

Disposable Parallel Particle Impactors (PPIs)

Listed in OSHA and MSHA Final Silica Rules

- **Collection efficiency precisely matches ISO 7708/CEN criteria adopted in the OSHA final silica rule**
- **Anti-static plastic**
- **Single use means no cleaning or two-way shipping costs!**
- **Not orientation sensitive — eliminates the tipping sample invalidation experienced with cyclones**
- **Selection of flow rates available to meet specific applications**
 - **8 L/min respirable PPI:** Enhances sensitivity (for short-term and/or low concentration sampling) using high flow pumps; ideal for lower OSHA PEL for silica
 - **4 L/min respirable PPI:** Enhances sensitivity and can be used with personal pumps; TWA sampling for ≥ 4 hours; ideal for lower OSHA and MSHA PEL for silica
 - **2 L/min respirable PPI:** 8-hour TWA sampling; ideal for new OSHA and MSHA silica PEL
- **Disposable PPI Sampler Options**
 - Preloaded with filter by SKC; also available with preweighed filters — no assembly required
 - Empty for filter loading by a laboratory or the user
 - All Disposable PPI Samplers are preloaded with pre-oiled impaction substrates in the inlet section
- **Reusable PPIs are available (visit www.skcinc.com)**
- **Thoracic models are available (visit www.skcinc.com)**

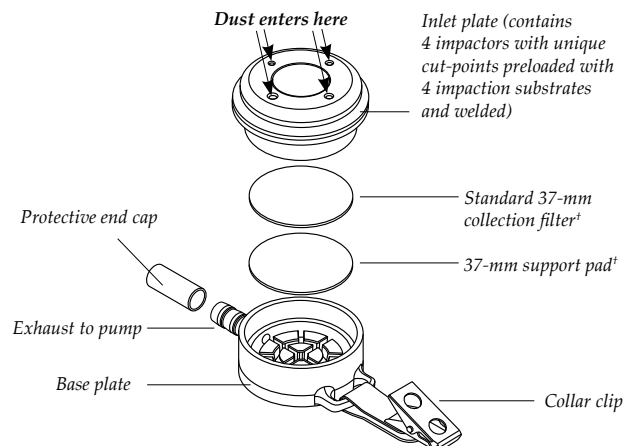


Both OSHA and MSHA Final Silica Rules allow exposure monitoring with respirable dust samplers that conform to ISO 7708/CEN criteria. SKC PPI Samplers provide the closest match to the ISO 7708/CEN respirable criteria and are listed in both the OSHA Final Silica Rule (page 16439) and the MSHA Final Silica Rule (page 28331) as examples of samplers that conform to that criteria and meet requirements. PPI Sampler performance data relative to the ISO 7708/CEN criteria is published in the *Journal of Physics*, Conference Series 151, 2009.

How SKC PPI Samplers Work

Only the patented* SKC PPI Samplers contain four small impactors in the inlet section of the device. Each impactor features a unique 50% cut-point to target a specific one-quarter segment of the ISO 7708/CEN curve resulting in a precise fit along the entire curve. A sample pump pulls air through the inlet nozzle of each impactor in the inlet plate. Particles larger than each impactor's 50% cut-point are scrubbed and retained on the porous oiled impaction substrate, while smaller particles continue to the standard 37-mm collection filter for analysis.

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



† User-installed on non-preloaded PPIs; available already installed in preloaded PPIs. See Ordering Information.

SKC Parallel Particle Impactor (PPI®) Samplers are similar to traditional 37-mm filter cassettes in that they collect respirable dust on a standard 37-mm filter. That's where the similarity ends! Impaction-based PPI Samplers are designed to provide a precise match to the ISO 7708/CEN criteria for respirable samplers, and **they do it in a unique way** (see *How PPI Samplers Work at right*). In addition, Disposable PPI Samplers feature many advantages! See below.

The Disposable PPI Advantage

- Single-use eliminates cleaning and two-way shipping costs
- Small size and light weight (but tough), providing worker comfort, even under helmets or other PPE
- Choice of flow rates for maximum flexibility in pump options, sample duration, and contaminant concentration
- Preweighed option is ready to use — no assembly required and is ideal for silica and total dust analysis

PPI Samplers Listed in OSHA and MSHA Final Silica Rules

To better protect workers in construction and general industry, OSHA put into effect a Final Silica Rule in 2016. MSHA published its Final Silica Rule on April 18, 2024, to reduce miner exposure to respirable crystalline silica (RCS). These regulations provide for an RCS permissible exposure limit (PEL) of 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) for a full shift (calculated as an 8-hour time-weighted average or TWA) and establish an Action Level for RCS at 25 $\mu\text{g}/\text{m}^3$ for a full shift (calculated as an 8-hour time TWA). Both OSHA and MSHA rules require employers to evaluate the exposure of each employee who is, or could reasonably be expected to be, exposed to RCS. Assessment options are spelled out in each regulation. Visit <https://bit.ly/3UUhJA8C> for the OSHA Final Silica Rule and <https://bit.ly/3Q6j4fl> for the MSHA Final Silica Rule.

