

DIN EN 13205-2:2014-09 (E)

Workplace exposure - Assessment of sampler performance for measurement of airborne particle concentrations - Part 2: Laboratory performance test based on determination of sampling efficiency

Contents		Page
Foreword		4
Introduction		6
1	Scope	7
2	Normative references	7
3	Terms and definitions	7
4	Symbols and abbreviations	8
4.1	Symbols	8
4.1.1	Latin	8
4.1.2	Greek	10
4.2	Enumerating subscripts	10
4.3	Abbreviations	11
5	Principle	11
6	Test method	11
6.1	General	11
6.2	Test conditions	11
6.3	Test variables	12
6.3.1	General	12
6.3.2	Particle size	14
6.3.3	Wind speed	14
6.3.4	Wind direction	14
6.3.5	Aerosol composition	14
6.3.6	Sampled or internally separated mass	14
6.3.7	Aerosol charge	14
6.3.8	Specimen variability	15
6.3.9	Excursion from the nominal flow rate	15
6.3.10	Surface treatments	15
7	Experimental requirements	15
8	Calculation of sampler bias and expanded uncertainty	17
8.1	General	17
8.2	Determination of the sampling efficiency	18
8.3	Calculation of sampler bias	18
8.3.1	Calculation of the sampled aerosol concentration	18
8.3.2	Calculation of the ideal sampled aerosol concentration	20
8.3.3	Calculation of the sampler bias	21
8.4	Calculation of the expanded uncertainty of the sampler	21
8.4.1	General	21
8.4.2	Calibration of sampler test system	22
8.4.3	Estimation of sampled concentration	23
8.4.4	Bias relative to the sampling convention	23
8.4.5	Individual sampler variability	24

8.4.6	Excursion from the nominal flow rate	24
8.4.7	Combined uncertainty (of measurement)	28
8.4.8	Expanded uncertainty	31
9	Test report	31
9.1	General	31
9.2	Testing laboratory details and sponsoring organisation	31
9.3	Description of the candidate sampler	31
9.4	Critical review of sampling process	32
9.5	Laboratory methods used	32
9.6	Details of experimental design	33
9.7	Presentation of experimental results	33
9.8	Data analysis	33
9.9	Candidate sampler performance	33
9.10	Report of workplace comparison	33
9.11	Summary and information for the user of the sampler	33
	Bibliography	36