

# ISO 18862:2025-11 (E)

## Coffee and coffee products - Determination of acrylamide - Methods using high-performance liquid chromatography with tandem mass spectrometric detection (HPLC-MS/MS) and gas chromatography with mass spectrometric detection (GC-MS) after derivatization

---

| <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</b>  | <b>2</b>    |
| <b>6</b>                     | <b>Apparatus</b>   | <b>3</b>    |
| <b>7</b>                     | <b>Sampling</b>  | <b>4</b>    |
| <b>8</b>                     | <b>Procedure</b>   | <b>4</b>    |
| 8.1                          | General  | 4           |
| 8.2                          | Preparation of the sample extract  | 4           |
| 8.3                          | Clean-up of the extracts   | 5           |
| 8.3.1                        | Carrez precipitation   | 5           |
| 8.3.2                        | Solid-phase extraction   | 5           |
| 8.4                          | HPLC-MS/MS measurement   | 5           |
| 8.4.1                        | High-performance liquid chromatography (HPLC)  | 5           |
| 8.4.2                        | Identification and quantification by mass spectrometry (HPLC-MS/MS)                    | 6           |
| 8.5                          | Measurement with GC-MS   | 6           |
| 8.5.1                        | Derivatization and sample preparation for gas chromatography                           | 6           |
| 8.5.2                        | Gas chromatography   | 7           |
| 8.5.3                        | Identification and quantification by mass spectrometry                                 | 7           |
| <b>9</b>                     | <b>Calibration</b>   | <b>7</b>    |
| 9.1                          | General advice   | 7           |
| 9.2                          | Determination of linearity and definition of the working range                         | 7           |
| 9.3                          | Calibration with internal standard solution  | 7           |
| 9.4                          | Determination of the laboratory specific recovery                                      | 8           |
| <b>10</b>                    | <b>Evaluation</b>  | <b>8</b>    |
| 10.1                         | Criteria for identification  | 8           |
| 10.2                         | Calculation and final results  | 8           |
| <b>11</b>                    | <b>Precision data</b>  | <b>9</b>    |
| 11.1                         | General  | 9           |
| 11.2                         | Repeatability  | 9           |
| 11.3                         | Reproducibility  | 9           |
| 11.4                         | Recovery   | 9           |
| <b>12</b>                    | <b>Measurement uncertainty</b>   | <b>9</b>    |
| <b>13</b>                    | <b>Test report</b>   | <b>9</b>    |
| <b>Annex A</b> (informative) | <b>Performance characteristics</b>   | <b>11</b>   |
| <b>Annex B</b> (informative) | <b>Examples of absorber materials</b>  | <b>12</b>   |
| <b>Annex C</b> (informative) | <b>Examples of columns and analysis conditions</b>                                     | <b>13</b>   |
| <b>Annex D</b> (informative) | <b>Examples for sample preparation and chromatographic conditions using HPLC-MS/MS</b> | <b>19</b>   |
| <b>Bibliography</b>          |  | <b>25</b>   |