

ISO 16258-2:2015-09 (E)

Workplace air - Analysis of respirable crystalline silica by X-ray diffraction - Part 2: Method by indirect analysis

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
3.1	General definitions	1
3.2	Sampling definitions	2
3.3	Analytical definitions	3
3.4	Statistical terms	4
4	Principle	5
5	Sampling	5
5.1	Sampling equipment	5
5.1.1	Samplers	5
5.1.2	Collection substrates	6
5.1.3	Sampling pumps	7
5.1.4	Flow meters	7
5.1.5	Other equipment required	8
5.2	Sample collection	8
5.3	Transport	9
6	Analytical procedure	10
6.1	Apparatus and equipment	10
6.1.1	Instrument	10
6.1.2	Balance	10
6.1.3	Laboratory equipment	10
6.1.4	Equipment to recover dust from the air sample filter	10
6.1.5	Standard reference materials	10
6.1.6	Reagents	10
6.1.7	Drift correction sample	11
6.2	Gravimetric analysis for respirable dust	11
6.3	X-ray diffraction analysis	11
6.3.1	Instrumental parameters	11
6.3.2	Scan parameters	11
6.4	Calibration curve	11
6.5	Sample treatment of collection substrate	13
6.5.1	PVC and MCE filters	13
6.5.2	Cellulose nitrate filters	14
6.5.3	Polyurethane foams	14
6.6	Redeposition onto analysis filter	15
6.6.1	Crucibles from the furnace	15
6.6.2	Bottles or beakers from a plasma asher	15
6.7	Sample analysis	15
7	Calculation	16
7.1	Gravimetric analysis	16

7.2	X-ray diffraction analysis	16
7.3	Concentration of RCS	17
8	Performance characteristics	17
8.1	Limit of detection	17
8.2	Minimum detectable value	18
8.3	Limits of quantification	18
8.4	Uncertainty	18
8.5	Differences between samplers	18
8.6	Differences between analytical approaches	19
9	Test report	19
	Annex A (normative) Sample treatment strategies	20
	Annex B (informative) Example instrumental conditions	22
	Annex C (informative) Data collection parameters	23
	Annex D (normative) Correction for absorption	24
	Annex E (informative) Range of typical detection limits	26
	Annex F (informative) Typical expanded uncertainty of the indirect method	27
	Annex G (informative) Differences between samplers	28
	Bibliography	29