

APPENDIX 2. INFORMATION FIELDS COLLECTED FROM EACH SOURCE

The input template contains 76 information fields with 26 parameters that potentially determine the exposure (d):

- Coding of the data source
 - Reference identification (Number identifying the reference as it appears in the relational database)
 - Type of document
 - Quality score for the determinant description
 - Quality score for sampling and analytical methods
- Description of the occupation titles, tasks, etc., as described in the document
 - Sampling year (d)
 - Coding of the exposure value within the document
 - Occupation/workstation title
 - Task
 - Tool
 - Tool make and model
 - Material
 - Percentage of silica specified in the document
 - % silica (type not specified) in the material
 - % quartz in the material (d)
 - % cristobalite in the material (d)
 - % tridymite in the material (d)
 - % tripoli in the material
 - Analytical method used to identify the bulk material
- Coding of occupation titles, tasks, material and tools
 - Occupation title standardized for Québec (d)
 - Task standardized for Québec (d)
 - Material standardized for Québec (d)
 - Tool standardized for Québec (d)
- Coding of construction sites
 - Class of construction site (d)
 - Type of construction site (d)

- Description of the quantitative exposure parameters
 - Number of samples (n)
 - Arithmetic mean (if n > 1)
 - Arithmetic standard deviation (if n > 1)
 - Geometric mean (if n > 1)
 - Geometric standard deviation (if n > 1)
 - Minimum value (if n > 1)
 - 5th percentile (if n > 1)
 - 10th percentile (if n > 1)
 - Median (if n > 1)
 - 90th percentile (if n > 1)
 - 95th percentile (if n > 1)
 - Maximum value (if n > 1)
 - Other statistical value 1 (if n > 1)
 - Other statistical value 1 - definition (if n > 1)
 - Gross value of the measurement (if n=1)
 - Calculated value based on the measurement objective
 - Sampling duration (minutes) (d)
 - Permissible exposure value (PEV) for quartz in Québec (Québec has only one PEV – TWAEV for quartz, namely a “Time-weighted average exposure value” over a period of 8 hours)
 - Adjusted average exposure value (AAEV) for quartz in Québec (calculation based on the sampling duration)
- Coding of the exposure characteristics
 - Contaminant measured
 - Measurement objective (d)
 - Type of sample (d)
 - Method used for sampling (d)
 - Method used for analyzing the sample (d)
 - Specific method used for analyzing the sample
 - Details of the specific method if it is not referenced
 - Analytical measurement unit
 - Limit of detection of the specific analytical method
 - Origin of the sampling duration value
 - Origin of the exposure value based on the measurement objective from the raw data or the statistical parameters
 - Contribution of a source near the exposure (d)
 - Nature of this exposure source

- Details about the other polluting task
- Nature of the sampling site (d)
- Employee training in the risks associated with silica (d)
- Association of the measurement with another measurement in the database
- Nature of the association
- Details about this association
- Coding of the control methods
 - Use of a means of prevention other than a respirator (d)
 - General ventilation (d)
 - Local exhaust ventilation near the tool (d)
 - Local exhaust ventilation built into the tool (d)
 - Wet process (spraying) (d)
 - Wet process built into the tool (d)
 - Isolation of the source (d)
 - Other control (d)
 - Details about the control methods
- Coding of respirators
 - Use of a respirator
 - Type of respirator used
 - Comments about the respirators
- General information
 - Availability of photographs
 - General comments

APPENDIX 3. CODING IN THE SILICA DATABASE

Coding of the data source

Type of document

Code	Description
1	Not specified
2	Not applicable
3	Other type of document
4	"Peer Reviewed" journal article
5	"Non-Peer Reviewed" journal article
6	Report from public organization
7	Report from a private organization
8	Public database
9	Governmental surveillance agency

Quality score for the determinant description

Code	Description
1	Not specified
2	Not applicable
3	Other
4	Information not provided or insufficient
5	Acceptable information
6	Excellent information

Quality score for sample collection and analysis

Code	Description
1	Not specified
2	Not applicable
3	Other
4	Information not provided
5	Methods similar to the referenced methods
6	Referenced methods

Description of occupation titles, tasks, etc., as described in the document**Analytical method used to identify the bulk material**

