ANALYT MESSTECHNIK



INSTRUCTIONS FOR USE

SKC User-loaded Disposable PPI Samplers

Loading, flow rate verification and sampling with the user-loaded SKC Disposable Parallel Particle Impactors for respirable dust at 2, 4 or 8 L/min and thoracic dust at 2 L/min, with specifications and ordering information.

AMTC-IN-0010

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About this document

The SKC Disposable Parallel Particle Impactor (PPI) is a single-use sampler that separates the respirable or the thoracic fraction of airborne dust and collects it on a standard 37 mm filter. These instructions cover the four **user-loaded** models: they arrive with the impaction substrates already sealed into the inlet plate, and you fit the collection filter and its support yourself. They take you from an unpacked sampler to a finished sample — loading the sampler, verifying the flow rate, sampling and sending the sample to the laboratory — and ends with the technical data and the order numbers of samplers, filters and accessories.

If you are new to the sampler, read Product and supplied items (p. 4) first. For routine use, follow Before use (p. 6) (with Verifying the flow rate (p. 7)), Procedure (p. 9) and After use and sample handling (p. 11) in that order.

These instructions apply to the Disposable PPIs Cat. No. 225-384, 225-385, 225-386 and 225-387. The preloaded models, which come with filter and support already fitted, have a manual of their own. Analyt-MTC supplies and supports the samplers; for questions and orders see Service and contacts (p. 14).

Keep these instructions for the lifetime of the product. The current revision is on the product page at analyt-mtc.com.

How these instructions mark information

Note
Information that helps understanding; never a hazard.

Document information

Title	SKC User-loaded Disposable PPI Samplers — Instructions for use
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Applies to	Disposable PPI, user-loaded: Cat. No. 225-384, 225-385, 225-386, 225-387
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Manufacturer	SKC Inc.

Revision history

Rev.	Date	Change
2	October 2026	Quality programme: new document type, number and identity pages.
1	October 2026	First issue.

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CHAPTER 1

Product and supplied items

The Disposable PPI is an impaction-based filter sampler. Four small impactors in its inlet remove the particles that are too large for the fraction you want to measure; what passes them is collected on a 37 mm filter for weighing or chemical analysis.

The four models

Each model is made for one particle-size convention and one flow rate, and is colour-coded so that it can be told apart at a glance. All four are user-loaded: the impaction substrates are fitted, the collection filter and support are not.

Order code	Colour	Convention	Flow rate	Suitable pump
225-384	Red	Respirable	8 L/min	Leland Legacy
225-387	Orange	Respirable	4 L/min	AirChek TOUCH Series
225-385	Gold	Respirable	2 L/min	AirChek TOUCH Series
225-386	Blue	Thoracic	2 L/min	AirChek TOUCH Series

The samplers are designed to follow the collection efficiency curves for respirable and thoracic dust defined by ISO 7708 and CEN (the ISO/CEN conventions), which ACGIH and other occupational hygiene bodies have adopted. The OSHA and MSHA final rules on respirable crystalline silica list the PPI as a sampler meeting the ISO 7708 criteria. The thoracic model meets the requirements for substances with an ACGIH thoracic TLV.

Because each sampler is used once, there is nothing to clean afterwards, and the impaction substrates come already fitted in the inlet plate. The sampler is small enough to be worn on the collar, even under a helmet or other protective equipment.

Principle of operation

The sample pump draws air through the inlet plate, where it divides between the nozzles of four impactors working in parallel. Each impactor has its own 50 % cut-point and covers one quarter of the ISO/CEN curve; together they follow the whole curve closely.

In each impactor, particles larger than its cut-point cannot follow the air stream and are trapped on a porous, oiled impaction substrate. Smaller particles pass on to the 37 mm collection filter in the base plate, which is analysed. The air leaves through the exhaust to the pump.

Each model is rated for one flow: 2, 4 or 8 L/min for the respirable models and 2 L/min for the thoracic model. This is why the flow is verified before sampling (see Verifying the flow rate (p. 7)).

