

A man wearing a white lab coat and a white cap is working with a piece of equipment. He is looking down at the device, which has a blue component. The background is a bright, industrial or laboratory setting with large windows.

SKC Particulate Samplers

SKC is well-known in the field of aerosol science for innovative size-selective particulate samplers. SKC offers a range of samplers for industrial hygiene and environmental sampling of inhalable, thoracic, and respirable particulate, as well as environmental PM fractions and bioaerosols.

SKC Filters

Top Quality Materials for All Agency Methods

The SKC Filter Division provides top quality air sampling solutions for your applications. Choose from a range of filter diameters and configurations including bulk, preloaded, preweighed, and matched-weight. Professionals rely on our filters and scientific innovations such as Solu-CAP, Accu-CAP, coated filters, and the DPM Cassette. SKC – SCIENCE. SERVING PEOPLE.

Filter	Features	Pages
Mixed Cellulose Ester (MCE)	<ul style="list-style-type: none"> • Hydrophilic • Low metal background • Autoclavable • Biologically inert • Low artifact - dissolves/clears completely 	104-106
Silver	<ul style="list-style-type: none"> • Chemically inert • High temperature resistant and autoclavable • Uniform porosity and thickness • Bacteriostatic • Hydrophilic and inorganic 	107
Polycarbonate	<ul style="list-style-type: none"> • Smooth surface • Thin, transparent, and non-staining • Chemically resistant; biologically inert • Thermally stable up to 284 F (140 C) • Hydrophobic • Exceptionally low tare weight 	107
Polyvinyl Chloride (PVC)	<ul style="list-style-type: none"> • Low tare weight • Very hydrophobic • Low ash 	108-109
Polytetrafluoroethylene (PTFE)	<ul style="list-style-type: none"> • Strong and resistant to acids, bases, and solvents • Hydrophobic • Low background • Low tare mass • Autoclavable 	110
Quartz	<ul style="list-style-type: none"> • Binder-free • Low metal background • Hydrophobic • Autoclavable • Heat treated 	111
Glass Fiber	<ul style="list-style-type: none"> • Binder-free • High temperature tolerant • Autoclavable • Hydrophobic • High particle retention 	112
Cellulose	<ul style="list-style-type: none"> • 100% pure • Ashless • Autoclavable • Hydrophilic 	112
Gelatin	<ul style="list-style-type: none"> • Pre-sterilized by gamma irradiation • High moisture content • Water soluble - dissolves easily on agar • Suitable for bioaerosols 	116

Filters

MCE

ABOUT

Filter Pore Size



Glass fiber filter,
1- μ m equivalent
pore diameter



Polycarbonate filter,
1- μ m pore size

Fibrous and porous membrane filters (glass fiber, MCE, and PTFE) are not like sieves but capture particles through a combination of impaction, direct interception, Brownian diffusion, and other physical processes. **Pore size** does not determine collection efficiency but is actually a liquid filtration rating. Filters are typically 10 times more efficient **in air** than the pore size rating. For example, a 0.8- μ m filter will trap at least 50% of particles as small as 0.08 μ m, so even nanosized particles cannot pass through pores of traditional filters used for industrial hygiene sampling.

New to Air Sampling?

Access free SKC Tech Klip Demonstration Videos to learn how to calibrate a pump and sample with filter cassettes.

Visit skcinc.com/Training!

MCE Filters

A Gold Standard for IH Sampling

MCE Filters

Diameter (mm)	Pore Size (μ m)	Support Pad [†]	Notes	Cat. No.	Qty.
13	5.0	No		225-8050	100
25	0.45	No		225-1911	100
25	0.8	Yes		225-19	100
25	0.8	No	use with IOM (pp. 124-125)	225-1930	100
25	0.8	No	black grid	225-1913	100
25	1.2	No		225-1912 [†]	100
37	0.45	No		225-1914	100
37	0.45	Yes		225-9	100
37	0.8	No		225-1939	100
37	0.8	Yes		225-5	100
37	5.0	No		225-1938	100
47	0.45	No		225-506	100
47	0.8	No		225-504	100

[†] Recommended for use with the Button Sampler; see page 126

[‡] Filter supports available on page 119

Matched-weight MCE Filter Pairs for User-loading

Matched-weight MCE filter pairs are certified as matched in weight to within 50 μ g. Load the filters into a cassette; the top filter collects the contaminant, the bottom filter acts as a control. No preweighing or conditioning is required. After sampling, both filters are weighed and the difference between weights is the sample weight.

Diameter (mm)	Filter Specifications	Cat. No.	Qty.
37	MCE, 0.8 μ m, matched-weight within 50 μ g, filter pairs only*	225-532*	50
47	MCE, 0.8 μ m, matched-weight within 50 μ g, filter pairs only*	225-531*	50

* Not preloaded in cassettes

Preloaded MCE Filters

All SKC preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 121.

Diameter (mm)	Filter Specifications	Cassette Description	Cat. No.	Qty.
25	MCE, 0.8 μ m	3-pc clear plastic, banded	225-3100	50
25	MCE, 1.2 μ m	3-pc black conductive, banded	225-507	50
37	MCE, 0.45 μ m	3-pc black conductive, banded	225-1924	50
37	MCE, 0.45 μ m	4-pc clear styrene, banded	225-1925	50
37	MCE, 0.8 μ m	2-pc clear styrene, banded	225-508	50
37	MCE, 0.8 μ m	3-pc clear styrene, banded	225-3-01	50
37	MCE, 0.8 μ m	3-pc clear styrene, not banded	225-3-01NB	50

Matched-weight MCE Filters Preloaded in Cassettes

All SKC preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 121.

Diameter (mm)	Filter Specifications	Cassette Description	Cat. No.	Qty.
25	MCE, 0.8 μ m, matched-weight within 50 μ g	2-pc clear styrene, banded	225-525	50
37	MCE, 0.8 μ m, matched-weight within 100 μ g	3-pc clear styrene, banded	225-3-02	50
37	MCE, 0.8 μ m, matched-weight within 50 μ g	2-pc clear styrene, banded	225-502	50
37	MCE, 0.8 μ m, matched-weight within 50 μ g	3-pc clear styrene, banded	225-503	50
			225-528	12

Nano-Neat MCE Filter Cassettes

Ultra-pure for sampling workplace chromium; certified < 0.1 μ g chromium per filter. Cassettes are tinted purple for easy identification. Each box contains a Certificate of Compliance. All SKC preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 121.

Diameter (mm)	Filter Specifications	Cassette Description	Cat. No.	Qty.
37	MCE, 0.8 μ m, Nano-Neat	2-pc purple styrene, banded	225-8408	50

Solu-CAP Internal Capsule Sampler Captures the Entire Sample for Metals Analysis

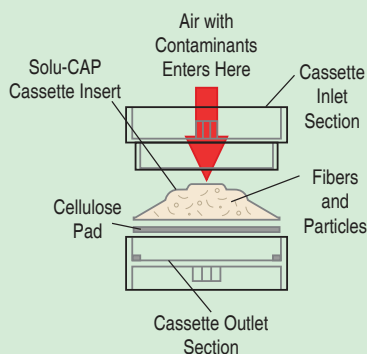
- Design specified in NIOSH Method 7306
- Meets NIOSH wall deposits requirement
- Eliminates need for lab to wipe or rinse cassette walls
- Ensures all collected sample is analyzed
- No assembly required
 - Supplied preloaded into 37-mm, 2-piece SKC cassette with support pad
- Digestible cellulose acetate dome on MCE filter contains entire sample
 - Completely soluble for analysis following NIOSH 7300 digestive procedure



*AirChek Series
Sample Pumps – Perfect
partners for Solu-CAP
see pages 10-15 and 20-25*

Use Solu-CAP® Internal Capsule Samplers to eliminate sample loss and meet NIOSH requirements for inclusion of all wall deposits. Solu-CAP's digestible cellulose acetate dome is sealed to a quality MCE filter. The user samples and sends the cassette to a laboratory. The lab removes the Solu-CAP insert, digests it in an acid solution per standard procedures, and performs analysis for airborne metals following published methods. **No sample loss!** The Solu-CAP design is specified in NIOSH 7306.