Code	Description
1	Not specified
2	Not applicable
3	Other method
4	NIOSH7500
5	Other method – X-ray
6	NIOSH7602

Coding of occupation titles, tasks, materials and tools**Occupation titles standardized for Québec**

Description
Not specified
Not applicable
Other*
Helper
Lineman helper
Surveyor
Assembler
Blaster
Bricklayer-mason
Insulator
Tile setter
Chainman
Carpenter-joiner
Boilermaker
Steam boiler stoker
Crew leader
Cement finisher
Clerk
Light machine operator
Heavy machine operator
Medium-weight machine operator
Truck driver
Line truck driver
Foreman
Roofer
Electrician
Trimmer
Splicer (fusion splicer) on fibre optic cables
Splicer of underground cables
Tinsmith
Reinforcing iron worker
Driller

Refrigeration specialist
Fibre optic fuser (splicer)
Watchman
Crane operator
Heavy machinery serviceman
Occupational hygienist
Store issue clerk
Labourer (unskilled labourer)
Decontamination labourer
Pipeline labourer
Specialized labourer
Specialized labourer (tile setter)
Elevator mechanic
Millwright (industrial)
Heavy machines mechanic
Fire protection mechanic
"T" lineperson
Reinforcing steel erector
Lineman 1 st class
Lineman 2 nd class
Lineman 3 rd class
Lineman 4 th class and lineman helper (groundman)
Erector mechanic (Glazier)
NS
Hoist operator
Fixed or mobile machine-tool operator
Generator operator
Mechanical digger operator
Pump and compressor operator
Puller and/or tensioner operator
Heavy equipment operator
Painter
Plasterer
Pile setter
Resilient flooring installer
Interior systems installer
Tire and body repairman
Diver (professional diver)
Construction locksmith
Welder
Supply welder, pipeline welder and distribution welder
Pipe welder
Gas fitter
Cable puller
Underground worker (miner)
Pipe fitter

Tasks standardized for Québec

Description
NS
Not applicable
Other tasks
Spraying
Bush hammering concrete
Breaking pieces of masonry
Traffic control
Diamond cutting of concrete or asphalt
Scaffold assembly/dismantling/cleaning
Abrasive blasting (Sand blasting)
Other demolition
Demolition with heavy equipment
Manual moving of small rocks, soil, etc.
Mechanized moving of rocks, soil, etc
Tunnel boring
Provides alignments, construction axes, elevations...
Installation of acoustic ceiling tiles
Manual or mechanized mixing of cements and mortars
Handling of dry mortar
Tuck point grinding
Surface grinding
Installation of concrete formwork
Cleaning
Observation/Supervision
Drilling masonry
Ground and stone drilling
Sanding
Installation and attachment of roof parts
Concrete preparation and finishing
Shotcreting
Sawing – Other
Sawing masonry
Sawing roofing
Support to the bricklayer-mason
Multiple tasks (Other masonry-related tasks)
Multiple tasks (Breaking masonry and other tasks)
Multiple tasks (Grinding masonry and other tasks)
Multiple tasks (Sawing masonry and other tasks)
Manual stone cutting
Filling joints of pieces of masonry
Industrial and commercial work - Other
Road work - Heavy equipment operation
Road work - Other
Electrical maintenance work
Mechanical maintenance work

Materials standardized for Québec

Description
NS
Not applicable
Other
Asphalt
Concrete
Concrete blocks
Brick
Refractory brick
Bricks and concrete blocks
Cement roofing tile
Acoustic tiles
Coal ash
Ceramic
Cement
Various materials containing concrete
Various materials containing cement
Various materials containing sand
Granite
Gypsum and jointing material
Marble
Mortar
NS
Stone
Sand
Earth

Tools standardized for Québec

Description
Not specified
Not applicable
None
Other industrial equipment
Other road equipment
Others (inert tools)
Others (mechanical tools)
Broom, shovel, squeegee and blower
Table mounted masonry saw
Bush hammer
Crusher
Tile cutter
Heavy equipment (Backhoe/excavator/bulldozer/bucket loader/mechanical digger)
Road-milling machine
Abrasive blasting machine
Drilling machine
Mortar or cement mixer
Jackhammer
Percussion drill
Surface finishing grinder
Tuck point grinder
Multiple tools (others)
Multiple tools (jackhammers/percussion drills et...)
Multiple tools (masonry saw and ...)
Drill
Sander
Walk-behind concrete saw
Portable saw
Portable masonry saw
Tunneling machine

