Within the first six months of silica rule implementation in the construction industry, the most common OSHA citation was failure to conduct worker silica exposure assessments. The new silica rule requires employers to assess the exposure of each employee who is, or can reasonably be expected to be, exposed to respirable crystalline silica at or above the action level of 25 μg/m³ over an eight-hour day. Assessment options include:

- **Performance option** based on any combination of air monitoring data or objective data
- **Scheduled monitoring option**, the collection of personal breathing zone samples that reflect exposures on each shift, job classification, and work area
- **Further monitoring** may be required within three months if exposures are at or above the PEL (50 μg/m³) or six months if at or above the action level but below the PEL. In addition, employers must reassess exposures when any workplace changes might result in additional exposures at or above the action level.

The new silica rule allows exposure monitoring with any respirable dust sampler that conforms to ISO 7708/CEN criteria. SKC respirable dust samplers that meet this criteria are described in this brochure. If your focus is on silica, stay focused on SKC for compliance air sampling tools.

*See inside for respirable dust samplers that meet the criteria in OSHA’s Final Rule on Respirable Crystalline Silica.*
SKC Respirable Dust Samplers — Cyclones

SKC Respirable Dust Cyclones
Listed in OSHA Silica Rule

SKC offers two respirable dust cyclones to meet the performance criteria in the OSHA final silica rule (final rule pages 16439, 16441, and 16453). Both cyclones are designed for superior performance compared to other cyclones on the market.

**SKC Aluminum Cyclone** meets ISO 7708/CEN criteria at a flow rate of 2.5 L/min. See performance data relative to the ISO/CEN standard adopted by OSHA, ACGIH, and other international agencies in Reference 1 at bottom left.

**SKC GS-3 Cyclone** meets ISO 7708/CEN criteria at a flow rate of 2.75 L/min. See performance data relative to the ISO/CEN criteria in Reference 2 at bottom left.

**Respirable Dust Cyclone Features/Advantages**
- Conductive aluminum or plastic construction eliminates electrostatic effects
- Used with an open-face 3-piece cassette for even particle deposition on the filter
- Available in 25 or 37 mm
- Aluminum Cyclone has an easy-to-use calibration adapter accessory
- GS-3 Cyclone features three inlet slits that eliminate the ambient wind speed and orientation bias found with the 10-mm nylon cyclone

**Ordering**

<table>
<thead>
<tr>
<th>Sampler</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Cyclone with grit pot, requires a 3-piece cassette</td>
<td>25 mm 225-01-01</td>
</tr>
<tr>
<td></td>
<td>37 mm 225-01-02</td>
</tr>
<tr>
<td>GS-3 Cyclone with bowl adapter, cassette adapter, and grit pot, requires a 3-piece cassette</td>
<td>25 mm 225-103</td>
</tr>
<tr>
<td></td>
<td>37 mm 225-100</td>
</tr>
</tbody>
</table>

**Sampling Media - 37 mm (see www.skcinc.com for 25 mm)**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVC Filters, GLA-5000, 37 mm, 5.0-μm pore size, includes support pads</td>
<td>pk/100 225-5-37-P</td>
</tr>
<tr>
<td>Cassette Blanks, SureSeal certified leak-free, 37 mm, 3 pieces, clear styrene; require SureSeal Cassette Opener accessory</td>
<td>pk/50 225-3050LF</td>
</tr>
<tr>
<td>Preloaded PVC Filters, GLA-5000, 37 mm, 5.0-μm pore size with supports, preloaded into a 3-piece clear styrene cassette, banded; require SureSeal Cassette Opener accessory</td>
<td>pk/50 225-803</td>
</tr>
<tr>
<td>Preweighed PVC Filters in Cassettes, GLA-5000, 37 mm, 5.0-μm pore size filter with supports, preweighed, 5 decimal; preloaded into a 3-piece clear styrene cassette, banded</td>
<td>pk/12 225-8208</td>
</tr>
<tr>
<td></td>
<td>pk/100 225-8209</td>
</tr>
</tbody>
</table>

**Accessories**

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calibration Adapter for Aluminum Cyclone, 25/37 mm</td>
<td>225-01-03</td>
</tr>
<tr>
<td>Standard Calibration Jar for GS-3 Cyclone, 25/37 mm</td>
<td>225-111</td>
</tr>
<tr>
<td>Filter Cassette/Cyclone Holder, 25/37 mm</td>
<td>225-1</td>
</tr>
<tr>
<td>SureSeal Cassette Opener, 25/37 mm</td>
<td>225-13-5A</td>
</tr>
</tbody>
</table>

Visit www.skcinc.com and search on "cyclone" for more information.
SM-4000 Personal Silica Monitor
Complements Compliance Air Sampling

Silica Monitor SM-4000 is a direct-reading personal dust monitor optimized for the measurement of silica levels specified in the OSHA final silica rule. Calibrated to a known amount of silica dust, SM-4000 provides direct readings for determination of peak silica concentrations for mitigation and lower TWAs. The SM-4000 internal pump and gravimetric filter cassette (directly behind the sensor) provide for concurrent collection of a gravimetric sample for silica analysis and cross-calibration.

