

ISO 8518:2022-10 (E)

Workplace air - Determination of particulate lead and lead compounds - Flame and electrothermal atomic absorption spectrometric methods

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Principle	2
5	Reactions	3
6	Requirement	3
7	Reagents	3
8	Apparatus	5
9	Occupational exposure assessment	8
9.1	Assessment strategy	8
9.2	Measurement strategy	8
9.2.1	General	8
9.2.2	Personal sampling	8
9.2.3	Static (area) sampling	8
9.3	Selection of measurement conditions and measurement pattern	8
9.3.1	General	8
9.3.2	Screening measurements of time-weighted average concentration and worst-case measurements	9
9.3.3	Screening measurements of variation of concentration in either time or space, or both	9
9.3.4	Measurements for comparison with limit values and periodic measurements	9
10	Sampling	9
10.1	Preliminary considerations	9
10.1.1	Selection and use of samplers	9
10.1.2	Sampling period	9
10.1.3	Temperature and pressure effects	10
10.2	Preparation of sampling equipment	10
10.2.1	Cleaning of samplers	10
10.2.2	Loading the samplers with sampling substrate	10
10.2.3	Setting the volumetric flow rate	10
10.2.4	Field blanks	11
10.3	Sampling position	11
10.3.1	Personal sampling	11
10.3.2	Static (area) sampling	11
10.4	Collection of samples	11
10.5	Transportation	12
10.6	Storage	12
11	Analysis	12

11.1	Cleaning of glassware and plasticware	12
11.2	Preparation of sample and blank solutions	13
11.2.1	General	13
11.2.2	Selection of sample dissolution method	13
11.2.3	Hot plate digestion method	13
11.2.4	Microwave assisted digestion method	13
11.2.5	Ultrasonic extraction method	14
11.3	Instrumental analysis	15
11.3.1	Selection of analytical line	15
11.3.2	Flame atomic absorption spectrometry	15
11.3.3	Electrothermal atomic absorption spectrometry	16
11.4	Estimation of the instrumental detection limit	18
11.5	Estimation of the method detection limit and method quantification limit	18
11.6	Quality control	18
11.6.1	General	18
11.6.2	Reagent blanks and media blanks	19
11.6.3	Spiked samples and spiked duplicate samples	19
11.6.4	Certified reference materials	19
11.6.5	External quality assessment	19
12	Expression of results	19
12.1	Calculation	19
12.2	Method performance	20
12.2.1	Sample collection	20
12.2.2	Hot plate digestion and flame atomic absorption spectrometry	20
12.2.3	Microwave assisted digestion and flame atomic absorption spectrometry	20
12.2.4	Ultrasonic extraction and flame atomic absorption spectrometry	20
12.2.5	Hot plate digestion and electrothermal atomic absorption spectrometry	20
12.2.6	Microwave assisted digestion and electrothermal atomic absorption spectrometry	20
12.2.7	Ultrasonic extraction and electrothermal atomic absorption spectrometry	21
13	Special cases	21
14	Test report	21
Annex A (informative) Guidance on filter selection		23
Annex B (informative) Sampler wall deposits		26
Annex C (normative) Temperature and pressure correction		28
Bibliography		30