Coding of construction sites

Class of construction site

Code	Description
1	Not specified
2	Not applicable
3	Other class
4	Residential
5	Industrial
6	Institutional and Commercial
7	Civil engineering and roadwork
8	Industrial/Institutional and Commercial
9	Institutional and Commercial / Civil engineering and Roadwork
10	Testing laboratory

Type of construction site

Code	Description
1	Not specified
2	Not applicable
3	Other type
4	New construction
5	Renovation
6	Demolition
7	New construction / Demolition

Coding of exposure characteristics

Measured contaminant

Code	Description
1	Not specified
2	Not applicable
3	Other contaminant
4	Respirable dust
5	Respirable quartz
6	Total dust
7	Inhalable dust
8	Respirable cristobalite
9	Respirable silica
10	Respirable crystalline silica
11	Respirable tridymite
12	Respirable tripoli
13	Thoracic dust
14	Thoracic quartz
15	Inhalable quartz
16	Total quartz
17	Total crystalline silica
18	Total cristobalite

Objective of the measurement

Code	Description
1	Not specified
2	Not applicable
3	Other objective
4	Specific task
5	8-hr TWA
6	Partial period
7	Worst case
8	Regulatory compliance

Type of sampling

Code	Description
1	Not specified
2	Not applicable
3	Other
4	Source
5	Breathing zone
6	Area
7	Codes #5 and #6

Method used for sampling

Code	Description
1	Not specified
2	Not applicable
3	Other method
4	Closed cassette 37 mm PVC filter + nylon cyclone 10 mm, 1.7 l/min
5	Closed cassette 37 mm PVC filter + aluminum cyclone, 2.5 l/min or 1.9 l/min
6	Closed cassette 25 or 37 mm PVC filter and HD cyclone, 2.2 l/m
7	Direct-reading instrument equipped with a cyclone
8	IOM
9	Closed cassette 37 mm, PVC filter
10	Closed cassette 25 mm, PVC filter
11	Cascade impactor
12	Direct-reading instrument
13	Method #4 and Method #7
14	Closed cassette 37 mm PVC filter + BGI cyclone 2.2 l/min
15	Method #4 and Method #5
16	Method #4 and Method #6
17	(Closed cassette 37 mm PVC filter + BGI 14L cyclone, 4.2 l/min) and (HSE GK2.69 approved cyclone, 4.2 l/min)

Method used for sample analysis

Code	Description
1	Not specified
2	Not applicable
3	Other type
4	Gravimetric analysis
5	X-ray
6	Infrared
7	Direct-reading – photometric particle counter
8	Type #5 and type #6

Specific method used for sample analysis

Code	Description
1	Not specified
2	Not applicable
3	Other method
4	NIOSH 0600
5	NIOSH 7500
6	NIOSH 0500
7	NIOSH 7602
8	NIOSH 7500 and NIOSH 7602
9	MDHS 14/2 or 14/3 (HSE)
10	MDHS 51/2 (HSE)
11	MDHS 76 (HSE)
12	OSHA ID-142
13	MDHS 51/2 and MDHS 76
14	IRSST 206-2
15	IRSST 78-1
16	IRSST 206-2 and 78-1
17	IRSST 48-1
18	IRSST 48-1 (Cycl)
19	INRS Metropol 002
20	INRS Metropol 049
21	INRS Metropol 092

Analytical measurement unit

Code	Description
1	Not specified
2	Not applicable
3	Other unit
4	mg/m ³

Origin of the sampling duration value

Code	Description
1	Not specified
2	Not applicable
3	Other
4	Supplied by the document
5	Not specified but deduced by Beaudry C
6	Not specified but deduced by Senhaji M

Origin of the exposure value based on the measurement objective from the raw data or statistical parameters

Code	Description
1	Not specified
2	Not applicable
3	Other
4	Author
5	Beaudry_C
6	Senhaji_M