Use the SM-4000 for:
- Perimeter monitoring of regulated areas with user-set alarms
- Evaluation of controls and worker activities
- Recording time history of dust levels
- Filter sampling for lab analysis
- Task monitoring
- Selecting PPE

SM-4000 Features/Advantages
- Low sensing range down to 1 \( \mu \text{g/m}^3 \)
- High precision of \( \pm 3 \mu \text{g/m}^3 \)
- Readings display in \( \mu \text{g/m}^3 \) – no conversions needed
- Comes standard with GS-3 Cyclone that conforms to ISO 7708/CEN criteria (see page 2 for details)
- Concurrent filter sampling option for lab analysis and/or cross-calibration to displayed results
  - Gravimetric filter cassette located directly behind the sensor for maximum particle deposition
  - Internal pump samples at 2.75 L/min (user adjustable)
- Sensor and filter cassette clips directly in the breathing zone
- Datalogging
  - DustComm Software allows for graphical analysis and comprehensive time history reporting

Ordering

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM-4000 Personal Silica Monitor Kit includes SM-4000 Monitor, GS-3 respirable cyclone, 37-mm in-line filter cassette, serial computer cable, serial to USB adapter cable, battery charger, HAZ-DUST zeroing filter, media CD with instruction manual and DustComm Pro Software (compatible with Windows XP, 7, 8, and 10), and carry case</td>
<td>770-700</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calibration Standard for Monitor, for verifying span and optical sensor performance</td>
<td>770-710</td>
</tr>
<tr>
<td>Calibration Jar, for calibrating and setting pump flow when using a respirable cyclone</td>
<td>225-112</td>
</tr>
<tr>
<td>Cleaning Kit, for cleaning SM-4000 Monitor</td>
<td>770-305</td>
</tr>
<tr>
<td>Replacement Battery Pack</td>
<td>770-4105</td>
</tr>
</tbody>
</table>

**Performance Profile**

Sensor: Light scattering

Flow Rate: 2.75 L/min (user adjustable)

Sensing Range: 1 to 20,000 \( \mu \text{g/m}^3 \) (0.001 to 20 mg/m³)

Precision: \( \pm 3 \mu \text{g/m}^3 \) (0.003 mg/m³)

Display: Concentration in \( \mu \text{g/m}^3 \), TWA, STEL, MIN, and MAX

Accuracy: \( \pm 10\% \) to filter gravimetric SAE fine test dust

Gravimetric Filter Sampling Requirements: 37-mm PVC filter for the supplied 37-mm in-line cassette (25-mm filter and cassette options are available)

Contact your SKC Representative for more information.
Parallel Particle Impactors (PPIs)
Listed in the OSHA Silica Rule

- Collection efficiency precisely matches ISO 7708/CEN criteria adopted in the OSHA final silica rule
- Available in three flow rates for your applications
  - 2 and 4 L/min models for TWA sampling
  - 8 L/min model for shorter-term sampling
- Disposable anti-static plastic, designed for one-time use
- Disposable PPI® Sampler Options
  - Preloaded with filter by SKC
  - Preloaded with preweighed filter by SKC
  - Empty for filter loading by a laboratory or the user
  - All Disposable PPIs are preloaded with pre-oiled impaction substrates in the inlet section
- Performance published in *Journal of Physics* and referenced in OSHA final silica rule
- PPI Samplers* are available in reusable aluminum

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**Performance Profile**

**Flow Rate:** 2, 4, or 8 L/min (4-μm 50% cut-point) is model dependent; meet ISO/CEN criteria in OSHA final silica rule¹

**Principle of Operation:** Impaction separation of particles according to aerodynamic diameter

**Sampling Media:** 37-mm PVC filter/support

**Dimensions:**
- Height: 4.25 in (10.8 cm)
- Diameter: 1.8 in (4.6 cm)
- Depth: 1.2 in (3 cm)

**Weight:** 1.1 oz (31.2 gm)

¹ PPI performance data from a peer-reviewed journal article and part of the OSHA docket used to develop the OSHA final silica rule

**References**

**Sample Time:** Select PPI model and contact lab for sample time to meet LOQ

**Sample Rate:** 2, 4, or 8 L/min

**Sample Pump:** Universal XR or AirChek Series; Leland Legacy for 8 L/min

**Sample Media:** 37-mm filter and support

**Tubing:** 1/4-inch ID

* U.S. Patent No. 7,073,402

### SKC Silica Sampling Kits

Make compliance monitoring of airborne silica concentrations easy by choosing a basic or deluxe SKC Silica Sampling Kit as your complete silica sampling toolbox. Each kit includes preloaded Disposable PPI Respirable Dust Samplers, sample pump and charger, certified calibrator or rotameter, and calibration and sampling accessories, all in a convenient tool case.

