceramics, advanced technical ceramics) — Determination of compaction properties of ceramic powders

Céramiques techniques — Détermination des propriétés de compactage des poudres céramiques

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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The committee responsible for this document is ISO/TC 206, *Fine ceramics*.

Fine ceramics (advanced ceramics, advanced technical ceramics) — Determination of compaction properties of ceramic powders

1 Scope

This International Standard specifies the test method to determine the extent to which granulated or ungranulated ceramic powders are compacted, when subjected to uniaxial compressive loading in a confining die, under specified conditions.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

3 Principle

Granulated or ungranulated ceramic powders are compacted uniaxially in a confining die by double-action pressing (mode 1) or by single-action pressing (mode 2). Samples of the ceramic powders can be pressed either at a single specified pressure or at a series of specified pressures. After ejection from die, the apparent density of the ceramic powder compact is determined.

The apparent density obtained in the former case represents the compaction properties of the ceramic powder at the specified pressure. The apparent densities obtained in the latter case are utilized for drawing the compaction curve of the ceramic powder, which is a plot of apparent density as a function of compaction pressure.

4 Symbols and designation

Symbol	Designation	Unit
ρ_a	Apparent density	g/cm^3
m	Mass of ceramic powder compact	g
V	Volume of ceramic powder compact	cm^3

If the apparent density is measured at only one specified pressure, for example 100 MPa, the symbol becomes $\rho_a(100)$.

5 Apparatus

5.1 Cylindrical die, should be made from hard material, preferably hardened steel or tungsten carbide.

The die shall contain two upper and lower punches for producing cylindrical powder compacts and shall be of the floating type or of the type suspended from a spring (mode 1), or of stationary type with only one movable upper punch (mode 2). The die shall be capable of making cylindrical powder compacts with a diameter from 10 mm to 26 mm and a height to diameter ratio between 0,3 and 0,5 (mode 1), or with a diameter from 10 mm to 32 mm and a height to diameter ratio between 0,15 and 0,25 (mode