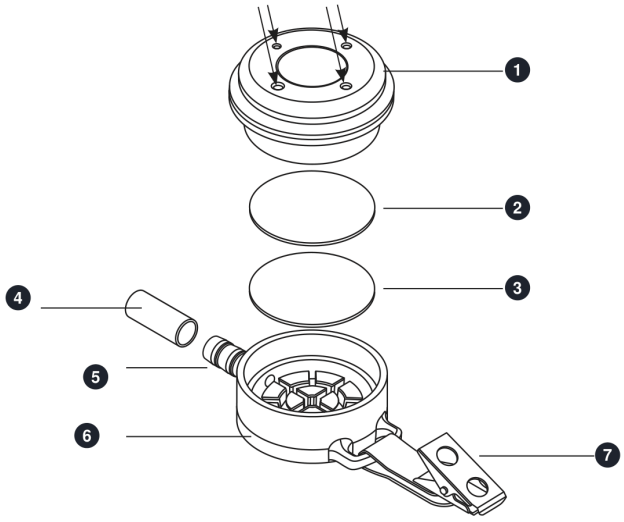


Figure 1-1. Parts of the Disposable PPI. Arrows: air enters through the inlet plate.
1 Inlet plate: 4 impactors with impaction substrates, sonically welded · **2** 37 mm collection filter (fitted by you) · **3** 37 mm support pad (fitted by you) · **4** Protective end cap · **5** Exhaust to pump · **6** Base plate · **7** Collar clip

Performance

The graphs show the penetration through the samplers — the fraction of particles of a given aerodynamic diameter that reaches the filter — against the ISO conventions.

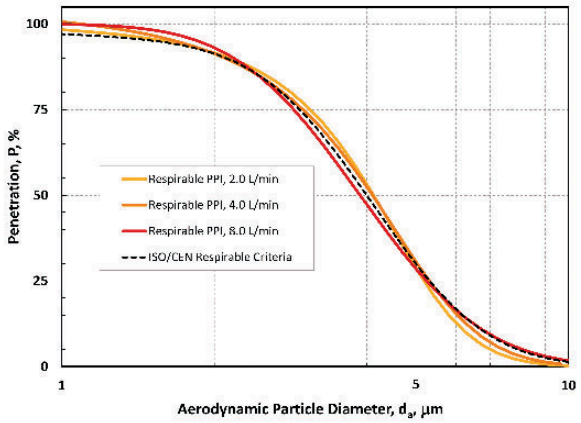


Figure 1-2. Respirable PPIs at 2, 4 and 8 L/min compared with the ISO respirable convention.

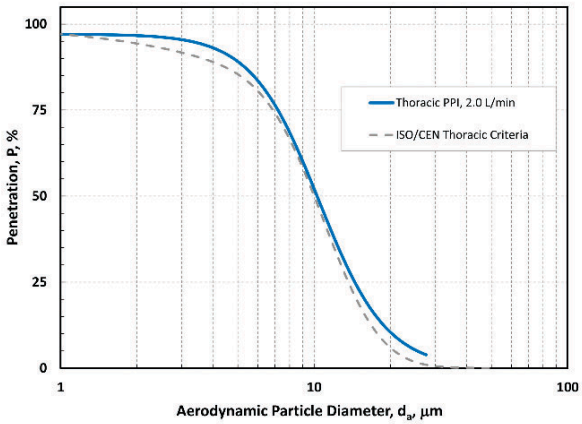


Figure 1-3. Thoracic PPI at 2 L/min compared with the ISO thoracic convention.

CHAPTER 2

Before use

A user-loaded sampler is delivered in two parts: the inlet plate, shrink-wrapped, and the base plate. You fit a support pad and a collection filter into the base plate and press the two parts together.

Filter and support

Choose the collection filter for your analysis, and one support to go under it. Order numbers are in Ordering information (p. 13).

Part	Recommended	Order code
Collection filter, 37 mm	PVC, 5.0 µm pore size	225-5-37
	MCE, 0.8 µm pore size	225-1939
Support, 37 mm	Cellulose support pad	225-27
	Stainless steel screen, wide mesh	225-26

For gravimetric analysis, condition and weigh the filters as your method specifies, and record each weight as the pre-sample weight.

Loading the sampler

The sampler has a limited shelf life. Check the expiry date on the packaging.

1. Take the shrink wrap off the inlet plate.
2. With forceps, place a 37 mm support pad in the base plate, then the 37 mm collection filter on top of it — for gravimetric analysis, a conditioned and weighed filter (2 and 3 in Figure 1-1 (p. 4)).
3. Put the base plate on a flat surface. Line the inlet plate up with it and press down firmly until the two parts seal evenly all round.
4. Write the sample ID on the sampling label and stick the label to the underside of the base plate.
5. Pull the protective end cap off the exhaust.



Figure 2-1. Steps 1 and 2. Left: the inlet plate with its shrink wrap taken off, the base plate, the sampling label and the post-use label. Right: the support pad and the collection filter placed in the base plate with forceps.



Figure 2-2. Step 3. Left: line the inlet plate up with the base plate. Right: press it down firmly until the two parts seal evenly all round.



Figure 2-3. Step 4. Left: write the sample ID on the sampling label. Right: stick the label to the underside of the base plate.

