

# ISO 24459:2021-10 (E)

## Determination of uranium content in samples coming from the nuclear fuel cycle by L-absorption edge spectrometry

---

<b>Contents</b>		<b>Page</b>
Foreword .....		iv
<b>1</b>	<b>Scope .....</b>	<b>1</b>
<b>2</b>	<b>Normative references .....</b>	<b>1</b>
<b>3</b>	<b>Terms and definitions .....</b>	<b>1</b>
<b>4</b>	<b>Principle .....</b>	<b>1</b>
<b>5</b>	<b>Reagents and materials .....</b>	<b>2</b>
<b>6</b>	<b>Apparatus .....</b>	<b>2</b>
<b>7</b>	<b>Method .....</b>	<b>4</b>
7.1	Pre-checks .....	4
7.2	Reference spectrum .....	4
7.3	Calibration .....	4
7.4	Sample measurement .....	5
7.5	Spectrum evaluation .....	5
7.5.1	Region of interest .....	5
7.5.2	Smoothing (optional) .....	5
7.5.3	Background subtraction .....	6
7.5.4	Calculation of the X-ray transmission .....	6
7.6	Calculation of the concentration of uranium .....	7
7.7	Quality control .....	8
7.8	Uncertainty evaluation .....	8
7.8.1	Standard uncertainty of the calibration factor .....	8
7.8.2	Standard uncertainty of the uranium concentration .....	9
<b>Annex A (informative) Calculation method for correction factors of atomic mass and temperature ..</b>		<b>10</b>
<b>Annex B (informative) Preparation of a solid quality control sample .....</b>		<b>11</b>
<b>Bibliography .....</b>		<b>13</b>