Solu-CAP = 100% Sample Contained



Eliminate sample loss from:

- ✗ Excessive filter loading during collection
- ✗ Filter transfer in the lab
- ✗ Cassette wall losses

Preloaded Solu-CAP Internal Capsule Sampler

Description	Cat. No.	Qty.
Preloaded 37-mm Solu-CAP with cellulose acetate dome sealed to 0.8-µm MCE filter in 2-piece SKC cassette with support, <i>requires a sample pump (pp. 10-15 and 20-25) and SureSeal Cassette Opener (see below)</i>	225-8517	50
Accessory		
SureSeal Cassette Opener	225-13-5A	ea

References

Harper, M. and Ashley, K., "Acid-Soluble Internal Capsules for Closed-Face Cassette Elemental Sampling and Analysis of Workplace Air," *Jnl. of Occup. and Env. Hyg.*, 10:6, 2013, pp. 297-306, <http://doi.org/xj6>

Ashley, K. and Harper, M., "Analytical Performance Issues: Closed-Face Filter Cassette (CFC) Sampling – Guidance on Procedure for Inclusion of Material Adhering to Internal Sampler Surfaces," *Jnl. of Occup. and Env. Hyg.*, 10:3, 2013, pp. D29-D33, <http://doi.org/wv3>

V

Video

P

PowerPoint

W

Webinar

S

Sampling Solution

Visit skcinc.com/Training

Filters and Pumps

MCE for Asbestos Sampling/Pumps

ABOUT

The 5 Cs of Asbestos Cassettes

Only from SKC — BestChek® cassettes meet or exceed NIOSH, OSHA, and ASTM standards in Count, Clearing, Conductivity, Collection Area, and Construction.

Specify SKC BestChek Asbestos Cassettes — your assurance of reliability and accuracy.



Microvacuum Cassettes for Asbestos

- Nozzle for easy sampling of settled dust on surfaces
- Meet specifications of ASTM Method D5755
- Use with personal sample pump at 2 L/min

Carbon-filled polypropylene with cowl and nozzle, BestChek 25-mm, 0.45-µm MCE filter for TEM analysis, and cellulose support

Cat. No. 225-322 ea

Styrene (non-conductive) with nozzle, 37-mm, 0.45-µm MCE filter, for TEM analysis, and cellulose support

Cat. No. 225-9543 ea

V Video	P PowerPoint	W Webinar	S Sampling Solution
-------------------	------------------------	---------------------	-------------------------------

Visit skcinc.com/Training

Certified BestChek Asbestos Cassettes

The Highest Standard for Cassette Reliability

SKC Certified BestChek Filters in Carbon-filled Polypropylene Cassettes

All SKC preloaded asbestos filters include cellulose supports.

Diameter (mm)	Filter Specifications	Cassette Description	Cat. No.	Qty.
25	MCE, 0.8 µm	with cowl, banded	225-321	50
25	MCE, 0.8 µm	with cowl, banded, with stand-up plug in outlet end	225-321A	50
25	MCE, 0.8 µm, black grid	with cowl, banded	225-326	50
25	MCE, 1.2 µm, black grid	with cowl, banded	225-1934	50
25	MCE, 0.45 µm* TEM analysis	with cowl, banded, with support and 5.0-µm diffuser pad	225-327	50

* Available as microvacuum carpet cassette with nozzle; see below left

Asbestos Sampling Pumps

AirLite Personal Pump

Easy, Economical Asbestos Sampling

- Constant flows to 3000 ml/min
- Alkaline battery powered, over 10 hours run time
- Rugged
- Weighs only 12 ounces
- Simple operation with flow fault feature
- Model available with timer



See details and ordering on pages 26-27.

QuickTake 30 Area Pump

Li-Ion-powered High Flow Asbestos Pump

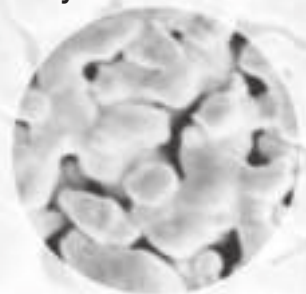
- Constant flows from 10 to 30 L/min
- 9+ hours run time for asbestos clearance
- Tough, compact case with handle weighs 4.8 pounds
- Programmable with flow fault feature
- Low-noise battery-powered alternative to vacuum pumps



See details and ordering on pages 34-35.

Silver Membrane Filters Specified for X-ray Diffraction Analysis

- **Chemically inert, high temperature resistant**
 - Autoclave and reuse repeatedly* without loss of performance
- **99.97% pure inorganic metallic silver**
- **Uniform porosity and thickness, smooth surface**
 - Ideal for NIOSH X-ray diffraction methods for crystalline silica, lead sulfide, boron carbide, and chrysotile asbestos
- **Hydrophilic and bacteriostatic**



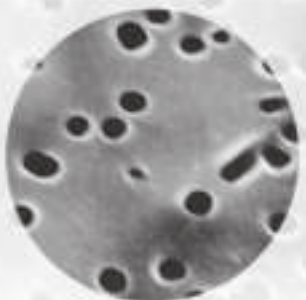
Diameter (mm)	Pore Size (µm)	Cat. No.	Qty.
25	0.8	225-1803	50
25	0.45	225-1802	50
37	0.8	225-1801	25
47	0.8	225-1804	25

Single use only for silica analysis

Additional diameter and pore size silver membrane filters are available as a special order.

Polycarbonate Membrane Filters Ideal for Microscopy

- **Chemically resistant, thermally stable,† and strong**
- **Thin, transparent, non-staining, and smooth**
 - Ideal for light and electron microscopy
 - Exceptional background for sample observations
- **Hydrophobic, with exceptionally low tare weight**
- **Biologically inert**



Diameter (mm)	Pore Size (µm)	Support Pad‡	Notes	Cat. No.	Qty.
25	0.4	No		225-1608	100
25	0.8	No	use with IOM (pp. 124-125)	225-1601	100
37	0.4	No		225-1609	100
37	0.8	No		225-1602	100
47	0.4	No		225-1610	100

‡ Filter supports available on page 119

† Maximum operating temperature is 284 F (140 C).

Preloaded Polycarbonate Filters

All SKC preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 121.

Diameter (mm)	Pore Size (µm)	Support Pad	Cassette Description	Cat. No.	Qty.
25	0.8	Yes	3-piece conductive, with cowl, banded	225-1604	50

Microvacuum Cassette with Polycarbonate Filter

All SKC preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 121.

Diameter (mm)	Pore Size (µm)	Support Pad	Cassette Description	Cat. No.
37	0.4	Yes	3-piece styrene (non-conductive) with nozzle; microvacuum*	225-9542*

* Available in a Carpet Sampling Cassette Kit; see page 144



*For size-selective samplers
see pages 122-136*



*For filter sampling
accessories
see pages 118-121*



*For sample pumps
see pages 10-15 and 20-29*

Filters

PVC Filter Capsule Sampler

For filter cassette holders, openers, adapters, and other accessories see pages 118-121



SKC recommends AirChek Series Pumps for use with Accu-CAP see pages 10-15, 20-21, 24-25, and 28-29

References

Ashley, K. and Harper, M., "Analytical Performance Issues: Closed-Face Filter Cassette (CFC) Sampling – Guidance on Procedure for Inclusion of Material Adhering to Internal Sampler Surfaces," *Jnl. of Occup. and Env. Hyg.*, 10:3, 2013, pp. D29-D33, <http://doi.org/10.1133/10812339120000000000000000000000>

NIOSH Method 0501, [cdc.gov/niosh/docs/2003-154/pdfs/0501.pdf](http://www.cdc.gov/niosh/docs/2003-154/pdfs/0501.pdf)

Accu-CAP Internal Capsule Eliminates Cassette Wall Losses

- Meets specifications of NIOSH Method 0501 for gravimetric analysis
- Ensures entire sample is captured and analyzed
- Fits inside a 37-mm, 2-piece SKC cassette with support pad
- **Static-dissipative plastic dome on PVC filter contains entire sample**
 - No cassette rinsing or wiping required
 - Prevents loss of sample during transport
 - No particles dislodged from filter during analysis preparation
- Suitable for sampling total dust (NIOSH 0500 and 0501), respirable dust (NIOSH 0600), carbon black (NIOSH 5000), and more

Use Accu-CAP® Internal Capsules to meet NIOSH 0501 requirements for inclusion of all wall deposits in the sample. Accu-CAP features a static-dissipative plastic dome sealed to a quality PVC filter. The user preweighs the Accu-CAP, places it between the inlet and outlet sections of a two-piece 37-mm SKC-manufactured cassette with support pad, samples, removes Accu-CAP from the cassette, and postweighs it. **Accu-CAP effectively contains 100% of sampled particulate!**



Accu-CAP is Easy to Use



Prepare SKC 2-piece cassette with support pad.