Cat. No. 220-5000TC-K-S Deluxe Silica Kit with AirChek TOUCH pump and chek-mate Calibrator shown

See ordering information on pages 6 and 7.
Parallel Particle Impactors (PPIs)  
Single-use Plastic — Convenient for Professionals and Labs

### Preloaded Disposable Plastic PPI Samplers — Single Use

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. No.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preloaded Disposable PPI Samplers contain four porous plastic disc impaction substrates, one 37-mm cellulose support, and one collection filter as noted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respirable PPI (red), 8 L/min, plastic, with 5.0-μm PVC filter</td>
<td>225-3841</td>
<td>ea</td>
</tr>
<tr>
<td>Respirable PPI (orange), 4 L/min, plastic, with 5.0-μm PVC filter</td>
<td>225-3871</td>
<td>ea</td>
</tr>
<tr>
<td>Respirable PPI (gold), 2 L/min, plastic, with 5.0-μm PVC filter</td>
<td>225-3851</td>
<td>ea</td>
</tr>
</tbody>
</table>

### With Preweighed Filter

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. No.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respirable PPI (red), 8 L/min, plastic, 5.0-μm PVC filter preweighed to 5 decimals</td>
<td>225-3841-PW</td>
<td>ea</td>
</tr>
<tr>
<td>Respirable PPI (orange), 4 L/min, plastic, 5.0-μm PVC filter preweighed to 5 decimals</td>
<td>225-3871-PW</td>
<td>ea</td>
</tr>
<tr>
<td>Respirable PPI (gold), 2 L/min, plastic, 5.0-μm PVC filter preweighed to 5 decimals</td>
<td>225-3851-PW</td>
<td>ea</td>
</tr>
</tbody>
</table>

### User-loaded Disposable Plastic PPI Samplers — Single Use

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. No.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>User-loaded Disposable PPI Samplers contain four porous plastic disc impaction substrates, require collection filter and support; see information below and select based on application</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respirable PPI (red), 8 L/min, plastic</td>
<td>225-384</td>
<td>ea</td>
</tr>
<tr>
<td>Respirable PPI (orange), 4 L/min, plastic</td>
<td>225-387</td>
<td>ea</td>
</tr>
<tr>
<td>Respirable PPI (gold), 2 L/min, plastic</td>
<td>225-385</td>
<td>ea</td>
</tr>
<tr>
<td></td>
<td>225-385A</td>
<td>25</td>
</tr>
</tbody>
</table>

### Filters for User-loaded PPI Samplers

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. No.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVC Filters, 37 mm, 5.0-μm pore size</td>
<td>225-5-37</td>
<td>100</td>
</tr>
<tr>
<td>MCE Filters, 37 mm, 0.8-μm pore size</td>
<td>225-5</td>
<td>100</td>
</tr>
</tbody>
</table>

### Filter Supports for User-loaded PPI Samplers

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. No.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support Pads, cellulose, 37 mm</td>
<td>225-27</td>
<td>100</td>
</tr>
<tr>
<td>Stainless Steel Screen, 37 mm, wide mesh</td>
<td>225-26</td>
<td>ea</td>
</tr>
</tbody>
</table>

### Accessory

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. No.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calibration Adapter, for Disposable PPI Samplers only</td>
<td>225-389</td>
<td>ea</td>
</tr>
</tbody>
</table>

Visit [www.skcinc.com](http://www.skcinc.com) and search on “PPI” for more information.

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**PPI Advantages**

- Handy calibration adapter — no calibration jar needed!
- No tipping hazard! Invert PPI without causing large particles to invalidate the filter sample.
AirChek® TOUGH Features/Advantages
- Easiest and most powerful personal pump you will ever use
- Color touch screen navigation, easy programming
- Constant flow to 5 L/min for high dust loadings
- High back pressure compensation up to 50 inches of water at 2 L/min
- Powerful Li-Ion battery for up to 20+ hours at 2 L/min
- Corrects flow for changes in temperature and atmospheric pressure
- Screen lock-out feature
- Programmable using touch screen or optional DataTrac® Pro Software and PC
- Small and lightweight
- Interlocking cradles for charging and PC communication
- CalChek hands-free calibration with SKC chek-mate Calibrator

