

# DIN EN ISO 14912:2025-09 (E)

## Gas analysis - Conversion of gas mixture composition data (ISO 14912:2025)

---

<b>Contents</b>		<b>Page</b>
<b>Foreword</b> .....		<b>iv</b>
<b>Introduction</b> .....		<b>v</b>
<b>1 Scope</b> .....		<b>1</b>
<b>2 Normative references</b> .....		<b>1</b>
<b>3 Terms and definitions</b> .....		<b>1</b>
3.1 Quantities for the expression of gas mixture composition.....		2
3.2 Additional quantities involved in conversions of gas mixture composition.....		3
<b>4 Symbols and units</b> .....		<b>4</b>
<b>5 Basic Principles</b> .....		<b>6</b>
5.1 Expression of gas mixture composition.....		6
5.2 Conversion between different quantities.....		7
5.3 Conversion between different state conditions.....		9
<b>6 Main procedures</b> .....		<b>9</b>
6.1 Conversion between different quantities of composition.....		9
6.1.1 Conversion of the content of single components.....		9
6.1.2 Conversion of complete compositions.....		10
6.2 Conversion to reference conditions.....		11
<b>7 Practical implementation</b> .....		<b>12</b>
7.1 Conversion between quantities of composition.....		12
7.2 Conversion of single contents.....		13
7.3 Conversion of complete compositions.....		13
7.4 Conversion between state conditions.....		14
7.5 Simple approximations applicable to conversion.....		14
7.5.1 Ideal mixture of ideal gases.....		14
7.5.2 Ideal mixture of real gases.....		14
7.5.3 Trace gas mixture.....		15
<b>8 Input quantities and their uncertainties</b> .....		<b>15</b>
8.1 Pure gas data.....		15
8.1.1 Molar mass.....		15
8.1.2 Compression factor.....		15
8.2 Gas mixture data.....		17
8.2.1 Molar mass.....		17
8.2.2 Compression factor.....		18
8.2.3 Mixing factor.....		20
8.3 Rough uncertainty estimates.....		21
<b>9 Conversion uncertainty</b> .....		<b>21</b>
9.1 General considerations.....		21
9.2 Conversion of single contents.....		22
9.3 Conversion of complete compositions.....		23
9.4 Variances and covariances of input composition data.....		25
9.4.1 General procedure.....		25
9.4.2 Correlation effects in complete composition data.....		25
<b>Annex A (informative) Assessment of state conditions</b> .....		<b>28</b>
<b>Annex B (informative) Summation relations for the expression of mixture properties</b> .....		<b>31</b>
<b>Annex C (informative) Mixture component data</b> .....		<b>32</b>
<b>Annex D (informative) Examples</b> .....		<b>38</b>
<b>Annex E (informative) Computer implementation of recommended methods</b> .....		<b>53</b>
<b>Bibliography</b> .....		<b>54</b>