Weigh Accu-CAP and insert in cassette.



Complete cassette assembly. After sampling, remove Accu-CAP from cassette and weigh.

Accu-CAP Internal Capsule

Description	Cat. No.	Qty.
37-mm Accu-CAP with plastic dome sealed to 5.0-µm pore size PVC filter, requires 37-mm cassettes (p. 113) and support pads (p. 119)	225-8516GLA	60

V Video **P** PowerPoint **W** Webinar **S** Sampling Solution
Visit skcinc.com/Training

GLA-5000 PVC Membrane Filters The No. 1 Filter for Silica and Other Dusts

- **Low ash, suitable for multiple NIOSH/OSHA/ASTM air sampling methods**
 - Silica, metals, dust (total and respirable)
 - OSHA Method ID-215 (V.2) for hexavalent chromium
- **Low tare weight and moisture pickup for gravimetric stability**
 - ≤ 0.5% after 24 hours at 48% RH and 122 F (50 C)
- **Preloaded 25 and 37-mm cassettes available**
- **Available in Accu-CAP Internal Capsule**
- **Both gravimetric and chemical analyses on the same filter using NIOSH 7300 or 7301 for metals (elements)**



For PPI Sampler with preweighed PVC filter see page 131

PVC Filters

Diameter (mm)	Pore Size (µm)	Support Pad [‡]	Cat. No.	Qty.
25	5.0	No	225-5-25 [†]	100
37	5.0	Yes	225-5-37-P 225-80601K	100 1000
37	5.0	No	225-5-37	100
47	5.0	No	225-5-47	100

[‡] Filter supports available on page 119

[†] Recommended for use with IOM and Button Samplers; see pages 124-126

Accu-CAP PVC Internal Capsule — see page 108

Clear plastic capsule heat-sealed to a filter; fits between parts of a two-piece SKC cassette with support pad; prevents cassette wall losses; ideal for gravimetric determinations for NIOSH 0500, 0501, 0600, and 5000

Diameter (mm)	Pore Size (µm)	Cat. No.	Qty.
37	5.0	225-8516GLA	60



Matched-weight PVC Filters

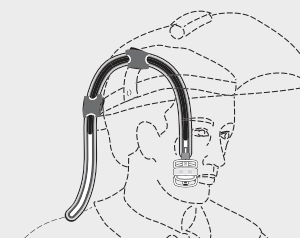
Diameter (mm)	Filter Specifications	Description	Cat. No.	Qty.
37	5.0 µm, matched-weight within 25 µg	Filter pairs only*	225-8222*	50
37	5.0 µm, matched-weight within 25 µg	2-piece clear styrene, banded	225-8201	50
37	5.0 µm, matched-weight within 25 µg	3-piece clear styrene, banded	225-8202	50

* Not preloaded in cassettes

Preloaded PVC Filters

All SKC preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 121.

Diameter (mm)	Filter Specifications	Cassette Description	Cat. No.	Qty.
25	5.0 µm	2-piece clear styrene, banded	225-8214	50
25	5.0 µm	3-piece clear styrene, banded	225-8215	50
37	5.0 µm	2-piece clear styrene, banded	225-802	50
37	5.0 µm	3-piece clear styrene, banded	225-803	50
37	5.0 µm, preweighed, 5 decimals	2-piece clear styrene, banded	225-8204 225-8205	12 100
37	5.0 µm, preweighed, 5 decimals	3-piece clear styrene, banded	225-8208 225-8209	12 100



Helmet Adapter[#]

Ideal for welders or workers who wear a helmet with face shield; effectively holds a filter cassette or sample tube in the breathing zone regardless of visor position

Cat. No. 225-600 ea

[#] Developed in Canada by IRSST (Institut de recherche Robert-Sauvé en santé et en sécurité du travail)

V	P	W	S
Video	PowerPoint	Webinar	Sampling Solution

Visit skcinc.com/Training

Filters

PTFE

Tech Tips

- ▶ Back pressure on PTFE filters can vary within the same lot.
- ▶ The low back pressure on PTFE filters allows longer run times at higher flow rates.
- ▶ PTFE filters' temperature resistance makes them stable up to 500 F (260 C).
- ▶ Use PTFE filters for industrial hygiene sampling of polynuclear aromatic hydrocarbons (PNAs).
- ▶ Because of their hydrophobic nature, PTFE filters are specified for environmental particulate sampling with gravimetric analysis.



For size-selective samplers
see pages 122-136



For Sample Pumps
see pages 10-15 and 20-29

PTFE Membrane Filters

Aerosol Sampling in Aggressive Chemical Environments

- ▶ Hydrophobic
- ▶ Low background for interference-free chemical determinations
- ▶ Strong and resistant to acids, bases, and solvents
- ▶ Low tare mass for accurate gravimetric analysis
- ▶ Temperature resistant to 500 F (260 C) — autoclavable
- ▶ Suitable for sampling in environments also containing water vapor

PTFE filters are the versatile choice for size-selective samplers. The material's unique properties make it ideal for gravimetric, chemical, and/or microscopic analysis of sample particulate. PTFE filters are used for environmental particulate matter sampling, metal working fluids, in the pharmaceutical industry, and more.

PTFE Membrane Filters

Diameter (mm)	Pore Size (µm)	Support Pad†	Notes	Cat. No.	Qty.
25	0.5	No	unlaminated	225-3708	250
25	1.0	No	unlaminated	225-3714	250
25	2.0	No	unlaminated	225-3726	250
25	5.0	No	unlaminated	225-1728	50
37	1.0	No	unlaminated	225-3705	150
37	5.0	Yes	unlaminated	225-17A	50
47	0.5	No	unlaminated	225-3753	150
47	2.0	No	unlaminated	225-3748	150
37	0.45	Yes	on polypropylene support	225-17-04	100
37	1.0	Yes	on polypropylene support	225-17-01	100
25	3.0	No	with PMP support ring	225-1711†	50
37	2.0	No	with PMP support ring	225-1709	50
47	2.0	No	with PMP support ring	225-1747	50
37	0.3	No	for viruses and other bioaerosols, laminated spun-bound polyester; available preloaded, see below	225-1722	100

† Recommended for use with the Button Sampler; see page 126

‡ Filter support pads available on page 119

Preloaded PTFE Membrane Filters

All SKC preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 121.

Diameter (mm)	Filter Specifications	Cassette Description	Cat. No.	Qty.
25	PTFE, 1.0 µm, with laminated polypropylene support pad	2-piece black conductive, goblet style	225-1725	50
37	PTFE, 0.3 µm, laminated with spun-bound polyester with cellulose support; for Anthrax/SARS	3-piece clear styrene, banded	225-1723	50
37	PTFE, 1.0 µm, with cellulose support	3-piece clear styrene, banded	225-1715	50
37	PTFE, 2.0 µm, with cellulose ring	2-piece opaque plastic, banded	225-1713	50

Diesel Particulate Matter Cassettes Also Suitable for Carbon Nanotubes and Fibers

DPM Cassette — Preloaded Quartz Filters with Submicron Impactor

- Preloaded in specially designed cassette with internal size-selective impactor
 - Screens particles ≥ 1 micron
 - Contains two quartz filters: one for sample collection and one for dynamic blank
- Use for elemental carbon analysis of DPM or for carbon nanotubes (CNTs) and carbon nanofibers (CNFs) (NIOSH Method 5040); see NIOSH CIB 65, cdc.gov/niosh/docs/2013-145



Diameter (mm)	Filter Specifications	Cassette Description	Notes	Cat. No.	Qty.
37	2 heat-treated, binder-free Tissuquartz	1 piece with impactor, tamper-evident sealed, single use†	NIOSH 5040 analysis, average sample deposition area is 8.04 cm ²	225-317*	10

* Limited shelf-life † Requires 1/4-inch ID tubing or Filter Cassette/Cyclone Holder; see pp. 118-119

Preloaded Quartz Filters Without Submicron Impactor

- An economical choice when no interfering respirable dusts are present
- Meets NIOSH 5040 specifications for elemental carbon
- Preloaded into standard 37 or 25-mm, 3-piece clear styrene cassette



All SKC preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 121.

