



Calculation of the Standard Uncertainty according to the EN 14181:2004 QAL3 based on Performance Specifications of the prEN 15267-3:2005

Description of Gas Monitoring AMS

| | |
|--|--------------------------|
| Automated Measuring System (AMS) based on | Multi-FID 100 TOC |
| ABB order number | |
| Intended for monitoring of | Waste incineration plant |
| Applicable EU directive | 2000/76/EC |
| Name of plant | Colacem Rassina |
| Identification of measuring point | |
| Gas to be measured | TOC |
| Smallest measurement range | 100 mg/m ³ |
| Largest measurement range (includes reference point) | 100 mg/m ³ |

Field conditions of operation used in the uncertainty assessment

| | Min. value | Max. value | |
|---|------------|------------|--------|
| Ambient temperature range | 25 | 35 | °C |
| Ambient pressure range | 970 | 1030 | hPa |
| Flow range | 30 | 100 | l/h |
| Voltage range | 190 | 250 | V |
| Period of unattended operation, Zero point | | 1 | day(s) |
| Period of unattended operation, Reference point | | 14 | day(s) |

Zero point performance specifications and resulting partial standard uncertainties

| | | | |
|---|----------------|------|-------------------|
| Drift | $u_{inst,0}$ | 3% | of smallest range |
| | | 1,73 | mg/m ³ |
| Shift due to ambient temperature change | $u_{temp,0}$ | 5% | of smallest range |
| | | 2,89 | mg/m ³ |
| Repeatability | $u_{others,0}$ | 2% | of smallest range |
| | | 1,15 | mg/m ³ |

$$\text{Zero point } s_{AMS} = (u_{inst,0}^2 + u_{temp,0}^2 + u_{others,0}^2)^{1/2}$$

| | | |
|--|-------------|-------------------------|
| Zero point s_{AMS} = | 3,56 | mg/m³ |
|--|-------------|-------------------------|

Reference point performance specifications and resulting partial standard uncertainties

| | | | |
|---|--------------|------|-----------------------------------|
| Drift | u_{inst} | 3% | of largest range |
| | | 1,73 | mg/m ³ |
| Shift due to ambient temperature change | u_{temp} | 5% | of largest range |
| | | 2,89 | mg/m ³ |
| Effect of sample gas pressure | u_{pres} | 2% | of largest range for 3 kPa change |
| | | 1,15 | mg/m ³ |
| Effect of sample gas flow | u_{flow} | 1% | of largest range |
| | | 0,58 | mg/m ³ |
| Voltage effect | u_{volt} | 2% | of largest range |
| | | 1,15 | mg/m ³ |
| Repeatability | u_{others} | 2% | of largest range |
| | | 1,15 | mg/m ³ |
| Converter efficiency for NOx | u_{ce} | 0% | of largest range |
| | | 0,00 | mg/m ³ |

$$\text{Reference point } s_{AMS} = (u_{inst}^2 + u_{temp}^2 + u_{pres}^2 + u_{volt}^2 + u_{flow}^2 + u_{others}^2 + u_{ce}^2)^{1/2}$$

| | | |
|---|-------------|-------------------------|
| Reference point s_{AMS} = | 4,12 | mg/m³ |
|---|-------------|-------------------------|

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