

# ISO 2612:2023-12 (E)

## Analysis of natural gas - Biomethane - Determination of ammonia content by tuneable diode laser absorption spectroscopy

---

Contents	Page
<b>Foreword</b> .....	<b>v</b>
<b>Introduction</b> .....	<b>vi</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>2</b>
<b>4 Safety precautions</b> .....	<b>3</b>
<b>5 Principle</b> .....	<b>3</b>
<b>6 Apparatus</b> .....	<b>3</b>
6.1 NH <sub>3</sub> analyser.....	3
6.2 Gas delivery system.....	3
6.3 Temperature sensor.....	4
6.4 Pressure sensor.....	4
6.5 Calibration equipment.....	4
6.5.1 General.....	4
6.5.2 Pressure regulators for the NH <sub>3</sub> cylinders.....	4
6.5.3 Flow controller.....	4
6.5.4 Flow meter.....	4
6.5.5 Dilution device.....	4
6.5.6 Output manifold.....	5
<b>7 Reagents and materials</b> .....	<b>5</b>
7.1 Methane .....	5
7.2 Calibration gases.....	5
7.3 Inert gas.....	5
<b>8 Sampling</b> .....	<b>5</b>
8.1 General.....	5
8.2 Construction materials.....	5
8.3 Cleanliness .....	6
8.4 Installation of the calibration gas cylinder.....	6
8.5 Pressure control.....	6
8.6 Purging of reduction valve and transfer lines.....	6
8.7 Flow control.....	6
8.8 Leak control .....	7
<b>9 Calibration</b> .....	<b>7</b>
9.1 Calibration procedures .....	7
9.2 Frequency of calibration.....	7
9.2.1 Multipoint calibration.....	7
9.2.2 Zero and span point calibration.....	7
<b>10 Interferences</b> .....	<b>7</b>
10.1 Interfering absorbers.....	7
10.2 Matrix gas .....	7
10.3 Secondary level spectroscopic effects: Gas temperature, gas pressure, spatial homogeneity .....	8
10.4 Humidity and carbon dioxide.....	8
<b>11 Measurement procedure</b> .....	<b>8</b>

<b>12</b>	<b>Expression of results.....</b>	<b>8</b>
12.1	Quantities and units .....	8
12.2	Uncertainty.....	8
<b>13</b>	<b>Test report.....</b>	<b>9</b>
<b>Annex A (informative) Spectroscopic analyser performance characteristics for NH<sub>3</sub> analysis in biomethane.....</b>		<b>10</b>
<b>Bibliography.....</b>		<b>11</b>