Diameter (mm)	Filter Specifications	Cassette Description	Notes	Cat. No.	Qty.
25	Heat-treated, binder-free Tissuquartz, support pad	3-piece clear styrene, banded	Meets NIOSH NEAT 2.0 protocols for NIOSH 5040 analysis	225-401-25*	50
37	Heat-treated, binder-free R-100 quartz, support pad	3-piece clear styrene, banded	NIOSH 5040	225-401*	50

* Limited shelf-life

Quartz Depth Filters

For Elemental/Organic Carbon, DPM, and Trace-level Contaminants

Quartz Filters

- Heat treated to reduce trace organics
- Binder-free
- Low metal background

Diameter (mm)	Description	Cat. No.	Qty.
25	Type R-100	225-1824#	100
25	Tissuquartz	225-1825 ^y	100
37	Tissuquartz	225-1822 ^y	25
37	Type R-100	225-1827#	100
47	Tissuquartz	225-1823 ^y	25
47	Tissuquartz	225-1811 ^y	100
47	Type R-100	225-1830#	100
102	QM-A	225-1808 [‡]	100
Preloaded Quartz Filters specified in NIOSH 7908 for Phosphoric Acid and Sulfuric Acid			
37	Tissuquartz with cellulose support, 2-piece clear styrene, banded	225-9033	10

¥ 432 µm thick # 380 µm thick ‡ 450 µm thick



DPM Cyclone

- Extended retaining ring and special sealing securely hold SKC DPM Cassettes (at left)
- Conductive plastic construction prevents static interference
- Operate at 2 L/min when used with the DPM Cassette

DPM Cyclone includes grit pot and retaining ring

Cat. No. 225-68



See GS-1 Cyclone on page 128

ABOUT

Quartz Depth Filters

Q: What is the difference between Type R-100 and Tissuquartz depth filters?

A: Type R-100 filters meet NIOSH requirements: 99.97% retention efficiency for 0.3-µm dioctylphthalate (DOP) particles up to a 200-mg filter loading.

Tissuquartz has a typical retention efficiency of 99.90% for 0.3-µm DOP particles at 32 L/min per 100 cm² filter media.

V Video	P PowerPoint	W Webinar	S Sampling Solution
------------	-----------------	--------------	------------------------

Visit skcinc.com/Training

Filters

Glass Fiber and Cellulose

ABOUT

Depth Filter Pore Size Rating

The pore size rating for depth filters is commonly termed “nominal” or approximate. This is due to the method for determining pore size. Depth filters are made of intertwined fibers or sintered particles. These form irregular openings through which air passes, but most particles do not. Pore size testing for depth filters is usually achieved by passing liquid containing particles of a known size through the filter. If an acceptable number of particles are trapped, that particle size becomes the “liquid nominal,” which is typically stated as, “Filter removes > xx% of particles $\geq x \mu\text{m}$.”

ABOUT

Glass Fiber Filter Types

Type A/E Glass Fiber

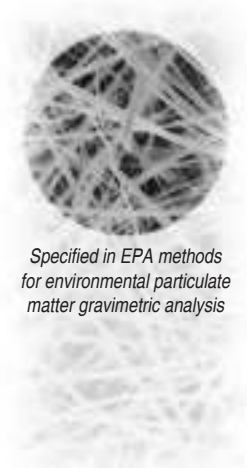
- High flow rates, wet strength, and dirt (solids) holding capacities
- For gravimetric analysis of air pollutants and testing dissolved/suspended wastewater solids

Type A/B Glass Fiber

- High dirt-loading capacity with thicker glass
- Manufactured of the highest quality borosilicate glass microfibers

Glass Fiber Depth Filters

- High-temperature tolerant — autoclavable
- Chemical and pH resistant; biologically inert
- Liquid nominal pore size of $1.0 \mu\text{m}$
- High particle retention
- Hydrophobic
- Made of binder-free borosilicate glass fiber for purity
- Available with binder for excellent wet strength, easier handling, and filter integrity



Specified in EPA methods for environmental particulate matter gravimetric analysis

SKC quality Glass Fiber Depth Filters are used where high flow rate and micron/submicron filtration is required. Glass Fiber Filters are suitable for both liquid and air filtration. Select from binder-free filters for purity that is ideal for analytical and gravimetric determinations or filters with binder for strength in long-duration, high-pressure, or wet applications.

Dia. (mm)	Pore Size (μm) ^Δ	Description	Cat. No.	Qty.
13	1.0	binder free, A/E	225-16	500
25	1.0	binder free, A/E	225-702 [†]	500
25	1.0	acrylic binder, 50 ml thick	225-703	100
25	1.6	binder free, GF/A	225-58F	100
37	1.0	binder free, A/E	225-7	500
37	1.0	binder free, A/B	225-701	100
37	—	PTFE coated	225-705	100
47	1.0	binder free, A/E	225-7047	100
			225-714	500
90	1.0	Ultra pure	225-712	25
8 x 10 inches	1.0	binder free, A/E	225-7-07	100

^Δ Liquid nominal; see About at above left

[†] Recommended for use with IOM and Button Samplers; see pages 124-126

Preloaded Glass Fiber Filters

All SKC preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 121.

Dia. (mm)	Filter Specifications	Cassette Description	Cat. No.	Qty.
25	Glass Fiber, A/E, $1.0 \mu\text{m}$, ^Δ cellulose support	2-piece clear plastic, banded	225-710	50
37	Glass Fiber, A/E, $1.0 \mu\text{m}$, ^Δ cellulose support	2-piece clear plastic, banded	225-709	50
37	Glass Fiber, A/E, $1.0 \mu\text{m}$, ^Δ cellulose support	3-piece clear plastic, banded	225-706	50

^Δ Liquid nominal; see About at above left










Cellulose Depth Filters









- Ideal for gravimetric sampling methods
- 100% pure, ashless cellulose fiber

Dia. (mm)	Pore Size (μm)	Description	Cat. No.	Qty.
37	—	Type 40	225-18A	500

SureSeal Cassette Blanks Certified Leak-free

All SureSeal Cassettes are vacuum leak tested and considered leak-free if there is < 1 inch Hg decay per 30 seconds when 24 inches Hg vacuum is applied and if there is < 1 psi decay per 30 seconds when 5 psi pressure is applied. SureSeal Cassettes require the use of a SureSeal Cassette Opener; see page 121.

Diameter (mm)	Description	Cat. No.	Qty.
25	2 piece, standard; styrene, clear	225-2-25LF 225-2258	50 100
			
25	3 piece, standard; styrene, clear	225-3-25LF 225-2259	50 100
			
25	3 piece, goblet style; polypropylene, opaque white; solvent-resistant	225-8585	50
			
25	2 piece, goblet; polypropylene, conductive black	225-2257	50
			
25	3 piece, 2-inch middle cowl; polypropylene, conductive black	225-3-23	50
			
25	3 piece, 1/2-inch middle ring; polypropylene, conductive black	225-329	50
			
37	2 piece, standard; styrene, clear	225-2LF 225-2050LF 225-2250	10 50 250
			
37	3 piece, standard; styrene, clear	225-3LF 225-3050LF 225-3250	10 50 250
			
37	Middle ring only; styrene, clear, 1/2 inch	225-304	50
			

Diameter (mm)	Description	Cat. No.	Qty.
37	2 piece, standard; styrene, opaque brown	225-4	50
			
37	3 piece, standard; styrene, opaque brown	225-8451	50
			
37	2 piece, standard; polypropylene, opaque white; solvent-resistant	225-8483	50
			
37	3 piece, standard; polypropylene, opaque white; solvent-resistant	225-45A	50
			
37	2 piece, standard; polypropylene, conductive black	225-308	50
			
37	3 piece, standard; polypropylene, conductive black	225-309	50
			
	<i>Static free – ideal for cyclones!</i>		
47	2 piece, standard; polypropylene, conductive black	225-8496	16
			
47	3 piece, standard; polypropylene, conductive black	225-8497	16
			

Best Practice

Minimize cassette wall losses while sampling with a cyclone. NIOSH suggests using a static-dissipative (conductive) black polypropylene filter cassette such as Cat. No. 225-309. See Ashley, K., Harper, M., *Journal of Occupational and Environmental Hygiene*, 10:3, 2013, pp. D29-D33, <http://doi.org/wv3>.

