

ISO 22262-3:2016-10 (E)

Air quality - Bulk materials - Part 3: Quantitative determination of asbestos by X-ray diffraction method

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Range	3
5	Limit of quantification	3
6	Symbols and abbreviated terms	4
7	Requirements for quantification	4
8	Apparatus and reagents	5
8.1	Apparatus	5
8.2	Reagents	6
9	Quantitative XRD method and principle	7
9.1	Quantitative XRD methods using an external standard	7
9.2	Summary of the quantitative method	7
9.3	Preparation of working curve and measurement	8
9.4	Interference minerals	9
10	Preparation of comminuted sample	9
10.1	Preparation of comminuted sample from original sample	9
10.2	Heat treatment of comminuted samples that contain organic constituents	9
10.3	Pretreatment for preparation of residual samples	10
10.4	Preparation of sub-residual samples	11
11	Diffraction peaks for analysis of asbestos and of interference materials	11
11.1	Diffraction peaks for quantitative analysis of asbestos	11
11.2	Interference minerals	15
11.2.1	Possible interference minerals	15
11.2.2	Mass reduction treatments for dissolving interference minerals	16
12	Quantitative analysis by XRD employing substrate standard mass absorption correction	16
12.1	General	16
12.2	Preparation of working curve	17
12.2.1	Preparation of working curve I	17
12.2.2	Preparation of working curve II	17
12.3	Procedure for quantitative analysis	18
12.4	Calculation of asbestos mass fraction	18
12.4.1	Calculation of asbestos mass fraction from a residual sample	18
12.4.2	Calculation of the asbestos mass fraction from a sub-residual sample	19
12.5	Lower limits of detection and quantitative determination for the working curve	19
12.6	Evaluation of uncertainty of XRD measurement	20

13	Test report	20
	Annex A (normative) X-ray diffractometer parameters for quantitative analysis of asbestos	22
	Annex B (normative) Substrate standard mass absorption correction for asbestos quantification	26
	Annex C (informative) Types of commercial asbestos-containing materials and optimum analytical procedures	27
	Annex D (informative) Effects of matrix reduction methods	38
	Annex E (informative) Range of typical detection limits and evaluation of uncertainty of quantitative XRD measurements by XRD method	41
	Bibliography	45