

DIN EN 12341:2014-08 (E)

Ambient air - Standard gravimetric measurement method for the determination of the PM<(Index)10> or PM<(Index)2,5> mass concentration of suspended particulate matter

Contents

	Page
Foreword	4
Introduction	5
1 Scope	7
2 Normative references	8
3 Terms, definitions, symbols and abbreviations	8
3.1 Terms and definitions	8
3.2 Symbols and abbreviations	10
4 Principle	12
4.1 Description of the standard measuring principle	12
4.2 Initial use and procedures for ongoing QA/QC	12
5 Equipment and facilities	13
5.1 Sampling system components	13
5.1.1 General	13
5.1.2 Standard inlet design	14
5.1.3 Connecting pipe work	15
5.1.4 Filter holder and filter	15
5.1.5 Flow control system	16
5.1.6 Sampling period	16
5.1.7 Leak tightness of the sampling system	16
5.1.8 Storage conditions	17
5.2 Weighing facilities	17
5.2.1 General	17
5.2.2 Weighing room	18
5.2.3 Balance	18
6 Filter conditioning, sampling and weighing procedures	19
6.1 General	19
6.2 Filter conditioning and weighing prior to sampling	19
6.3 Sampling procedure	20
6.3.1 Filter cassette loading	20
6.3.2 Filter sampling	20
6.3.3 Sample storage and transport procedures	20
6.4 Filter conditioning and weighing after sampling	20
6.5 Weighing room procedures	21
6.6 Filter blanks for ongoing quality control	21
6.6.1 General	21
6.6.2 Weighing room blanks	21
6.6.3 Field blanks	22
7 Ongoing quality control	22
7.1 General	22
7.2 Frequency of calibrations, checks and maintenance	22
7.3 Maintenance of the sampling system	23

7.4	Checks of sampler sensors	23
7.5	Calibration of sampler sensors	24
7.6	Checks of the sampler flow rate	24
7.7	Calibration of the sampler flow rate	24
7.8	Leak check of the sampling system	24
7.9	Checks of weighing room sensors	24
7.10	Calibration of weighing room sensors	25
7.11	Balance	25
8	Expression of results	25
9	Performance characteristics of the method	25
9.1	General	25
9.2	GUM concept	25
9.3	Individual uncertainty sources	27
9.3.1	General	27
9.3.2	Collected particulate mass	27
9.3.3	Time (t)	30
9.3.4	Uncertainty budget	30
9.4	Expanded uncertainty vs. EU Data Quality Objectives	32
	Annex A (normative) Design drawing of standard inlet for the sampling of PM10 and PM2,5	34
	Annex B (normative) Other samplers	35
	Annex C (informative) Scheme of PM standard sampler	44
	Annex D (informative) Suitability tests for filters	45
	Annex E (normative) Initial suitability testing of weighing facilities	47
	Annex F (informative) Results of experimental work	48
	Annex G (informative) Impactor efficiency	50
	Bibliography	52