Selection Guide

Coated Filters

Coated Filter Selection Guide

Chemical	Method	Preloaded Filter; Coating (in 37-mm cassettes)	Cat. No.*	Qty.
Acetic anhydride	OSHA 82	2 Glass Fiber filters; 1-(2-pyridyl) piperazine	225-9009 §	10
Acetic anhydride	OSHA 102	2 Glass Fiber filters; veratrylamine and di-n-octyl phthalate	225-9010 §	10
4-Aminobiphenyl	OSHA 93	2 Glass Fiber filters; sulfuric acid	225-9004	10
Aniline	NIOSH 2017 †	2 Glass Fiber filters; sulfuric acid	225-9004 †	10
Arsenic, volatile compounds	OSHA ID-1006	1 MCE filter and plastic pad; untreated and 1 cellulose support pad; sodium carbonate	225-9001	10
Benzidine	OSHA 65	2 Glass Fiber filters; sulfuric acid	225-9004	10
Bromine, chlorine	NIOSH 6011	1 25-mm PTFE pre-filter and polypropylene support; 1 25-mm specially cleaned silver membrane and polypropylene support (in 25-mm cassette)	225-9006	5
Crotonaldehyde	OSHA 81	2 Glass Fiber filters; 2,4-dinitrophenylhydrazine and phosphoric acid	225-9019 §	10
o-Dianisidine	OSHA 71	2 Glass Fiber filters; sulfuric acid	225-9004	10
3,3'-Dichlorobenzidine	OSHA 65	2 Glass Fiber filters; sulfuric acid	225-9004	10
Diisocyanates (HDI; 2,6-TDI; 2,4-TDI)	ASTM D5836 Δ OSHA 42	1 Glass Fiber filter and cellulose support; 1-(2-pyridyl)piperazine	225-9013 §† 225-9002 §	10 10
Diphenylamine	OSHA 78	2 Glass Fiber filters; sulfuric acid	225-9004	10
Fluorides	OSHA ID-110 NIOSH 7902 ASTM D4765	1 MCE filter and plastic pad; untreated and 1 cellulose support pad; sodium carbonate	225-9001 #	10
Fluorides, particulate	NIOSH 7906	2 Nitrocellulose filters; 1 coated with sodium carbonate, 1 uncoated	225-9031	10
Glutaraldehyde	OSHA 64	2 Glass Fiber filters; 2,4-dinitrophenylhydrazine and phosphoric acid	225-9003 §	10
Glyoxal	For IFV	2 25-mm Glass Fiber filters; 2,4-dinitrophenylhydrazine (filters only, in jar)	225-9036 §	10
Hydrazine	OSHA 108	2 Glass Fiber filters; sulfuric acid	225-9012	10
Hydrofluoric acid	NIOSH 7906	2 Nitrocellulose filters; 1 coated with sodium carbonate, 1 uncoated	225-9031	10
Hydrogen bromide	NIOSH 7907	2 Quartz filters (R-100); 1 coated with sodium carbonate, 1 uncoated	225-9032	10
Hydrogen chloride	NIOSH 7907	2 Quartz filters (R-100); 1 coated with sodium carbonate, 1 uncoated	225-9032	10
Hydrogen peroxide	OSHA 1019	2 25-mm Quartz filters (R-100); titanium oxysulfate hydrate (in 25-mm cassette)	225-9030	10
Isocyanates	ASTM Methods	1 PTFE filter; 1 Glass Fiber filter impregnated with MAMA (ISO-CHEK Sampling System, see p. 115)	225-9022 225-9022A	12 36
Isocyanates (HDI; 2,6-TDI; 2,4-TDI)	ASTM D5836 Δ OSHA 42	1 Glass Fiber filter and cellulose support; 1-(2-pyridyl)piperazine	225-9013 §† 225-9002 §	10 10
Isocyanates (HDI, MDI, TDI, IPDI, HDI-BT, HDI-IC)	OR-OSHA 1010	1 13-mm Glass Fiber filter; MAMA (in 13-mm Swinnex holder) (also requires impinger)	225-9029 §	5
Isocyanates, organic	MDHS 25/3 (JK)	1 25-mm AVE Glass Fiber filter; methoxyphenyl piperazine (filters only, in jar)	Special order §	
n-Isopropylaniline	OSHA 78	2 Glass Fiber filters; sulfuric acid	225-9004	10
Maleic anhydride	OSHA 86	2 Glass Fiber filters; veratrylamine	225-9021 §	10
Maleic anhydride	For IFV	1 25-mm Glass Fiber filter; veratrylamine (filters only, in jar)	225-9028 §	10
Mercaptans (methyl-, ethyl-, n-butyl-, phenyl-)	NIOSH 2542 OSHA 26	1 Glass Fiber filter; mercuric acetate	225-9007 §	10
4,4'-Methylene bis (2-chloroaniline) (MOCA)	OSHA 71	2 Glass Fiber filters; sulfuric acid	225-9004	10
4,4'-Methylene bis (phenyl isocyanate) (MDI)	OSHA 47	1 Glass Fiber filter and cellulose support; 1-(2-pyridyl)piperazine	225-9013 §† 225-9002 §	10 10
4,4'-Methylenedianiline	OSHA 57 NIOSH 5029	2 Glass Fiber filters; sulfuric acid	225-9004	10
1-Naphthylamine, 2-naphthylamine	OSHA 93	2 Glass Fiber filters; sulfuric acid	225-9004	10
Nitric acid	NIOSH 7907	2 Quartz filters (R-100); 1 coated with sodium carbonate, 1 uncoated	225-9032	10
Nitrobenzene	NIOSH 2017 †	2 Glass Fiber filters; sulfuric acid	225-9004 †	10
Ozone	OSHA ID-214	2 Glass Fiber filters; nitrite-impregnated	225-9014 §	10
Peracetic Acid (PAA)	OSHA PV2321	1 25-mm Quartz filter (R-100); titanium oxysulfate hydrate (in 25-mm cassette)	225-9037 •	10
Phenylenediamine (o-, m-, p-)	OSHA 87	2 Glass Fiber filters; sulfuric acid	225-9004	10
Phosphine	OSHA 1003	1 Glass Fiber filter; 1 polyester filter coated with mercuric chloride	225-9018 †§	10
Phosphoric acid	NIOSH 7908	1 Quartz filter (Tissuquartz)	225-9033	10
Phthalic anhydride	OSHA 90	2 Glass Fiber filters; veratrylamine	225-9034 §	10
Sulfur dioxide	NIOSH 6004 (modified)	1 MCE pre-filter and support/1 cellulose filter and support; sodium carbonate	225-9005	10
Sulfuric acid	NIOSH 7908	1 Quartz filter (Tissuquartz)	225-9033	10
2,4-Toluenediamine	OSHA 65	2 Glass Fiber filters; sulfuric acid	225-9004	10
2,6-Toluenediamine	OSHA 65	2 Glass Fiber filters; sulfuric acid	225-9004	10
o-Tolidine	OSHA 71	2 Glass Fiber filters; sulfuric acid	225-9004	10
Toluene-2,4-diisocyanate and toluene-2,6-diisocyanate	For IFV	1 25-mm Glass Fiber filter; 1-(2-pyridyl)piperazine (filters only, in jar)	225-9035 §	10
o-Toluidine	NIOSH 2017 †	2 Glass Fiber filters; sulfuric acid	225-9004 †	10
Toluidine (o-, m-, p-)	OSHA 73	2 Glass Fiber filters; sulfuric acid	225-9004	10
Trimellitic anhydride	OSHA 98	2 Glass Fiber filters; veratrylamine and di-n-octyl phthalate	225-9010 §	10
Valeraldehyde	OSHA 85	3 Glass Fiber filters; 2,4-dinitrophenylhydrazine and phosphoric acid	225-9020 §	10
m-Xylenediamine (m-XDA, p-XDA)	OSHA 105	2 Glass Fiber filters; sulfuric acid	225-9004	10

* Coated filters have a limited shelf-life.

