SAMPLING SOLUTIONS

For Mining

Recognition

Miners can be exposed to many chemical hazards in their jobs depending on the type of mine and the equipment/operations in place. Common airborne contaminants include respirable dust and respirable crystalline silica found naturally in many rocks along with diesel particulate matter (DPM) and nitrogen dioxide from diesel engine exhaust.

SKC offers active and passive sampling and real-time monitoring solutions for mining. SKC active samplers require an air sample pump to collect hazardous gases, vapors, and particulates in air; passive samplers collect hazardous vapors by diffusion without the use of an air sample pump. SKC respirable dust samplers meet the performance criteria of the ISO/CEN convention and are listed in the new US MSHA Final Rule on Respirable Crystalline Silica.

See the SKC equipment recommended for sampling:

- Respirable crystalline silica and other respirable dust
- Diesel particulate matter (DPM)
- Nitrogen dioxide
- Elemental mercury
- Heavy metals
- Noise

Evaluation with SKC Sampling Solutions

For over 60 years, SKC has led the research, design, and manufacture of quality sampling equipment and media to aid health and safety professionals in the evaluation of occupational and environmental hazards.

Choose from the SKC method-based sampling solutions for mining environments including air sample pumps, active and passive samplers, sorbent tubes, filter cassettes, and noise dosimeters following agency methods and established protocols.

See reverse side for specific method and sampling equipment/media information.

Notice: This publication is intended for general information only and should not be used as a substitute for reviewing applicable government regulations, equipment operating instructions, or legal standards. The information contained in this document should not be construed as legal advice or opinion nor as a final authority on legal or regulatory procedures.

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Sample Collection

Active Air Sampling Solutions

Target Compound	Select Methods*	SKC Sample Collection Media and Cat. No.	SKC Sample Pump and Cat. No.	Notes
Respirable crystalline silica (quartz and cristobalite)	NIOSH 7500 NIOSH 7602 OSHA ID 142	Preloaded **preweighed** PVC filter in cassette 225-8208A and cyclone 225-01-02 or 225-100 OR Parallel Particle Impactor 225-3851-PW preloaded with **preweighed** PVC filter	AirChek TOUCH, Essential, Essential+, Connect*	Flow rates to meet ISO/CEN/OSHA criteria: 225-01-02, **2.5 L/min** 225-100, **2.75 L/min** PPI 225-3851-PW is operated at 2 L/min. Models are available for 4 and 8 L/min. The 4 and 8 L/min flow rates can be used for shorter-term sampling and allow for detection of lower airborne concentrations.
Respirable dust	NIOSH 0600			
DPM	NIOSH 5040	DPM cassette with impactor and two heat-treated quartz filters 225-317; and GS-1 Respirable Cyclone 225-105 or other cyclone Preloaded quartz filter cassette without impactor and with heat-treated quartz filter 225-401	AirChek TOUCH, Essential, Essential+, Connect*	For sampling in atmospheres where it is necessary to separate DPM from coal dust
Nitrogen dioxide	Direct read	MX6 iBrid Adaptable Personal 6-gas Monitor X-am Series Personal Gas Detectors	N/A	*Contact your SKC representative to order.*
Quartz in coal mine dust	NIOSH 7603	Preloaded **preweighed** PVC filter in cassette 225-8208A and cyclone 225-01-02 or 225-100	44XRM MSHA-approved Sample Pump 224-44XRM	*See flow rates for crystalline silica above.*
Silica Dust	Direct Read	SM-7204 Direct-reading Silica Monitor 770-770A	N/A	To collect concurrent gravimetric samples of silica analysis, 37 mm PVC filter is required for supplied 37 mm in-line cassette.

**Not MSHA-approved.*

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Passive Air Sampling Solutions

Target Compound	Select Methods*/ SKC Validation	SKC Sample Collection Media and Cat. No.	Notes
Nitrogen dioxide	Research Report 1789	UME^X 200 Passive Sampler for NO_2, 500-200	
Elemental mercury	OSHA ID-140	520 Elemental Mercury Passive Sampler	

** Other methods may apply. SKC recommends those listed.*

Noise Sampling Solutions

Target Hazard	SKC Sampling Device and Cat. No.	Notes
Noise 70 to 140 dB and peak level to 143 dB	NoiseCHEK Personal Noise Dosimeter 701-001S Series	701-001S Series is intrinsically safe. Non-intrinsically safe models are available. Charging dock 701-002 or 701-003 is required.

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