> **Note**
> Handle the filter and support pad only with forceps, both when loading and when unloading the sampler. Suitable forceps: stainless steel with flat, non-serrated tips, Cat. No. 225-8371.

Prepare one extra sampler in the same way as a representative sampler for the flow rate verification (see Verifying the flow rate (p. 7)). It is not used for sampling.

Verifying the flow rate

Each sampler is rated for one flow, so verify that flow before and after every sample. Do it with a representative sampler in the sampling train, with the calibration adapter, Cat. No. 225-389, connecting the flowmeter to the inlet.

Choosing the pump

> **Note**
> Dust loading raises the pressure drop across the sampler. Use a pump that compensates and keeps the flow constant: AirChek TOUCH Series for the 2 and 4 L/min samplers, Leland Legacy for the 8 L/min sampler.

> **Note**
> With an SKC High Flow chek-mate Flowmeter, also put a Pulsation Dampener, Cat. No. 375-150, in line.

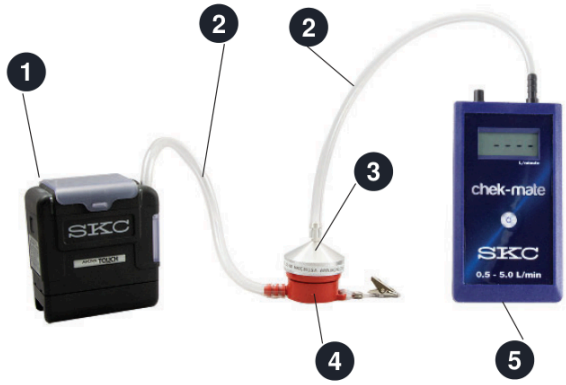


Figure 2-4. Flow rate verification train (AirChek TOUCH pump and chek-mate Flowmeter shown).
1 Sample pump · **2** Flexible tubing · **3** Calibration adapter · **4** Representative Disposable PPI · **5** Flowmeter

Verifying the flow

1. Switch the pump on and let it run for 5 minutes before you verify the flow.
2. Check that the representative sampler holds a support and a collection filter and is fully assembled (see Loading the sampler (p. 6)).
3. Place the calibration adapter squarely on the sampler's inlet plate and press it down firmly until its O-ring engages and seals evenly.

   > **Note**
   > Press the adapter on only as firmly as it takes to seal; pressed on too hard, it can be difficult to remove.

4. Connect the sampler's exhaust to the pump inlet with flexible tubing.
5. Connect the adapter's inlet to the flowmeter's suction port (outlet) with flexible tubing (Figure 2-4 (p. 7)).
6. Verify that the flow equals the sampler's rated flow, following the pump and flowmeter instructions:
   - 2 L/min for the 2 L/min respirable sampler (gold) and the thoracic sampler (blue);
   - 4 L/min for the 4 L/min respirable sampler (orange);
   - 8 L/min for the 8 L/min respirable sampler (red).
7. When the flow is right, disconnect the tubing from the flowmeter and from the calibration adapter.
8. Holding the sampler in one hand, pull the adapter off the inlet plate with a firm twist.
9. Put the representative sampler aside. Sample with a new, loaded sampler (see Procedure (p. 9)).

CHAPTER 3

Procedure

For personal sampling, the sampler is worn on the collar in the worker's breathing zone and the pump on the belt; for area sampling, both are placed where you want to measure.

Sample time and loading

Note

Agree the sample time with your laboratory. The sample time follows from your method and from the dust load you expect.

- In SKC's tests, up to 6.8 mg of dust on the four impaction substrates did not affect the sampler's performance. That is roughly the load after 6 hours at 4 L/min in air with a respirable mass concentration of 4.76 mg/m³, where the respirable dust makes up 50 % of the total dust.
- Laboratories have reported that, for analytical reasons, they prefer no more than 2 mg on the filter.

Taking a sample

1. Replace the representative sampler used for the flow rate verification with a new, unused sampler loaded as described in Loading the sampler (p. 6) — good occupational hygiene practice.
2. Write the start time on the label.
3. Clip the sampler to the worker's collar or lapel, in the breathing zone — or place it in the area to be sampled.
4. Clip the pump to the worker's belt, or place it close to the sampler.
5. Connect the sampler's exhaust to the pump inlet with flexible tubing.
6. Switch the pump on.
7. Record the sample data your method requires.
8. When the sample time is over, switch the pump off.
9. Unclip the sampler.
10. Seal the sampler by sticking the post-use label over the inlet plate.
11. Write the stop time on the label on the underside of the sampler.
12. Disconnect the sampler from the pump.
13. Push the protective end cap back onto the exhaust.
14. Set up the flow rate verification train again with the representative sampler and verify the flow after sampling (see Verifying the flow (p. 8)).