† Custom order due to very limited shelf-life

Δ ASTM D5836 and D5932 for 2,4-TDI, 2,6-TDI only

§ Storage below 39.2 F (4 C) required

¥ Also requires Sorbent Tube Cat. No. 226-15, see page 50

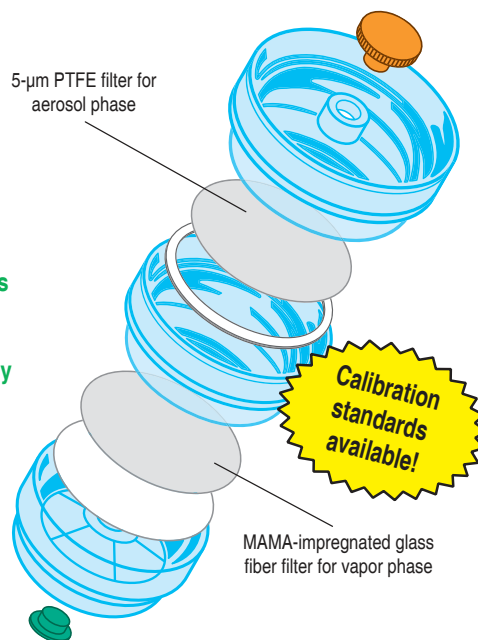
Collects both vapor and aerosol phases of fluorides

• Requires impinger and impinger trap containing sorbent. See method.

ISO-CHEK

Simultaneous and Separate Collection of Isocyanate Phases

- **Accurately samples diisocyanates: HDI, MDI, IPDI, HMDI, 2,4-TDI, and 2,6-TDI**
- **Meets the specifications of several methods**
 - ASTM D5932 for 2,4 and 2,6-TDI
 - ASTM D6561 for HDI
 - ASTM D6562 for HDI
- **The only filter-based system that simultaneously traps and separates both monomers and oligomers**
 - For better determinations of control strategies
- **Decreases sample preparation and analysis time by 40% compared to other methods**
 - Premade calibration standards are available
- **Highly stable — low temperature storage and transport not required**
- **Highly sensitive analysis provides detection limits below current regulated exposure levels**
 - Ideal for occupational sampling and environmental surveys
 - Requires only a 15-minute sample time
- **Round-robin proficiency testing for ISO-CHEK labs ensures accurate, consistent analysis**
 - Visit skcinc.com/lab



Exploded view of ISO-CHEK Filter Cassette
(Cassette in image is tinted for clarification.)

the ISO-CHEK Advantage!

- ✓ **Simultaneous collection and separation of phases at the point of collection**
Less time-consuming and more accurate analysis of each phase
- ✓ **Reagent is stable at room temperature.**
- ✓ **1 L/min flow rate efficiently captures aerosol phase isocyanates compared to denuder collectors.**
- ✓ **No handling precautions**
Eliminates the inconveniences of impingers

ABOUT

ISO-CHEK Development
ISO-CHEK was developed and patented by IRSST (Institut de recherche Robert-Sauvé en santé et en sécurité du travail).

Suitable for most isocyanates, the ISO-CHEK Sampling System employs a two-stage filter arrangement that results in the simultaneous collection and separation of vapor from aerosol at the point of collection. The filter that collects the vapor phase is impregnated with 9-(N-methyl-aminomethyl) anthracene (MAMA), a highly stable reagent that minimizes storage and handling requirements.

Description	Cat. No.	Qty.
ISO-CHEK Sampling System with Derivatizing Reagent,** preloaded clear cassettes and jars of Derivatizing Solution (MOPIP in toluene)	225-9023	4
	225-9023A	10
ISO-CHEK Sampling Cassettes,* preloaded clear cassettes for isocyanates, require Derivatizing Solution; see below	225-9022	12
	225-9022A	36

Accessories	Cat. No.	Qty.
Derivatizing Solution,* 5 ml of MOPIP in toluene, in jars	225-9050	12
Jars, 37 mm with PTFE-lined cap	225-8377	36
Calibration Standard,† MAMA-HDI, 1 gram	225-9053	ea
Calibration Standard,† MAMA-IPDI, 1 gram	225-9054	ea
Calibration Standard,† MAMA-MDI, 1 gram	225-9062	ea
Calibration Standard,† MAMA-2,4-TDI and 2,6-TDI, 1 gram	225-9052	ea
Calibration Standard Set,† HDI, MDI, IPDI, 2,4-TDI, 2,6-TDI, 1 gram each	225-9055	set
Packaging Kit, materials for shipping 10 packages of 10 samplers and jars	225-9059	ea

* Limited shelf-life

† Hazmat shipping charges for air shipments only, ground shipments exempt

‡ Limited shelf-life, freezer storage recommended; refrigerated shipping not required

For ISO-CHEK analytical laboratories visit skcinc.com/lab

V	P	W	S
Video	PowerPoint	Webinar	Sampling Solution
Visit skcinc.com/Training			

Filters

Gelatin

ABOUT

Why Use Gelatin Filters?

Sampling microbes with traditional filter materials has been known to reduce culturability due to desiccation of the microbes. The high moisture content of gelatin filters helps to maintain microorganism viability for sampling periods up to 30 minutes. In addition, studies with T3 viruses have shown gelatin filters to be the most suitable for sampling viruses (low passage and high detection sensitivity) due to their complete solubility.

Reference

Haferkorn, R., et al., "Comparative Studies on Detection Methods for Bacteriophages in Aerosols and on the Retentive Capability of Filters and Impingers for Bacteriophage Aerosols," Arch. Hyg., Munich 152, 1968, pp. 97-106



For sample pumps
see pages 10-15 and 20-29

V Video	P PowerPoint	W Webinar	S Sampling Solution
Visit skcinc.com/Training			

Gelatin Filters

Maintain Viability of Collected Microorganisms

- **Absolute retention rate**
 - 99.9995% for *Bacillus subtilis* var. niger spores[†]
 - 99.94% for T3 phages (coli phages)[‡]
 - 99.9% T1 phages (coli phages)[‡]
- **High moisture content**
 - Maintain microbe viability for short sampling periods
- **Completely water soluble**
 - Dissolve easily when placed on agar
 - Provide the solubility required for virus sampling
- **Pre-sterilized by gamma irradiation**
- **Ideal for monitoring in pharmaceutical plants**
- **Can be used to monitor in areas where disinfectants or antibiotics are present**



The unique properties of gelatin filters provide unequalled bacteria retention levels for quantitative analysis. Sampling with gelatin filters is easy and efficient and can provide information about relative changes in microorganism concentration throughout the day. Gelatin filters dissolve easily when placed on agar, allowing for a gentle transition from sample medium to growth medium. **For maximum culturability and superior collection of inhalable-size bioaerosols, combine 25-mm gelatin filters with the SKC Button Sampler; see below.**

Dia. (mm)	Support Pad	Notes	Cat. No.	Qty.
25	No	water soluble	225-9551 ^{†*}	50
37	No	water soluble	225-9552 [*]	50

[†] Recommended for use with IOM and Button Samplers; see pages 124-126

^{*} Storage at 39.2 to 46.4 F (4 to 8 C) recommended. Avoid temperatures < 39.2 F (4 C), moisture, and chemical vapors.

