



## QAL1 Report

### Description of evaluated measurement procedure

Automated Measuring System (AMS) based on  
Analyzer module serial number (optional)  
Quotation or order number  
Intended for monitoring of  
Applicable EU directive  
Name of plant  
Gas to be measured  
Smallest range of AMS  
Largest range of AMS (optional)  
Smallest certified range for AMS

ACF-NT HCl		
3.250936.4		
Non-specific plant		
Linea Cottura Clinker, Camino E06		
HCl		
15	mg/m <sup>3</sup>	
100	mg/m <sup>3</sup>	
15.00	mg/m <sup>3</sup>	

### Test value and required quality at that value

Test concentration (Emission Limit Value, ELV)  
  
Limiting value according directive or standard  
Required measurement quality as 95% confidence interval  
  
Shortest averaging time of measured values  
Required response time

10	mg/m <sup>3</sup>
2001/80/EC, 2000/76/EC and EN15267-3	
40	% ov ELV
30	minutes
25	% of shortest averaging time

### Field conditions of operation used in the uncertainty assessment

	Min. value	Max. value	
Ambient temperature range	15	35	°C
Ambient pressure range	950	1030	hPa
Flow range	100	220	l/h
Voltage range	190	250	V
Accuracy of test gas according TÜV report		3.64	%
Internal diameter of sample gas line	6	mm	
Length of sample gas line	6	m	
Average flow of sample gas	160	l/h	
Time between (automatic) span calibration	180	days	
Ranges of chemical interferents for	Combustion process		

Component	Min. value	Max. value	
O <sub>2</sub>	3	21	Vol. %
H <sub>2</sub> O	1	30	Vol. %
CO	0	300	mg/m <sup>3</sup>
CO <sub>2</sub>	0	15	Vol. %
CH <sub>4</sub>	0	50	mg/m <sup>3</sup>
N <sub>2</sub> O	0	20	mg/m <sup>3</sup>
NO	0	300	mg/m <sup>3</sup>
NO <sub>2</sub>	0	30	mg/m <sup>3</sup>
NH <sub>3</sub>	0	20	mg/m <sup>3</sup>
HCl	0	50	mg/m <sup>3</sup>
SO <sub>2</sub>	0	200	mg/m <sup>3</sup>



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(continued)

### Contributing partial standard uncertainties and reference to their origins

Selectivity H <sub>2</sub> O	0.11	mg/m <sup>3</sup>
Selectivity others (largest sum)	0.50	mg/m <sup>3</sup>
Lack of fit	-0.12	mg/m <sup>3</sup>
Drift	-0.40	mg/m <sup>3</sup>
Pressure dependence	0.00	mg/m <sup>3</sup>
Temperature dependence	-0.25	mg/m <sup>3</sup>
Flow dependence	0.00	mg/m <sup>3</sup>
Voltage dependence	-0.08	mg/m <sup>3</sup>
Repeatability	0.28	mg/m <sup>3</sup>
Uncertainty of response factors	0.00	mg/m <sup>3</sup>
Uncertainty of converter efficiency (SCC-K NO <sub>x</sub> converter)	0.00	mg/m <sup>3</sup>
Response time	144	seconds
Origin of data	TÜV report, no.: 931/2120471/A (2009-2)	
Long-term drift of calibration cell	0.00	mg/m <sup>3</sup>
Origin of data	not applicable	
Uncertainty of cylinder gas	0.21	mg/m <sup>3</sup>
Origin of data	TÜV report, no.: 931/2120471/A (2009-2)	

### Determination and assessment of expanded uncertainty

	2001/80/EC and 2000/76/EC	EN15267-3
Expanded uncertainty	1.01	mg/m <sup>3</sup>
Required measurement quality as 95% confidence interval	4.00	3 mg/m <sup>3</sup>
<b>Confidence interval met</b>	<b>YES</b>	
	EN14181	EN15267-3
Total response time	148	seconds
Required response time	450	400 seconds
<b>Response time met</b>	<b>YES</b>	
<b>Conclusion</b>	<b>The AMS is ACCEPTABLE</b>	

This report confirms that the product  
**ACF-NT HCI**  
operating with system components as described of the TÜV suitability test report  
complies with the requirements of EN 14181:2004 QAL1  
according to the International Standard ISO 14956:2003  
for the above specified operating conditions.