

ISO 13319-2:2023-09 (E)

Determination of particle size distribution - Electrical sensing zone method - Part 2: Tunable resistive pulse sensing method

| Contents | | Page |
|---|--|-------------|
| Foreword..... | | iv |
| Introduction..... | | v |
| 1 | Scope | 1 |
| 2 | Normative references | 1 |
| 3 | Terms and definitions | 1 |
| 4 | Symbols | 2 |
| 5 | Principles | 3 |
| 6 | General operation | 5 |
| 6.1 | Determination of particle size..... | 5 |
| 6.2 | Determination of particle concentration..... | 6 |
| 6.3 | Calibration..... | 6 |
| 6.4 | Dynamic range..... | 7 |
| 6.5 | Coincidence events..... | 7 |
| 6.6 | Off-axis particle transport..... | 8 |
| 6.7 | Polarization..... | 8 |
| 6.8 | Dielectrophoresis..... | 10 |
| 6.9 | Drag..... | 11 |
| 7 | Operational procedure | 11 |
| 7.1 | General..... | 11 |
| 7.2 | Instrumental components..... | 11 |
| 7.3 | System set-up and optimization..... | 11 |
| 7.3.1 | General..... | 11 |
| 7.3.2 | Preparing fluid cell and stretching the TPU aperture..... | 12 |
| 7.3.3 | Wetting the TPU aperture..... | 12 |
| 7.3.4 | Establishing stable baseline current..... | 12 |
| 7.3.5 | Coating the TPU aperture..... | 12 |
| 7.3.6 | Optimising measurement parameters and running calibration..... | 12 |
| 7.3.7 | Adjusting conditions for the sample and recording data..... | 13 |
| 7.3.8 | Re-calibrating to ensure system stability..... | 14 |
| 7.4 | Sample preparation..... | 14 |
| 7.4.1 | General..... | 14 |
| 7.4.2 | TRPS suspension requirements..... | 15 |
| 7.4.3 | Preventing contamination..... | 15 |
| 7.4.4 | Removing proteins and solutes..... | 16 |
| 7.4.5 | Maintaining sample integrity..... | 16 |
| 7.4.6 | Enhancing suspension stability..... | 16 |
| Annex A (informative) TRPS best practice | | 17 |
| Annex B (informative) Troubleshooting factors that affect TRPS measurements | | 18 |
| Annex C (informative) Size distribution and concentration measurements of phospholipid nano- and micro-bubbles | | 19 |
| Annex D (informative) Method development for TRPS particles measurements | | 20 |
| Bibliography | | 21 |