[‡] At inlet velocities of 0.25 m/s, 0.3 m/s (80% RH), and 0.3 m/s (50% RH), respectively

Gelatin Filters with the Button Sampler

Autoclavable Inhalable Sampler

The sterile, high-moisture properties of gelatin filters combine with the unique features of the Button Sampler for maximum microorganism survivability and superior collection of inhalable-size bioaerosols. The autoclavable Button Sampler's unique inlet contains evenly spaced holes that act as sampling orifices for multi-directional sampling. The proximity of the gelatin filter to the inlet minimizes transmission losses and provides for equal distribution of particles and low intersample variation for viable and non-viable analyses. **For more information on the Button Sampler, see page 126.**



Description	Cat. No.
Button Sampler Pump Kit includes Button Sampler, standard AirChek XR5000 Sample Pump, single charger, 3 feet (0.9 meter) of Tygon tubing, and calibration adapter, <i>requires a 25-mm filter</i> 100-240 V	210-4121

VersaTrap Spore Trap Cassette

Traps Smaller Mold Spores Using Higher Flows

- ▶ **High collection efficiency from 5 to 30 L/min**
 - VersaTrap captures *Aspergillus* and *Penicillium* mold spores as small as 1.5 µm at 30 L/min
- ▶ **A standard collection method for mold spore count and genus identification**
- ▶ **Easy analysis — ASTM Method D7391-09**
 - Positioning notches and flat edges provide for easy alignment on microscope stage
 - Uniform, well-defined rectangular deposition
- ▶ **Optimized slide adhesive**
 - Optically clear and tested for superior adhesion
- ▶ **SureSeal certified leak-free cassettes for sample integrity**
- ▶ **Unique serial number on each cassette for sample traceability**



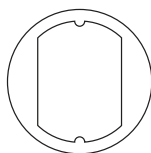
VersaTrap® Spore Trap Cassettes provide the sampling versatility needed to capture mold spores and other particles ranging from 1.5 to 3.9 µm. Sampling is as easy as selecting the flow rate that will target the desired particle size (see table below), calibrating a pump to the flow rate, and collecting the sample.

VersaTrap Design

The narrow slit inlet focuses particles toward the clear glass slide coated with a sticky substrate that holds the sample securely. Targeted size particles are effectively held in a well-defined rectangular footprint. Each slide is encased in a SureSeal certified leak-free cassette to ensure sample integrity.

VersaTrap Makes Analysis Easy

- Designed for easy slide removal
- Positioning notches and flat edges for fast, easy alignment
- Well-defined rectangular footprint for accurate analysis using standard equipment
- Adhesive prevents blurring or wash off during staining
- Unique serial numbers for sample traceability



High Flows + Low Cut-points + No Particle Bounce =
High Collection Efficiency

Flow Rate (L/min)	VersaTrap 50% Cut-point (µm)
30	1.5
25	1.7
20	1.9
15	2.3
10	2.8
5	3.9

Description	Cat. No.	Qty.
VersaTrap Spore Trap Cassettes, 37 mm, limited shelf-life	225-9820	10
	225-9821	50

For a list of microbiological laboratories, go to skcinc.com/lab.

the VersaTrap Advantage!

- ✔ **Uniform particle deposition**
Uniform rectangular deposition provides for accurate analysis using standard equipment.
- ✔ **High collection efficiency at flows between 5 and 30 L/min**
Target specific size particles for true versatility. See table below left for more information.
- ✔ **Unique serial numbering for sample traceability**
- ✔ **Positioning notches and flat edges on slide**
Fast, easy alignment on microscope stage

Tech Tips

- ▶ VersaTrap cassettes can be operated at 30 L/min to trap the smallest *Penicillium/Aspergillus* spores that other spore traps do not. VersaTrap provides a 150-liter sample at 30 L/min in only 5 minutes.

QuickTake 30 Pump Ideal for Spore Traps

see pages 34-35



More Information

- Visit skcinc.com/instructions/1649.pdf.
- See astm.org for spore trap analysis Method ASTM D7391-09.

skcinc.com

Filter Sampling Accessories

Filter and Cassette Holders



Cassette and Filter Holders

SKC Filter Cassette Holder — Reinforced to Prevent Tube Kinking

The lightweight SKC Filter Cassette Holder attaches firmly to the collar for sampling in the breathing zone. Its special design securely holds a two or three-piece 37-mm cassette with or without cyclone, 25-mm cassette with cowl, or DPM Cassette with GS-1 Cyclone. The Filter Cassette Holder includes 3 feet of 1/4-inch ID Tygon tubing and a 25-mm adapter ring (cassette in photo **not** included).



Cat. No. 225-1 ea

Specialty Filter Holders

13-mm Swinnex

- 2-section polypropylene with silicone seal
- Reusable
- Autoclavable with filter in place
- Specified in NIOSH Method 5503 for PCBs



Cat. No. 225-32 pk/10

Replacement silicone gaskets

Cat. No. 225-3201 pk/100

25-mm Delrin — Inline

- 2 section with inline stainless steel support
- Broad chemical compatibility and strength
- Useful for low pressure applications



Cat. No. 225-1109 pk/6

25-mm Delrin — Open-face

- Open-face with stainless steel support
- Lightweight and corrosion-resistant
- Includes 1/4-inch ID hose barb adapter



Cat. No. 225-1107 pk/6

47-mm Polycarbonate

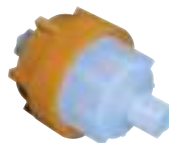
- Lightweight polycarbonate is ideal for air monitoring applications
- Opens and closes easily without disturbing the filter
- Autoclavable



Cat. No. 225-4702 ea

47-mm Savillex PFA

- Includes 1/4-inch ferrule nuts and wrench set
- Replace filters without disconnecting lines
- Operate within -328 to 500 F (-200 to 260 C)



Cat. No. 225-1712 ea

47-mm Polypropylene

- Ideal for vacuum and pressure air sampling applications
- Can be used with pressures up to 100 psig



Cat. No. 225-1147 ea

Filter Supports

Various materials are used to support filters during sampling. **Cellulose support pads** feature a smooth surface and uniform airflow distribution. **Porous plastic pads** are impervious to most solvents. Use **stainless steel screens** when cellulose or plastic will interfere with analysis.

Diameter (mm)	Support Material	Cat. No.	Qty.
25	Cellulose pad	225-28	100
25	Stainless steel screen, wide mesh	225-2625	ea
25	Polypropylene pad (porous plastic)	225-2901	100
37	Cellulose pad	225-27	100
		225-2700	500
37	Cellulose spacer ring	225-23	25
37	Polypropylene pad (porous plastic)	225-2902	100
37	Stainless steel screen, wide mesh	225-26	ea
37	Stainless steel screen, fine mesh	225-2637	ea
47	Cellulose pad	225-2903	100
47	Stainless steel screen, wide mesh	225-2647	2



*For Cassette Blanks
see page 113*

Cassette Shrink Bands

Specifically designed for use with sampling cassettes, SKC Cassette Shrink Bands are self-sealing, provide a smooth writing surface for sample identification, and make tampering evident.



Fit Cassette Diameter (mm)	Color	Cat. No.	Qty.	Quantity Pricing	
				Cat. No.	Qty.
25	White	225-2503	100	225-2503A	1400
25	Clear	—	—	225-2510	1400
37	White	225-25	100	225-25A	1000
37	Clear	225-2509	100	225-2509A	1000
37	Orange	225-2504	100	225-2504A	1000
37	Yellow	225-2507	100	225-2507A	1000
37	Red	225-2508	100	225-2508A	1000
37	Black	—	—	225-2515A	1000

Contact your SKC distributor.

Tubing for Connecting Pump and Media

Description/Applications	ID in (mm)	OD in (mm)	Cat. No.	Feet (Meters)
Tygon, sampling trains	³ / ₁₆ (4.76)	⁵ / ₁₆ (7.94)	225-1346	10 (3)
Tygon, sampling trains; fits over impinger sidearm, impinger inlet, filter cassette outlet, or Luer adapter	¹ / ₄ (6.35)	³ / ₈ (9.53)	225-13-4A	3.3 (1)
			225-13-4	10 (3)
			225-1345	50 (15)
Tygon, for calibrating DCS/DPS	⁵ / ₁₆ (7.94)	⁹ / ₁₆ (14.29)	225-1349	10 (3)
Tygon, sampling trains; for calibrating QuickTake Pumps	³ / ₈ (9.53)	¹ / ₂ (12.7)	225-1351	10 (3)
			225-1352	50 (15)
Latex Rubber, black, sampling trains	³ / ₁₆ (4.76)	⁵ / ₁₆ (7.94)	226-03-003	12 (3.7)
Latex Rubber, black, sampling trains; fits over impinger sidearm, impinger inlet, filter cassette outlet, or Luer adapter	¹ / ₄ (6.35)	³ / ₈ (9.53)	226-03-004	12 (3.7)
Latex Rubber, amber, sampling trains; fits over impinger sidearm, impinger inlet, filter cassette outlet, or Luer adapter	¹ / ₄ (6.35)	³ / ₈ (9.53)	225-1347	10 (3)
Polyurethane, reinforced to prevent kinking, sampling trains; fits over impinger sidearm, impinger inlet, filter cassette outlet, or Luer adapter	¹ / ₄ (6.35)	¹⁵ / ₃₂ (11.9)	225-1350	10 (3)
Spring Tubing Supports, use with ⁵ / ₁₆ -inch OD flexible tubing to prevent kinking, pk/5			225-1348	ea