See comparative performance graph and resources on back.



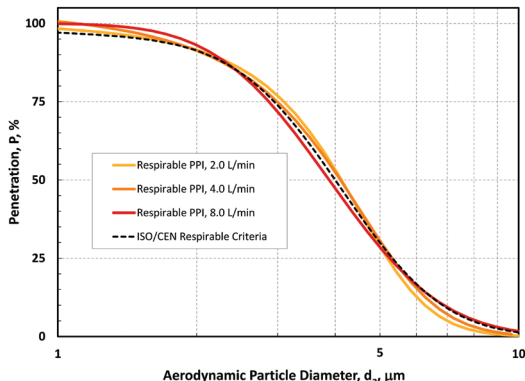
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SKC PPI Performance

SKC PPI models were evaluated for their performance against the ISO 7708/CEN respirable convention. Potassium sodium tartrate (PST), dioctyl phthalate (DP), glass spheres (GS), and coal mine dust were used as test aerosol. A load of approximately 6.8 mg of coal mine dust on the PPI substrates did not adversely affect PPI performance. See [Cyclone vs. PPI Comparison for more performance information](#).



Comparison of PPI Samplers' performance with the ISO 7708/CEN respirable convention

PERFORMANCE PROFILE

Sampling Rate:	2, 4, or 8 L/min respirable
Sample Pump:	AirChek® Touch Series for 2 and 4 L/min Leland Legacy® for 8 L/min
Sample Time:	Dependent on method used
Sample Media:	37-mm filter, preloaded PPIs available with 5.0- μ m PVC or 1.0- μ m PTFE (no support); user loaded models can be loaded with 5.0- μ m PVC or 0.8- μ m MCE depending on method or application. Models available with preweighed 5.0- μ m PVC filter
Tubing:	1/4-inch ID
Impaction Substrate:	Four 3/8-in diameter pre-oiled porous plastic discs (<i>preloaded in all Disposable PPIs</i>)
Analysis:	Gravimetric or chemical
Body Material:	Conductive ABS plastic
Dimensions:	Height (clip to exhaust): 4.25 in (10.8 cm) Diameter: 1.8 in (4.6 cm) Depth: 1.2 in (3.0 cm)
Weight:	1.1 oz (31.2 gm)
Shelf-life:	18 mos from date of manufacture (based on preloaded impaction substrate)

ORDERING

Available as Cat. No.

Preloaded

225-3841**	Respirable PPI (red), 8 L/min, 5.0- μ m PVC filter
225-3871**	Respirable PPI (orange), 4 L/min, 5.0- μ m PVC filter
225-3851**	Respirable PPI (beige), 2 L/min, 5.0- μ m PVC filter
225-3852**	Respirable PPI (beige), 2 L/min, 1.0- μ m PTFE filter, no support

Preweighed (to 5 decimals, supplied in tamper-evident bag)

225-3841-PW**	Respirable PPI (red), 8 L/min, 5.0- μ m PVC filter
225-3871-PW**	Respirable PPI (orange), 4 L/min, 5.0- μ m PVC filter
225-3851-PW**	Respirable PPI (beige), 2 L/min, 5.0- μ m PVC filter

User-loaded (requires collection filter and support)

225-384**	Respirable PPI (red), 8 L/min
225-387**	Respirable PPI (orange), 4 L/min
225-385**	Respirable PPI (beige), 2 L/min

Recommended Accessory

225-389	Calibration Adapter for Disposable PPI Samplers
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**Designed for one-time use

For details, bulk packs, and additional accessories, visit www.skinc.com/ppi-sampler

RESOURCES

[Top 3 Reasons to Choose PPI \(PDF\)](#)

[Cyclone vs. PPI Comparison \(PDF\)](#)

[SKC Performance Summary of Third-party Validation of SKC PPI Respirable Impactor Performance \(PDF\)](#)

[2 and 4 L/min Respirable PPI Impactor Performance Report - Rutgers Project \(PDF\)](#)

[8 L/min Respirable PPI Impactor Performance Report - Rutgers Project \(PDF\)](#)

MSHA Final Silica Rule, <https://bit.ly/3Q6j4fl>

OSHA Final Rule on Respirable Crystalline Silica, www.osha.gov/silica/

[SKC WebIH Webinar: MSHA's Final Silica Rule-Navigating Update and Implications](#)

Stacey, P., Thorpe, A., and Echt, A., "Performance of High Flow Rate Personal Respirable Samplers When Challenged with Mineral Aerosols of Different Particle Size Distributions," *Ann. Occup. Hyg.*, 60, 2016, pp. 479-492, <http://dx.doi.org/10.1093/annhyg/imev097>

Trakumas, S., Salter, E., "Parallel Particle Impactor - Novel Size-selective Particle Sampler for Accurate Fractioning of Inhalable Particles," *Journal of Physics: Conference Series 151* (2009), 16 pp., 012060, [doi: 10.1088/1742-6596/151/1/012060](https://doi.org/10.1088/1742-6596/151/1/012060)