Figure 3-1. Left: the sampler on the collar (step 3 of Taking a sample). Middle: the post-use label stuck over the inlet plate (step 10). Right: the protective end cap pushed back onto the exhaust (step 13).

CHAPTER 4

After use and sample handling

Transport and analysis

Pack the samples together with the blanks and send them to an accredited laboratory for gravimetric or chemical analysis.

Disposal

Dispose of used samplers and their packaging under local regulations.

CHAPTER 5

Specifications

Sampling

Particle-size conventions	Respirable or thoracic, depending on model; designed to the ISO 7708/CEN conventions
Flow rate	Respirable: 2, 4 or 8 L/min, depending on model Thoracic: 2 L/min
Sample pump	Constant-flow pump: AirChek TOUCH Series for 2 and 4 L/min, Leland Legacy for 8 L/min
Sample time	Depends on the method used; see Sample time and loading (p. 9)
Impaction substrates	Four pre-oiled porous plastic discs, 3/8 in diameter, fitted in every Disposable PPI
Collection filter (recommended)	37 mm PVC filter, 5.0 µm, or 37 mm MCE filter, 0.8 µm; fitted by the user
Filter support	37 mm cellulose support pad or stainless steel screen; fitted by the user
Analysis	Gravimetric and/or chemical

Physical data

Body material	Conductive ABS plastic
Dimensions	Height 4.25 in (10.8 cm), collar clip to exhaust · diameter 1.8 in (4.6 cm) · depth 1.2 in (3 cm)
Weight	1.1 oz (31.2 g)
Use	Single use
Shelf life	Limited; see the expiry date on the packaging
Patent	U.S. Patent No. 7,073,402

Further reading

- ISO 7708:1995 (confirmed 2008), Air quality — Particle size fraction definitions for health-related sampling.
- OSHA and MSHA final rules on respirable crystalline silica.
- Trakumas, S., Hall, P.: Personal respirable sampler containing four impactors arranged in parallel. Abstracts of the 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) 012060, doi 10.1088/1742-6596/151/1/012060.
- Trakumas, S.: High-flow personal respirable dust sampler for increased sensitivity. Poster 261, AIHce 2010, Denver, CO.
- Trakumas, S.: High-flow personal sampler to monitor exposure to respirable crystalline silica at new lower TLV. IOHA 2010, 8th Conference, Book of Abstracts, Rome, p. 59.
- Stacey, P., Thorpe, A., 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) 479–492.
- Görner, P., Simon, X., Boivin, A., Bau, S.: Sampling efficiency and performance of selected thoracic aerosol samplers. Annals of Work Exposures and Health 61 (2017) no. 7, 784–796.

CHAPTER 6

Ordering information

Order from Analyt-MTC with the order codes.

Each user-loaded sampler contains the four impaction substrates and needs one collection filter and one support, ordered separately.

Disposable PPI samplers, user-loaded

Description	Order code
Respirable PPI (red), 8 L/min, single use	225-384
Respirable PPI (orange), 4 L/min, single use	225-387
Respirable PPI (gold), 2 L/min, single use	225-385
Thoracic PPI (blue), 2 L/min, single use	225-386

Collection filters and supports

Description	Pack	Order code
COLLECTION FILTERS, 37 MM — CHOOSE ONE FOR YOUR APPLICATION		
PVC filters, 5.0 µm pore size	100	225-5-37
MCE filters, 0.8 µm pore size	100	225-1939
SUPPORTS, 37 MM — CHOOSE CELLULOSE OR STAINLESS STEEL		
Support pads, cellulose	100	225-27
Support screen, stainless steel, wide mesh	1	225-26

Accessories

Description	Order code
Calibration Adapter for Disposable PPI, for flow rate verification	225-389
Forceps, stainless steel, flat non-serrated tips	225-8371
Pulsation Dampener, needed in line when verifying with a High Flow chek-mate Flowmeter	375-150

Sample pumps and flowmeters are described in their own manuals; ask Analyt-MTC for the model that suits your flow rate.

CHAPTER 7

Service and contacts

Analyt-MTC is your contact for everything concerning the Disposable PPI: choosing the right model, filter and pump, technical questions, orders and complaints. The sampler is a single-use part and is not repaired; a faulty or damaged sampler is replaced. Warranty and returns follow Analyt-MTC's terms of sale.

Contact

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Before you contact Analyt-MTC

Have the following at hand so that Analyt-MTC can help you quickly:

- the catalogue number of the sampler (see Ordering information (p. 13));
- the lot number and expiry date from the packaging;
- the pump and flowmeter you used, and what happened.

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