

SAMPLE SETUP GUIDE

Sampling Train — Disposable PPI Samplers

SKC Disposable Parallel Particle Impactor (PPI) Samplers are specifically designed to provide the closest match to the ISO 7708/CEN criteria for the respirable fraction as required by the OSHA silica rule and for the thoracic fraction. The PPI Sampler inlet contains four miniature impactors, each with a unique 50% cut-point that corresponds to a specific point along the ISO 7708/CEN curve. Each impactor contains a pre-oiled porous plastic impaction disc that scrubs larger particles, while smaller particles collect on a single standard 37-mm filter for analysis. Respirable PPI Samplers are available for use with a sample pump at 2, 4, or 8 L/min, providing options for pump choice, sample duration, and contaminant concentration. The 4 and 8 L/min respirable models allow for collection of more contaminant mass for lower occupational exposure limits (OELs) or for short-term task monitoring. The thoracic PPI Sampler is available for use at 2 L/min. This Sample Setup Guide demonstrates how to set up a **Sampling Train Using Disposable PPI Samplers**.

Required Equipment:

1. An **air sampling pump** capable of sampling at the recommended flow rate with the sampling medium in line, such as:
 - SKC AirChek® XR5000 or AirChek TOUCH (for 2 and 4 L/min)
 - SKC Leland Legacy® (for 8 L/min)
2. An **airflow calibrator** such as:
 - SKC chek-mate® Calibrator with CalChek Cat. No. 375-0550N
 - TSI 4146 Calibrator Cat. No. 740-4146
3. SKC **Disposable Parallel Particle Impactor (PPI)**, such as:
 - 2 L/min (respirable) PPI Cat. No. 225-385
 - 2 L/min (thoracic) PPI Cat. No. 225-386
 - 4 L/min (respirable) PPI Cat. No. 225-387
 - 8 L/min (respirable) PPI Cat. No. 225-384



4. Recommended Collection Filters:

- SKC **PVC Filter** Cat. No. 225-5-37 (for respirable)
- SKC **PTFE Filter** Cat. No. 225-27-07 (for thoracic metalworking fluids)
- SKC **MCE Filter** Cat. No. 225-5 (for thoracic)

5. SKC Cellulose Support Pads Cat. No. 225-27

6. SKC Calibration Adapter for Disposable PPI Cat. No. 225-389

Introduction

The selected PPI model will determine the required flow rate at which the sampler will provide either a 4- μ m cut-point (respirable) or 10- μ m cut-point (thoracic) meeting the ISO 7708/CEN criteria. See individual pump operating instructions to ensure the pump is capable of sampling at the required flow rate.

The Disposable PPI Samplers are available in preloaded or user-loaded options:

- **Preloaded** by SKC — loaded with collection filter and support pad. Sampler arrives fully assembled.
- **User-loaded** — empty for filter loading by a lab or user. Sampler arrives in two separately wrapped pieces: the impaction plate containing the impaction substrates and the base plate.

1. Prepare the Sampler (User-loaded PPI only)

If using Preloaded PPI, proceed to Step 2.

Remove shrink wrap from inlet plate and base plate. Load base plate with representative sampling media for calibration, that is, support pad and filter representative of the type to be used in the field (conditioning and preweighing are not required for representative sampling media used for calibration). Using forceps, insert a support pad and collection filter into the base plate. *See Figure 1.* Lay the loaded base plate on a flat surface, align the inlet plate onto the base plate, and press down firmly for an even seal.

2. Set Up the Calibration Train — Figure 2

Press the calibration adapter onto the top of the sampler inlet plate. Remove the end cap from the sampler exhaust. Use a short length of flexible tubing to connect the sampler exhaust to the sample pump inlet. Use another short length of tubing to connect the calibration adapter inlet to the calibrator suction port.

