

# ISO 13099-1:2012-06 (E)

## Colloidal systems - Methods for zeta-potential determination - Part 1: Electroacoustic and electrokinetic phenomena

---

<b>Contents</b>		<b>Page</b>
Foreword .....		iv
Introduction .....		v
<b>1</b>	<b>Scope .....</b>	<b>1</b>
<b>2</b>	<b>Terms and definitions .....</b>	<b>1</b>
2.1	Electric double layer .....	1
2.2	Electrokinetic phenomena .....	2
2.3	Electroacoustic phenomena .....	4
<b>3</b>	<b>Symbols .....</b>	<b>5</b>
<b>4</b>	<b>Theory: general comments .....</b>	<b>6</b>
<b>5</b>	<b>Elementary theories, Smoluchowski's limit for electrokinetics .....</b>	<b>7</b>
5.1	General .....	7
5.2	Electrophoresis .....	7
5.3	Electroosmosis .....	8
5.4	Streaming current or potential .....	8
5.5	Sedimentation potential or current .....	8
<b>6</b>	<b>Elementary theories, Smoluchowski's limit for electroacoustics .....</b>	<b>8</b>
6.1	General .....	8
6.2	O'Brien's theory for dynamic electrophoretic mobility .....	9
6.3	Smoluchowski limit theory for dynamic electrophoretic mobility .....	9
<b>7</b>	<b>Advanced theories .....</b>	<b>10</b>
<b>8</b>	<b>Equilibrium dilution and other sample modifications .....</b>	<b>10</b>
<b>Annex A (informative) Electric double layer models .....</b>		<b>12</b>
<b>Annex B (informative) Surface conductivity .....</b>		<b>18</b>
<b>Annex C (informative) Debye length .....</b>		<b>20</b>
<b>Annex D (informative) Advanced electrophoretic theories .....</b>		<b>21</b>
<b>Annex E (informative) Advanced electroacoustic theories .....</b>		<b>24</b>
<b>Bibliography .....</b>		<b>26</b>