List No.	Substance	CAS-No.	EINECS-No.
52	Quartz	14808-60-7	238-878-4

No.	Source and method name	Language	Year of publication	Principle of the method	Flow rate/ Recommended air volume	LOQ/ Validated working range	Indicative rating	Remarks
1	MDHS 101 Crystalline silica in respirable airborne dust – Direct on-filter analysis by infrared spectroscopy and X-ray diffraction	English	2005	A sample of respirable dust is collected on a 25 mm PVC or Ag filter using a respirable dust sampler (cyclone). The filter is analysed directly by placing it into the sample beam of either an FTIR or an XRD.	Flow rate: *DO cyclone:* 1,7 l/min *HD cyclone:* 2,2 l/min *GK2.63 cyclone:* 4,2 l/min Sampling time: ≥4 h Nominal volume: 0,6 m^3	XRD: LOQ_{Quartz}: 0,05 mg/m^3 $LOQ_{Cristobalite}$: 0,05 mg/m^3 Filter deposit: ≤2 mg FTIR: $LOQ_{Crystalline\ silica}$: 0,02 mg/m^3 Filter deposit: ≤1mg	A	Allows analysis of the sample directly on the air sampling filter At least the XRD version of this method can be extended to tridymite, see e.g. NIOSH 7500
2	MétroPol 049 Silice Cristalline par Diffraction des Rayons X	French	1999	Airborne respirable crystalline silica is sampled by a DO cyclone and collected onto a 25 mm PVC filter. For a dust deposit ≤0,6 mg/cm^2, the filter is analysed directly. Otherwise the filter is ashed in a muffle furnace or a RF plasma asher. The sample is redeposited onto a polycarbonate filter with pore size ≤0,8 µm. Analysis by XRD.	Flow rate: 1,7 l/min Sampling time: 6 h Nominal volume: 0,6 m^3	LOQ_{Quartz}: 0,050 mg/m^3	B	Allows analysis of the sample directly on the air sampling filter Performance data in AFNOR X43-296 Similar to methods described in MDHS 101 and NIOSH 7500
3	BIA 8522 Quarz	German	1995	Airborne respirable quartz is sampled by an FSP-BIA cyclone and collected onto a 37 mm 8 µm MCE filter. The filter is (low or high temperature) ashed, and the sample is mixed with KCl and pressed into a pellet. Analysis by FTIR at two wavelengths.	Flow rate: 2 l/min Sampling time: 8 h Nominal volume: 1 m^3	LOQ_{Quartz}: 0,035 mg/m^3	B	Brief method description The method can be extended to christobalite Amorphous silica interferes with the analysis

No.	Source and method name	Language	Year of publication	Principle of the method	Flow rate/ Recommended air volume	LOQ/ Validated working range	Indicative rating	Remarks
4	INSHT MTA/MA-036 Determination of Quartz in Air – Membrane Filter Method/ X-ray Diffraction	Spanish English (draft)	2000 2004	Airborne respirable quartz is sampled by a DO cyclone and collected onto a 37 mm PVC filter with pore size 5µm. The filter is ashed in a muffle furnace. To the sample is added 0,2 mg fluorite as internal standard and then all is redeposited onto a 25 or 37 mm PVC filter with pore size ≤0,8 µm. Analysis by XRD.	Flow rate: 1,7 l/min Sampling time: ≥4 h Nominal volume: 0,4 m^3	LOQ_{Quartz}: 0,06 mg/m^3 Filter deposit: ≤2 mg	B	The method can be extended to tridymite and cristobalite Similar to method described in NIOSH 7500
5	INSHT MTA/MA-057 Determinación de sílice libre cristalina en material particulada (fracción respirable), en aire. Método del filtro de membrana/ Espectrofotometría de infrarojos	Spanish	2004	Airborne respirable crystalline silica is sampled by a DO cyclone and collected onto a 37 mm PVC filter. The filter is ashed in a muffle furnace. The sample is mixed into a KBr pellet and analysed by IR spectrophotometry.	Flow rate: Depends on sampler type Sampling time: ≥3 h	Refers to NIOSH	B	Similar to method described in NIOSH 7602 No performance data published in the method
6	NIOSH 7500 Crystalline Silica, by XRD (filter redeposition)	English	2003	Airborne respirable crystalline silica is sampled by a cyclone and collected onto a 37 mm 5 µm PVC filter in a preferably conducting filter cassette. The filter is ashed in a muffle furnace or a RF plasma asher, or dissolved in tetrahydrofuran. The sample is redeposited onto a 0,45 µm Ag filter. Analysis by XRD.	Flow rate: *DO cyclone:* 1,7 l/min *HD cyclone:* 2,2 l/min *HD cyclone (aluminium):* 2,5 l/min Sampling time: 4-8 h Nominal volume: 0,5 m^3	LOQ_{Quartz}: 0,03 mg/m^3	B	Fully evaluated by NIOSH

List No.	Substance	CAS-No.	EINECS-No.
52	Quartz	14808-60-7	238-878-4

No.	Source and method name	Language	Year of publication	Principle of the method	Flow rate/ Recommended air volume	LOQ/ Validated working range	Indicative rating	Remarks
7	NIOSH 7602 Crystalline Silica, by IR (KBr pellet)	English	2003	Airborne respirable crystalline silica is sampled by a cyclone and collected onto a 37 mm 5 µm PVC filter. The filter is ashed in a muffle furnace or an RF plasma asher. The sample is mixed into a KBr pellet and analysed by IR spectrophotometry. Corrections can be made for kaolinite, calcite and amorphous silica.	Flow rate: *DO cyclone:* 1,7 l/min *HD cyclone:* 2,2 l/min *HD cyclone (aluminium):* 2,5 l/min Sampling time: 4-8 h Nominal volume: 0,5 m^3	LOQ_{Quartz}: 0,03 mg/m^3	B	Only partially evaluated by NIOSH Tridymite can only be determined in the absence of quartz and cristobalite
8	NIOSH 7603 Quartz in coal mine dust, by IR (redeposition)	English	2003	Airborne respirable coal mine dust is sampled by a cyclone and collected onto a 37 mm 5 µm PVC filter in a preferably conducting filter holder. The filter is ashed in a muffle furnace or a RF plasma asher. The sample is redeposited onto a 0,45 µm PVC-acrylonitrile filter. Analysis by IR spectrophotometry. Corrections can be made for kaolinite and calcite.	Flow rate: *DO cyclone:* 1,7 l/min *HD cyclone:* 2,2 l/min Sampling time: 4-8 h Nominal volume: 0,5 m^3	LOQ_{Quartz}: 0,065 mg/m^3	B	Evaluation unrated by NIOSH
9	OSHA ID-142 Quartz and Cristobalite in Workplace Atmospheres	English	1996	Airborne respirable quartz is sampled by a DO cyclone and collected onto a 37 mm 5 µm PVC filter. The filter is dissolved in tetrahydrofuran. The sample is redeposited onto an Ag filter. Analysis by XRD.	Flow rate: 1,7 l/min Sampling time: 4-8 h Nominal volume: 0,4 m^3	LOQ_{Quartz}: 0,025 mg/m^3 $LOQ_{Cristobalite}$: 0,08 mg/m^3 Filter deposit: ≤3 mg	A	Similar to method described in NIOSH 7500 The method can be extended to tridymite if reference material is available