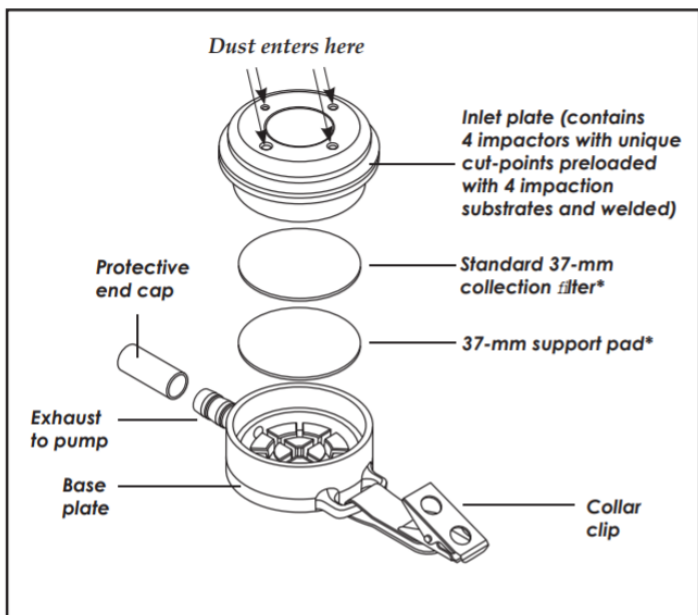


Figure 1. Disposable PPI Assembly
* Installed by user in User-loaded option

4. Prepare the Sample Media (User-loaded PPI only)

If using Preloaded PPI, proceed to Step 5.

If gravimetric sampling, condition and preweigh a method-specified filter according to method procedures. When ready to start sampling, insert the new sampling media (support pad and conditioned, preweighed collection filter) into a new PPI Sampler. See Step 1 and Figure 1.

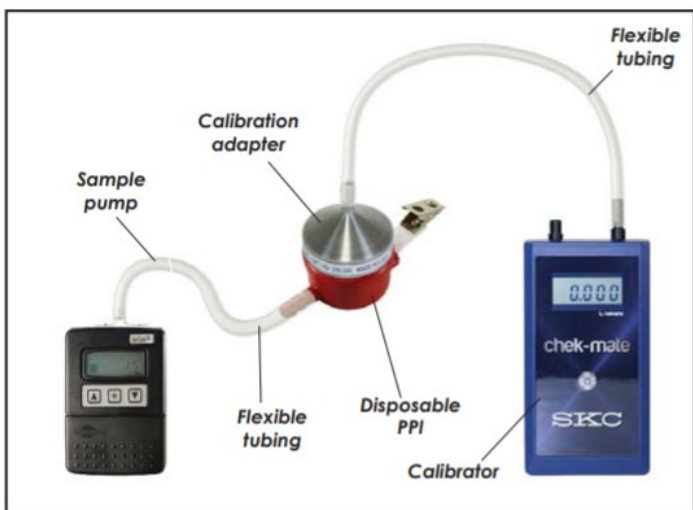
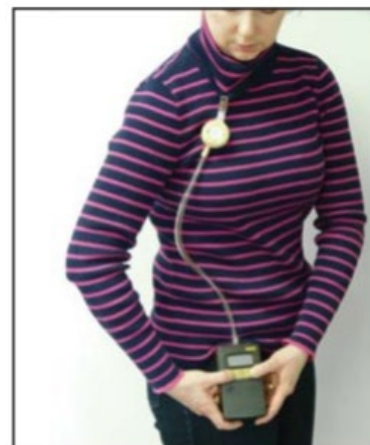


Figure 2. Calibration train

3. Calibrate the flow rate

After setting up the calibration train, allow the pump to equilibrate from one temperature extreme to another and run it for 5 minutes before calibrating. With the representative sampling media in line, calibrate the sampler to the flow rate of the PPI Sampler model being used (2, 4, or 8 L/min). See *pump and calibrator operating instructions for calibrating flow rate*. Once the flow rate has been calibrated, remove the PPI Sampler from the calibrator and the calibration adapter from the PPI Sampler. Record the pre-sample flow rate. Remove the representative sampling media from the user-loaded PPI Sampler. Set aside the representative sampling media or sampler to verify the flow rate after sampling.

5. Sample

Use flexible tubing to connect the PPI Sampler exhaust to the inlet of the calibrated sample pump. Clip the PPI Sampler to the worker's collar in the breathing zone and the pump to the worker's belt. Run the sample pump. Note the start time and any other pertinent sampling information.

6. End Sampling

At the end of the sampling period, place the pump in Hold or stop the pump and record the sample stop time and other pertinent information. Remove the sampler from the sample pump.

7. Remove the Collection Filter (User-loaded PPI only)

If using Preloaded PPI, proceed to Step 8.

Disassemble the sampler. Using forceps, remove the collection filter from the base plate. Place the filter in an appropriate container for shipment.

8. Reinstall the Representative Sampling Media or Sampler and Calibration Train to verify pump flow rate. See *pump and calibrator operating instructions for verifying flow rate*.

9. Prepare Samples for Shipment and Analysis

Pack samples, field blanks, and all pertinent sampling information securely for shipment to a laboratory for analysis.

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