

# ISO 21392:2021-08 (E)

## Cosmetics - Analytical methods - Measurement of traces of heavy metals in cosmetic finished products using ICP/MS technique

---

<b>Contents</b>		<b>Page</b>
Foreword .....		iv
Introduction .....		v
1	Scope .....	1
2	Normative references .....	1
3	Terms and definitions .....	1
4	Principle .....	1
5	Reagents .....	2
6	Apparatus and equipment .....	2
7	Preparation of standards solutions .....	3
7.1	General .....	3
7.2	Diluted nitric acid .....	3
7.3	Diluting solution .....	4
7.4	Internal standard solutions .....	4
7.4.1	General .....	4
7.4.2	Rhodium standard solution, 1 mg/l .....	4
7.4.3	Lutetium standard solution, 1 mg/l .....	4
7.5	Standard solutions .....	4
7.5.1	General .....	4
7.5.2	High concentration mixed standard solution, 10 mg/l .....	5
7.5.3	Low concentration mixed standard solution, 0,1 mg/l .....	5
7.6	Calibration blank solution .....	5
7.7	Calibration solutions .....	5
8	Procedure .....	6
8.1	Preparation of samples .....	6
8.2	Pressure assisted digestion .....	6
8.2.1	General .....	6
8.2.2	Preparation of sample by digestion -- General case .....	6
8.2.3	Preparation of sample by digestion -- Specific cases .....	7
8.2.4	Microwave digestion procedure .....	7
8.2.5	Preparation of measurement solutions .....	8
8.3	Inductively coupled plasma mass spectrometry .....	8
8.3.1	ICP-MS operating conditions .....	8
8.3.2	Quantification of the analytes by ICP-MS .....	8
8.4	Quality control of the analysis .....	9
8.4.1	General .....	9
8.4.2	During digestion .....	10
8.4.3	During analysis .....	11
8.4.4	Example of ICP-MS sequence .....	11
9	Calculation .....	12
10	Method performance .....	12

<b>11</b>	<b>Test report .....</b>	<b>13</b>
<b>Annex A (informative)</b>	<b>Performance of the method determined by the accuracy profile methodology .....</b>	<b>14</b>
<b>Annex B (informative)</b>	<b>Evaluation of the method via ISO 5725 statistical approach .....</b>	<b>22</b>
<b>Bibliography .....</b>		<b>30</b>