Description Cat. No.
AirChek TOUCH Starter Kit includes pump with Li-Ion battery pack, Standard Charging Cradle, power supply with cord, 3 feet (0.9 meter) of Tygon tubing, and collar clip with cable tie 100-240 V 220-5000TC-S
AirChek TOUCH Single High Flow Pump Kit includes pump with Li-Ion battery pack, Standard Charging Cradle, power supply with cord, and filter cassette holder, in a soft-sided nylon carry case 100-240 V 220-5000TC-K
AirChek TOUCH 5-pack High Flow Pump Kit includes 5 pumps with Li-Ion battery packs, 4 Standard Charging Cradles, 1 e-Cradle, power supply with cord, USB cable, and 5 filter cassette holders, in a Pelican carry case 100-240 V 220-5000TC-K5
Deluxe Silica Sampling Kit includes pump with Li-Ion battery pack, Standard Charging Cradle, power supply with cord, 4 feet (1.2 meters) of Tygon tubing, chek-mate Calibrator, 10 Preloaded Disposable PPIs Cat. No. 225-3851, and PPI calibration adapter, in a hard-sided toolbox 100-240 V 220-5000TC-K-S

Accessories Cat. No.
DataTrac Pro for AirChek TOUCH Hardware Accessory Kit includes e-Cradle, free software download, USB cable, and single power supply 877-93
Protective Pouch, nylon, with adjustable belt and shoulder strap, black 224-911
chek-mate Calibrator, 0.5 to 5 L/min flow range, includes 9-volt alkaline battery and NIST-traceable calibration certificate 375-0550N
Rotameter, 0.4 to 5 L/min, 4-inch scale 320-4A5

Recommended for use with:
Cyclones on page 2
2 and 4 L/min PPIs on pages 4 and 5

Visit www.skcin.com/touch.asp for more information.
AirChek 52
Simple, Sturdy, Economical

- **Wide flow range**
  - Constant high flows from 1000 to 3000 ml/min
  - Ideal for most personal sampling applications

- **Full-shift run times**
  - Provides 12+ hours run time at 2 L/min, 25 inches water back pressure

- **Simple design**
  - Impact-resistant case is easy to clean and decontaminate
  - Easy on/off and flow control
  - Quick change battery pack mounted on bottom of pump

- **Small, compact, and lightweight**
  - Weighs only 20 ounces (567 grams)

- **Highly accurate display**
  - Digital time display tracks sample run time in minutes up to 99,999
  - Indicates low battery condition or flow fault without losing sample run time
  - Attempts auto-restart up to 5 times from flow fault

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**Ordering**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AirChek 52 Starter Kit includes pump with NiMH battery pack, single PowerFlex charger with cable, filter cassette holder, and soft-sided nylon carry case</td>
<td>100-240 V 224-52-S</td>
</tr>
<tr>
<td>AirChek 52 Single High Flow Pump Kit includes pump with NiMH battery pack, single PowerFlex charger with cable, filter cassette holder, and soft-sided nylon carry case</td>
<td>100-240 V 224-52K</td>
</tr>
<tr>
<td>AirChek 52 5-pack High Flow Sampling includes 5 each: pumps as described above and filter cassette holders and one 5-station PowerFlex charger with 5 cables, in a Pelican case</td>
<td>100-240 V 224-52K5</td>
</tr>
<tr>
<td>Basic Silica Sampling Kit includes pump with NiMH battery pack, single PowerFlex charger with cable, 4 feet (1.2 meters) of Tygon tubing, rotameter with NIST certificate, 10 Preloaded Disposable PPIs Cat. No. 225-3851, and PPI calibration adapter, in a hard-sided toolbox</td>
<td>100-240 V 224-52K-S</td>
</tr>
</tbody>
</table>

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**Accessories**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>chek-mate Calibrator, 0.5 to 5 L/min flow range, includes 9-volt alkaline battery and NIST-traceable calibration certificate</td>
<td>375-0550N</td>
</tr>
<tr>
<td>Replacement NiMH Battery Pack</td>
<td>P78011AMH</td>
</tr>
</tbody>
</table>

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**Performance Profile**

- **Flow Range:** 5 ml/min to 3 L/min
- **Power/Run Time:** NiMH battery up to 12 hrs (2 L/min, 37-mm, 0.8-μm MCE filter)
- **Back Pressure:** Up to 25 inches water at 2 L/min
- **Tubing:** 1/4-in ID
- **Weight:** 20 oz (567 gm)
- **Dimensions:** 5 x 3 x 1.75 in (12.7 x 7.6 x 4.4 cm)
- **Calibrator:** SKC chek-mate, see below left

**Recommended for use with:**

- Cyclones on page 2
- 2 L/min PPIs on pages 4 and 5
Free SKC training information is available anytime! SKC’s scientific team — industrial hygienist, aerosol physicist, chemists, and product and electrical engineers — dedicates its science to serving you. Aside from designing and producing quality, best-in-class air sampling equipment and media, we provide the technical support, training, and online resources to help you find solutions every day.

Visit www.skcinc.com, click Training!

- Webinars
- Presentations
- Videos
- Publications
- Sampling Guides
- Online Validation Reports