INTERNATIONAL STANDARD

ISO 21822

First edition
2019-11

Fine ceramics (advanced ceramics, advanced technical ceramics) — Measurement of iso-electric point of ceramic powder

Céramiques techniques — Mesure du point iso-électrique de poudres céramiques

Reference number
ISO 21822:2019(E)

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Published in Switzerland

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Foreword

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This document was prepared by Technical Committee ISO/TC 206, *Fine ceramics*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Fine ceramics (advanced ceramics, advanced technical ceramics) — Measurement of iso-electric point of ceramic powder

1 Scope

This document specifies the test method to determine the iso-electric point of fine ceramic powders, which is measured in the state of suspension.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 4316, *Surface active agents — Determination of pH of aqueous solutions — Potentiometric method*

ISO 13099-1, *Colloidal systems — Methods for zeta-potential determination — Part 1: Electroacoustic and electrokinetic phenomena*

ISO 13099-2, *Colloidal systems — Methods for zeta-potential determination — Part 2: Optical methods*

ISO 13099-3, *Colloidal systems — Methods for zeta potential determination — Part 3: Acoustic methods*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13099-1, ISO 13099-2 and ISO 13099-3 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

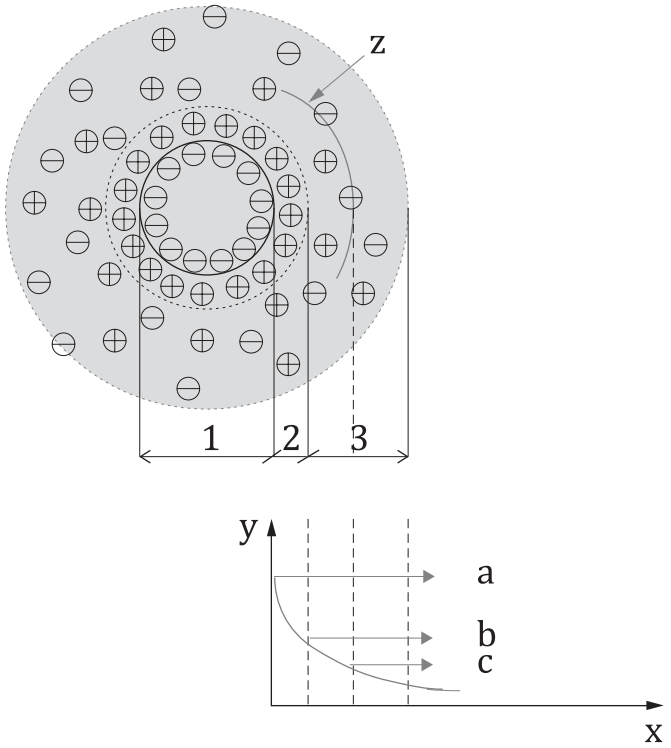
— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
zeta potential
ζ-potential
difference between the electric potential at the slipping plane and that of the bulk liquid, where the electric potential difference is proportional to the electrophoretic mobility of the charged particle to the electrode when the electric field is applied to the dispersed particles in the solution

Note 1 to entry: See Figure 1.

Note 2 to entry: Zeta potential is expressed in volts. Electrophoretic mobility (μ) is electrophoretic velocity divided by electric-field strength. Electrophoretic mobility is positive if the particles move towards a lower potential (negative electrode) and negative in the opposite case. Electrophoretic mobility is expressed in square metres per volt second ($m^2/V{\cdot}s$).



Key

a surface potential
b stern potential
c zeta potential
x distance from particle surface
y potential
z stern layer
1 colloid particle
2 stern layer
3 ion diffusion layer including zeta potential

Figure 1 — Schematic of zeta potential for the dispersed colloid particle

3.2
iso-electric point
condition of a liquid medium, usually the value of pH, that corresponds to zero zeta potential of dispersed particles

Note 1 to entry: See Figure 2.