

~~2024-04-02~~

ISO/~~PRF~~ 13099-2:~~2025(en)~~

ISO/TC 24/SC 4

Secretariat: BSI

Date: 2025-05-22

Colloidal systems — Methods for zeta-potential determination —

Part 2: Optical methods

Systèmes colloïdaux — Méthodes de détermination du potentiel zêta —

Partie 2: Méthodes optiques

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

ISO/PRF 13099-2

<https://standards.iteh.ai/catalog/standards/iso/963bcc9f-ba38-4136-8538-ba5cbd63c45c/iso-prf-13099-2>

PROOF

Edited DIS - MUST BE USED FOR FINAL DRAFT

ISO/~~PRF~~ 13099-2:2025(en)

© ISO ~~2024~~ 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ~~ISO's~~ISO's member body in the country of the requester.

ISO ~~Copyright Office~~ copyright office

CP 401 • ~~Ch. de Blandonnet 8~~

CH-1214 Vernier, Geneva

Phone: + 41 22 749 01 11

~~Email:~~ E-mail: copyright@iso.org

Website: www.iso.org

Published in Switzerland.

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

ISO/PRF 13099-2

<https://standards.itih.ai/catalog/standards/iso/963bcc9f-ba38-4136-8538-ba5cbd63c45c/iso-prf-13099-2>

Contents

Foreword..... iv

Introduction v

1 Scope..... 1

2 Normative references 1

3 Terms, definitions and symbols..... 1

3.1 Terms and definitions..... 1

3.2 Symbols..... 3

4 Principles 3

5 Microscopic methods 5

6 Electrophoretic light-scattering (ELS) method..... 6

6.1 General..... 6

6.2 Cell design 6

6.3 Reference beam optical arrangement 7

6.4 Signal processing 9

6.5 Determination of electrophoretic mobility..... 12

7 Calculation of zeta-potential 12

8 Operational procedures 13

8.1 Requirements 13

8.2 Verification 16

8.3 Sources of measurement error 17

8.4 Test report..... 19

Annex A (informative) Electroosmosis within capillary cells..... 21

Bibliography 25

ISO/PRE 13099-2

<https://standards.iteh.ai/catalog/standards/iso/963bcc9f-ba38-4136-8538-ba5cbd63c45c/iso-prf-13099-2>

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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had ~~not received~~~~not received~~ notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 24, *Particle characterization including sieving*, Subcommittee SC 4, *Particle characterization*.

This second edition cancels and replaces the first edition (ISO 13099-2:2012), which has been technically revised.

The main changes are as follows:

- ~~addition~~ addition of new terms and definitions;
- ~~revision of Figure 3~~ revision of [Figure 3](#), illustrating instrument configuration;
- ~~removal of section on cross-beam optics~~ removal of section on cross-beam optics;
- ~~revision of the description of phase analysis light scattering (PALS)~~ revision of the description of phase analysis light scattering (PALS);
- ~~addition of information on cell constant~~ addition of information on cell constant.

A list of all parts in the ISO 13099 series can be found on the ISO website.

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.

Introduction

Zeta-potential is a parameter that can be used to predict the long-term stability of suspensions and emulsions and to study surface morphology and adsorption on particles and other surfaces in contact with a liquid. Zeta-potential is not a directly measurable parameter. It can be determined using appropriate theoretical models from experimentally determined parameters, such as electrophoretic mobility.

Optical methods, especially electrophoretic light scattering, have been widely used to determine electrophoretic mobility of particles or macromolecules in suspension or in solution. The purpose of this document is to provide methods for measuring electrophoretic mobility using optical means and for calculating zeta-potential.

iTeh Standards (<https://standards.itih.ai>) Document Preview

ISO/PRF 13099-2

<https://standards.itih.ai/catalog/standards/iso/963bcc9f-ba38-4136-8538-ba5cbd63c45c/iso-prf-13099-2>