

# DIN EN ISO 22125-2:2024-05 (E)

## Water quality - Technetium-99 - Part 2: Test method using inductively coupled plasma mass spectrometry (ICP-MS) (ISO 22125-2:2019)

---

<b>Contents</b>		<b>Page</b>
<b>European foreword</b>		<b>3</b>
<b>Foreword</b>		<b>4</b>
<b>Introduction</b>		<b>5</b>
<b>1 Scope</b>		<b>7</b>
<b>2 Normative references</b>		<b>7</b>
<b>3 Terms, definitions and symbols</b>		<b>8</b>
<b>4 Principle</b>		<b>10</b>
<b>5 Sampling, handling and storage</b>		<b>10</b>
<b>6 Procedure</b>		<b>10</b>
6.1	Sample preparation for measurement	10
6.2	Sample measurement	11
<b>7 Quality assurance and quality control program</b>		<b>11</b>
7.1	General	11
7.2	Variables that could influence the measurement	11
7.3	Instrument verification	11
7.4	Contamination	11
7.5	Interference control	12
7.6	Method verification	12
7.7	Demonstration of analyst capability	12
<b>8 Expression of results</b>		<b>12</b>
8.1	Using Re, <sup>97</sup> Tc, or <sup>98</sup> Tc as a recovery tracer	12
8.1.1	Calculation of mass of tracer and analyte added	12
8.1.2	Measurement bias	13
8.1.3	Sample mass concentration	13
8.1.4	Detection limit	14
8.1.5	Limit of quantification	14
8.2	Using <sup>95m</sup> Tc, <sup>97m</sup> Tc or <sup>99m</sup> Tc as a recovery tracer	14
8.2.1	Calculation of activity of tracer, mass of analyte and mass of internal standard added	14
8.2.2	Purification step recovery	15
8.2.3	Measurement bias	15
8.2.4	Sample mass concentration	15
8.2.5	Detection limit	15
8.2.6	Limit of quantification	16
8.2.7	Conversion of mass concentration to activity concentration	16
8.2.8	Conversion of mass concentration to volume unit	16
8.3	Correction for the presence of <sup>99</sup> Tc in the tracer	17
<b>9 Test report</b>		<b>17</b>
<b>Annex A (informative) Method 1 — TEVA resin</b>		<b>18</b>
<b>Annex B (informative) Method 2 — TRU resin</b>		<b>21</b>
<b>Annex C (informative) Method 3 — Anion exchange resin</b>		<b>24</b>
<b>Bibliography</b>		<b>27</b>