Contribution from a source near the exposure

Code	Description
1	Not specified
2	Not applicable
3	Other
4	No
5	Yes

Nature of this source of exposure

Code	Description
1	Not specified
2	Not applicable
3	Other
4	Only source of exposure
5	Secondary source

Nature of the sampling site

Code	Description
1	Not specified
2	Not applicable
3	Other environment
4	Confined space
5	Restricted (staircase, hallway, tunnel)
6	Enclosed (walls, roof and windows)
7	Partially enclosed (floor and ceiling)
8	Open (outdoors)
9	Open (outdoors) and Enclosed (walls, etc.)
10	Confined (..., tunnel) and Open (outdoors)
11	Partially closed and Open

Association of the measurement with another measurement in the database

Code	Description
1	Not specified
2	Not applicable
3	Other
4	No
5	Yes - to calculate the average exposure
6	Yes – to calculate the effectiveness of a control method
7	Yes – to compare two analytical methods

Employee training on the risks associated with silica

Code	Description
1	Not specified
4	No
5	Yes

Identification of measurements whose value is below the limit of detection

For the “Arithmetic mean,” “Arithmetic standard deviation,” “Geometric mean,” “Geometric standard deviation,” “Minimum value,” “5th percentile,” “10th percentile,” “Median,” “90th percentile,” “95th percentile,” “Maximum value,” “Other statistical value,” “Gross value of the measurement” fields:

If the value reported in the document was “below the limit of detection” or “between the limit of detection and the limit of quantification” the value entered in the field was -1.

Coding of control methods

The control methods are represented by a series of 8 columns in the “Silica” database.

Use of a means of prevention other than a respirator

Code	Description
1	Not specified
4	No
5	Yes

- If the choice of this column is “Not specified (1)” on one line, the content of the 7 following columns, “VentGen / ventAspP / ventAspO / procHAr / procHO / isoSrc / Maitra,” is necessarily “Not applicable (2)”
- If the choice of this column is “No (4)” on one line, the content of the 7 following columns, “VentGen / ventAspP / ventAspO / procHAr / procHO / isoSrc / Maitra,” has to be “No (4)”
- If the choice of this column is “Yes (5)” on one line, the content of the 7 following columns, “VentGen / ventAspP / ventAspO / procHAr / procHO / isoSrc / Maitra,” can be either “NS (1),” “No (4),” or “Yes (5).”

General ventilation (VentGen)

Code	Description
2	Not applicable
4	No
5	Yes

Local exhaust ventilation near the tool (ventAspP)

Code	Description
2	Not applicable
4	No
5	Yes

Local exhaust ventilation on the tool (ventAspO)

Code	Description
2	Not applicable
4	No
5	Yes

Wet process (Spraying) (procHAr)

Code	Description
2	Not applicable
4	No
5	Yes

Process integrated into the tool (procHO)

Code	Description
2	Not applicable
4	No
5	Yes

Insulation of the source (isoSrc)

Code	Description
2	Not applicable
4	No
5	Yes

Other control method (Maitra)

Code	Description
2	Not applicable
4	No
5	Yes

Coding of respirators**Use of a respirator**

Code	Description
1	Not specified
2	Not applicable
3	Other response
4	No
5	Yes – frequency not specified
6	Yes – very infrequently
7	Yes - infrequently
8	Yes - systematically

- If the choice in this column is “Not specified (1)” on one line, the content of the following column has to be “Not applicable (2)”
- If the choice of this column is “No (4)” on one line, the content of the following column, “APR_T,” has to be “Not applicable (2)”
- If the choice in this column is “Yes (5 to 7)” on one line, the content of the following column, “APR_T,” can be all the choices except “Not applicable (2).”

Type of respirator used (APR_T)

Code	Description
1	Not specified
2	Not applicable
3	Other type of respirator
4	Filtering facepiece
5	Air purifying respirator - Half-mask
6	Air purifying respirator - Full face mask
7	Powered air purifying respirator - helmet and visor
8	Powered air purifying respirator - hood
9	Powered air purifying respirator – Half mask
10	Powered air purifying respirator – Full mask
11	Powered air purifying respirator – Not specified
12	Supplied air respirator
13	Choice #4 and choice #5
14	Choice #5 and choice #6