Disposable 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**
- **Anti-static plastic**
- **Single use means no cleaning or two-way shipping costs!**
- **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 new lower OSHA PEL for silica
  - ***4 L/min respirable PPI:*** Enhances sensitivity and can be used with personal pumps; TWA sampling for ≥ 4 hours
  - ***2 L/min respirable PPI:*** 8-hour TWA sampling
- **Disposable PPI Sampler Options**
  - Preloaded with filter by SKC; also available with preweighed filters
  - 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 aluminum PPIs are available *(visit www.skcinc.com)***
- **Thoracic models are available *(visit www.skcinc.com)***

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 new criteria for respirable samplers, and **they do it in a unique way** *(see How PPI Works at right)*. In addition, PPI Samplers feature many advantages! *See below.*

The Disposable PPI Advantage

- Convenient single-use sampler eliminates assembly, cleaning, and two-way shipping costs
- Small size and light weight provides worker comfort, even under helmets or other PPE
- Choice of flow rates for maximum flexibility in pump options, sample duration, and contaminant concentration

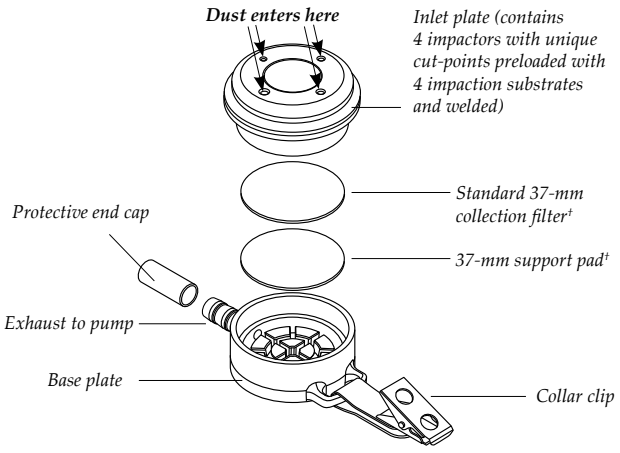
PPI Samplers Meet Requirements in OSHA Final Rule on Respirable Crystalline Silica

In its final silica rule, OSHA set a new permissible exposure limit (PEL) of 50 µg/m^3 across all industries covered by the rule and abandonded the previous silica PEL formula. In addition, the OSHA final silica rule states that any sampler conforming to the ISO 7708/CEN criteria (50% cut-point of 4 µm) can be used for worplace silica and lists examples of samplers, including the impaction-based SKC PPI Samplers (final rule page 16439). The ISO 7708/CEN criteria have been adopted by NIOSH, ACGIH, and many other global occupational hygiene organizations. PPI sampler performance data, relative to the ISO 7708/CEN criteria, was published in the *Journal of Physics,* Conference Series 151, 2009 and was made part of the OSHA Docket used to develop the OSHA final silica rule.

How PPI Works

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/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 with preloaded PPIs. See Ordering Information.

See comparative performance graph and references on back.

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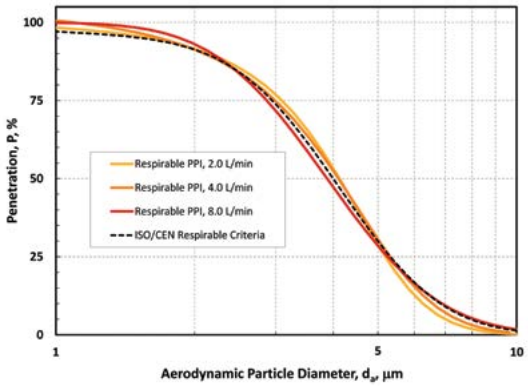
SKC PPI Performance

SKC PPI models were evaluated side by side with other size-selective samplers. 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.



Comparison of PPI Samplers' performance with respirable conventions

References

Trakumas, S., Hall, P., Personal Respirable Sampler Containing Four Impactors Arranged in Parallel, Abstracts of 23rd Annual AAAR Conference, Atlanta, GA, 2004, p. 78

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,

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Trakumas, S., "High-flow Personal Respirator Dust Sampler for Increased Sensitivity," Poster 261, AIHce 2010, Denver, CO

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Trakumas, S., Salter, E., "High-Flow Personal Sampler to Monitor Exposure to Respirable Crystalline Silica at New Lower TLV" PowerPoint Presentation

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

ISO 7708:1995 (2008), Air Quality — Particle Size Fraction Definitions for Health-related Sampling, www.iso.org, search on 7708

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://annhyg.oxfordjournals.org/content/60/4/479.full.pdf

Learn more at **www.skcinc.com!**

Performance Profile

Sampling Rate: 2, 4, or 8 L/min respirable

Sample Pump: Universal XR or AirChek® for 2 and 4 L/min, Leland Legacy® for 8 L/min

Sample Time: Dependent on method used

Sample Media: 37-mm, 5.0-µm PVC filter

Tubing: ¼-inch ID

Impaction Substrate: Four $^3/_8$-in diameter pre-oiled porous plastic discs (*preloaded in all Disposable PPIs*)

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

Ordering Information

Disposable PPI Samplers*		Cat. No.
Preloaded Disposable PPI Samplers contain four porous plastic disc impaction substrates, one 37-mm collection filter, and one 37-mm cellulose support		
Respirable PPI (red), 8 L/min, plastic, with 5.0-µm PVC collection filter		**225-3841**
Respirable PPI (orange), 4 L/min, plastic, with 5.0-µm PVC collection filter		**225-3871**
Respirable PPI (gold), 2 L/min, plastic, with 5.0-µm PVC collection filter		**225-3851**
Respirable PPI (gold), 2 L/min, plastic, with 1.0-µm PTFE filter on polypropylene support, with pad		**225-3852**
With Preweighed Filter		
Respirable PPI (red), 8 L/min, plastic, 5.0-µm PVC filter preweighed to 5 decimals; unit supplied in tamper-evident inner bag		
Respirable PPI (orange), 4 L/min, plastic, 5.0-µm PVC filter preweighed to 5 decimals; unit supplied in tamper-evident inner bag		**225-3841-PW**
Respirable PPI (gold), 2 L/min, plastic, 5.0-µm PVC filter preweighed to 5 decimals; unit supplied in tamper-evident inner bag		**225-3871-PW**
		225-3851-PW
User-loaded Disposable PPI Samplers contain four porous plastic disc impaction substrates. *Require collection filter and support; see below*		
Respirable PPI (red), 8 L/min, plastic		**225-384**
Respirable PPI (orange), 4 L/min, plastic		**225-387**
Respirable PPI (gold), 2 L/min, plastic		**225-385**
Respirable PPI (gold), 2 L/min, plastic	pk/25	**225-385A**

Recommended Collection Filters for User-loaded PPI Sampler, *required for sampling. Select a filter based on your application.*	
PVC Filters, 37 mm, 5.0 µm, pk/100	**225-5-37**
MCE Filters, 37 mm, 0.8-µm pore size, pk/100	**225-1939**

Filter Supports for User-loaded PPI Sampler, *required for sampling Select either cellulose or stainless steel.*	
Support Pads, cellulose, 37 mm, pk/100	**225-27**
Stainless Steel Support Screen, 37 mm, wide mesh	**225-26**

Accessories	
Calibration Adapter for Disposable PPI	**225-389**
Forceps, stainless steel, with non-serrated flat tips	**225-8371**

* *Designed for one-time use*

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