

Parallel Particle Impactors

The Power of 4 Impactors in 1 Respirable or Thoracic Sampler

NEW!

- Match entire international respirable or thoracic definition more closely than any other sampler available
- Economical and reusable
 - Uses any suitable 37 mm filter
- Disposable pre-oiled impaction substrates eliminate effects of particle bounce and buildup on sampling accuracy
 - Sampling efficiency is independent of collected particle type
- Small size is ideal for personal or area sampling
- Respirable and thoracic models available
- Meet requirements for NIOSH Method 5524 and compounds with ACGIH® Thoracic TLV®s



The PPI 4 in 1 Advantage

Only the SKC Parallel Particle Impactor (PPI)* has the power of 4 impactors in 1 small sampler to provide the closest match to the ACGIH/ISO/CEN thoracic or respirable curves. A job no single personal impactor can do alone!

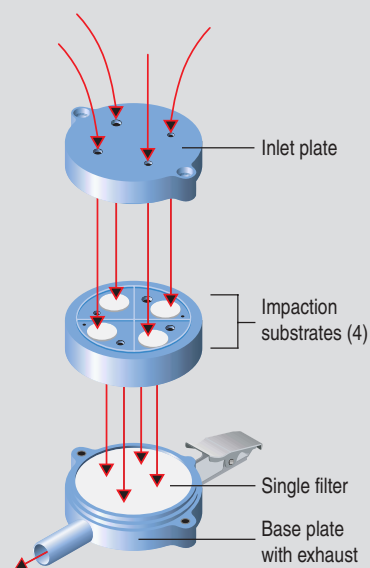
PPI Eliminates Effects of Particle Buildup and Bounce

Disposable pre-oiled porous plastic impaction substrates eliminate the negative effects particle buildup and bounce can have on sample accuracy by firmly trapping larger particles. Unlike other samplers, SKC PPI sampling efficiency is not dependent on the type of particle collected.

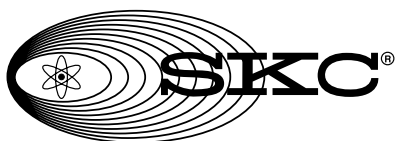
See PPI Performance on page 2.

PPI – How it works

The PPI contains four impactors arranged in parallel, each with a different cut-off size that targets a specific segment of the selected curve. A personal sample pump provides a 2 L/min flow to operate each impactor simultaneously, but independently. The sample collects on a single 37-mm filter and is analyzed gravimetrically to provide a respirable or thoracic result that is closer to the entire range of the selected curve than any other sampler available. PPI models are available for respirable or thoracic sampling at 2 L/min.



* Patent pending



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Parallel Particle Impactor

The Closest Match to the International Respirable or Thoracic Definitions

SKC PPI Performance¹

The Parallel Particle Impactor models were evaluated in a test chamber by measuring aerosol concentration upstream and downstream of the sampler using an Aerodynamic Particle Sizer. Potassium sodium tartrate (PST), dioctyl phthalate (DP), glass spheres (GS), and coal mine dust were used as test aerosol. Performance of the SKC PPIs and other available size-selective samplers were compared.

Data in Figures 1 and 2 indicate that the performance of the Respirable PPI and Thoracic PPI are in agreement with their respective ACGIH/CEN/ISO conventions. Experiments revealed that a load of approximately 6.4 mg of coal mine dust on the sampler substrates (impaction plates) did not adversely affect the performance of the SKC PPIs.

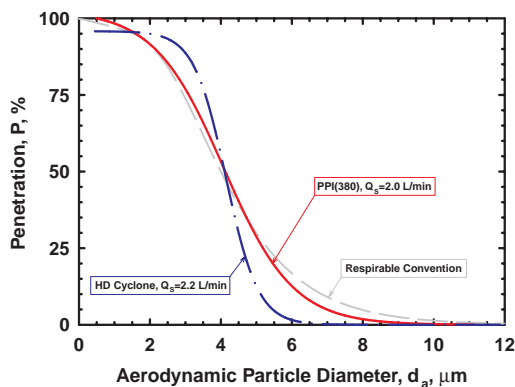


Figure 1. Comparison of penetration characteristics measured for the respirable PPI Sampler and Higgins-Dewell Cyclone. PST test particles were used.

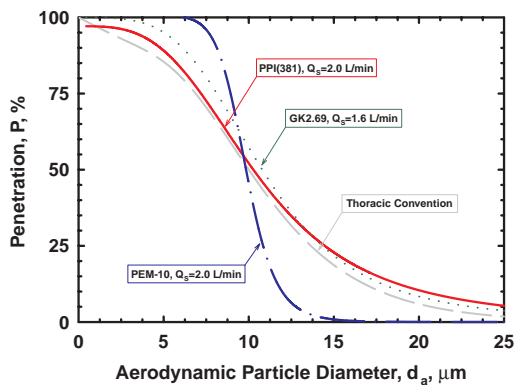


Figure 2. Comparison of penetration characteristics measured for the thoracic PPI Sampler, PEM 10 Sampler, and GK2.69 Cyclone. PST test particles were used.

Reference

¹ Trakumas, S., Hall, P., Personal Respirable Sampler Containing Four Impactors Arranged in Parallel, Abstracts of 23rd Annual AAAR Conference, Atlanta, GA, 2004, p. 78.

Performance Profile

Sampling Rate:	2 L/min
Sample Pump:	AirChek® Series
Sample Time:	Dependent on method used.
Sample Media:	PVC filter, 5.0 μm, 37 mm or PTFE filter*, 2.0 μm (NIOSH 5524). Use cellulose pad or stainless steel screen for support.
Impaction Substrate:	Four 3/8-in dia. pre-oiled porous plastic disks
Analysis:	Gravimetric or other
Body Material:	Conductive aluminum
Dimensions:	Height (clip to exhaust): 3.74 in (9.4 cm) Diameter: 1.7 in (4.3 cm) Depth: 1.1 in (2.8 cm)
Weight:	3.3 oz (93 gm)

For Sampling:

Each sample requires one filter, support, and 4 substrates. The PPI includes 4 pre-oiled disposable substrates suitable for one sample. Subsequent samples require new substrates and filters.

PPI Samplers	Cat. No.	Qty.
Respirable PPI, 2 L/min	225-380	ea
Thoracic PPI, 2 L/min	225-381	ea

Collection Filters for PPI, required for sampling		
PVC Filters, 37 mm, 5.0 μm	225-8-01-1	50
PTFE Filters*, 37 mm, 2.0 μm, for metalworking fluids, NIOSH 5524	225-17-07*	50

Filter Supports, required for sampling. Select either cellulose or stainless steel		
Support Pads, cellulose, 37 mm	225-27	100
Stainless Steel Screen, 37 mm	225-26	ea

Impaction Substrates, 4 required for each sample		
Replacement Impaction Substrates, 3/8-in dia., pre-oiled, ready-to-use, disposable porous plastic disks, limited shelf-life	225-388	200

Accessories		
Calibration Jar	225-111	ea
Forceps, stainless steel, non-serrated flat tips	225-8371	ea
Petri Dish Slide, for transport of filters up to 47 mm	225-2-01	100
Filter-Keeper™, for transporting and storing 37 mm filter samples	225-8303	100

* Back pressure on Teflon filters can vary within the same lot.