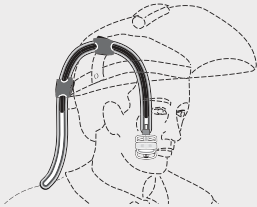
Tech Tips

- ▶ Consider your application before selecting tubing.
 - Tubing attached to the sampling media outlet does **not** contact the sample; therefore, the tubing material used is not critical, but should not be prone to kinking. Select the tubing best suited for the media and pump.
 - Tubing attached to the sampling media inlet for gas/vapor sampling contacts the sample during specialized applications such as bag sampling. Inert PTFE tubing is recommended because it prevents adsorption of the sample on the tubing's inner surface.
 - Tubing attached to the sampling media inlet for particulate sampling contacts the sample during specialized applications such as microvacuum sampling. Tygon tubing is typically used, as PTFE tubing can cause sample loss in the tubing due to static effect.

Filter Sampling Accessories

Sampling and Calibrating

Sampling and Calibrating



Helmet Adapter*

Ideal for welders or workers who wear a helmet with face shield; effectively holds a filter cassette or sample tube in the breathing zone regardless of visor position

Cat. No. 225-600..... ea

* Developed in Canada by IRSST (Institut de recherche Robert-Sauvé en santé et en sécurité du travail)

SKC Filter Cassette Holder

The lightweight SKC Filter Cassette Holder attaches firmly to the collar for sampling in the breathing zone. Its special design securely holds a two or three-piece 37-mm cassette with or without cyclone, 25-mm cassette with cowl, or DPM Cassette with GS-1 Cyclone. The Filter Cassette Holder includes 3 feet of 1/4-inch ID Tygon tubing and a 25-mm adapter ring (cassette in photo **not** included).



Cat. No. 225-1.....ea

Cassette Adapters

PVC Luer taper adapters connect a cassette to 1/4-inch ID tubing.

Cat. No. 225-13-2..... pk/10

Cat. No. 225-132A..... pk/250

Nickel-plated Brass

Cat. No. 225-13-3..... pk/10



Sampling Labels

Identify samples with sample number, date, flow rate, pump number, time on, and time off

Cat. No. 225-1370.....pk/500



Tubing, Collar Clip, and Cable Tie

For attachment of a sampling cassette to the collar; includes 3 feet of 1/4-inch ID Tygon tubing and one alligator clip attached to a nylon cable tie

Cat. No. 225-13-8..... ea

Collar Clip and Cable Ties Only

Cat. No. 225-13-6.....pk//10

Cat. No. 225-13-6A.....pk/25



Calibration Adapters

Use the guide below to find the calibration adapter or jar required to calibrate your SKC sampler.

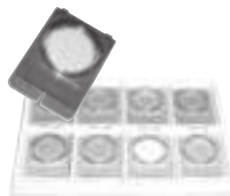
For SKC sampler	You need	
Disposable PPIs	Disposable PPI Calibration Adapter Cat. No. 225-389	
Reusable PPIs GS Cyclones Low Volume PUF Tubes	Calibration Jar, Standard Cat. No. 225-111	
Devices up to 8-inch length x 3.25-inch diameter	Calibration Jar, Large Cat. No. 225-112	
Aluminum Cyclones (25 and 37 mm)	Aluminum Cyclone Calibration Adapter Cat. No. 225-01-03	
Button Sampler IFV Pro Sampler	Button Sampler/IFV Pro Sampler Calibration Adapter Cat. No. 225-361	

For SKC sampler	You need	
IMPACT Sampler	IMPACT Sampler Calibration Adapter Cat. No. 225-394	
IOM Sampler	IOM Calibration Adapter Cat. No. 391-01	
PEM Sampler	PEM Calibration Adapter Cat. No. 761-202	
PMI Sampler	PMI Calibration Adapter Cat. No. 225-358	
BioStage Impactor	BioStage Calibration Adapter Cat. No. P33100	

Sampling, Transporting, and Storing

Filter-Keeper Filter Transport and Storage

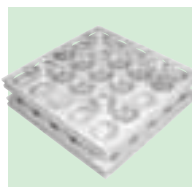
Minimize sample loss with static-dissipative plastic Filter-Keepers. The clamshell design locks the periphery of filters into place away from any surface. Eight Filter-Keepers can be kept in a numbered Filter-Keeper Archiving Tray that contains an area for labeling.



Description	Cat. No.	Qty.
25-mm Filter-Keepers include labels	225-8301	100
37-mm Filter-Keepers include labels	225-8303 225-8303A	100 10
Archiving Trays Only	225-8305	6

Kasset-Kaddy

Each tray securely holds twenty-five 37-mm cassettes for transport or storage. The 10 x 10-inch polypropylene trays fit commercially available desiccators/ovens.



Cat. No. 225-8321 pk/2

Petri Dish Slides

Easily transport filters up to 47 mm in diameter with Petri Dish Slides. The rectangular base fits most microscope stages.



Cat. No. 225-2-01 pk/100

Stainless Steel Filter Lifter

Speeds removal of filters from cassettes without damage



Cat. No. 225-13-7 ea

Filter Transport Case

Conductive plastic case securely holds 25-mm filters for transport.



Cat. No. 225-67 ea

Mini Sampler for Welding Aerosols

The Mini Sampler makes sampling inhalable manganese and other hazardous metals in welding fume easy! The Mini Sampler's open-face aluminum entry nozzle cassette fits onto the Face Level Sampling Headset that features the headband behind the neck, making it an easy, comfortable fit under a welding helmet. Validated for sampling manganese, the Mini Sampler and the Headset are identified in ISO 10882-1:2011 as the best mounting arrangement for sampling particulates (metals) in the breathing zone inside a welder's facemask. *Requires a 13-mm filter (see pages 104 and 112) and sample pump (see pages 10-23)*



Mini Sampler^Δ

Cat. No. 225-6201

Face Level Sampling Headset^Δ

Cat. No. 225-6200

Tube Holder/Cover for Face Level Headset

Fits a single 6-mm OD x 70-mm L sorbent tube

Cat. No. 225-6220

Calibration Adapter

Cat. No. 225-6202

^Δ Developed in a research project partly funded by the Swedish Work Environment Authority at Stockholm University, Sweden

Reference

Liden, G. and Surakka, J., "A Headset-Mounted Mini Sampler for Measuring Exposure to Welding Aerosol in the Breathing Zone," *Ann. Occup Hyg.*, Vol. 53, no. 2, 2009, pp. 99-116

Filter Handling Kit

Includes SureSeal Cassette Opener, filter lifter, and non-serrated flat-tip forceps in a carry case



Cat. No. 225-8372 ea

Glass Jars

37-mm glass jars with PTFE-lined caps provide for transport and sample solvent extraction in the field/lab.



Cat. No. 225-8377 pk/36

SureSeal Cassette Opener

The SureSeal Cassette Opener is a sturdy stainless steel crowbar with extended handle for easy opening of 25 or 37-mm cassettes. *Required for all SureSeal Cassettes*



Cat. No. 225-13-5A ea

Forceps

Non-serrated flat tips for delicate membranes

Cat. No. 225-8371 ea

Serrated pointed tips

Cat. No. 225-13-1 ea

PTFE-coated pointed tips to avoid contaminants when sampling for hexavalent chromium

Cat. No. 225-1344 ea

The SKC Particle Size-

Use this convenient guide to help select

Select a 50% Cut-point or Classification	< 1 µm	< 0.25 to > 2.5 µm	2.5 µm	4 µm
	Sub-micron	Ultrafine, Fine, and > PM2.5	PM2.5	Respirable

Select a Flow Rate (L/min)	1.7 or 2	9	2	3	4	10	10	2	2.5	2.75	4 and 8
----------------------------	----------	---	---	---	---	----	----	---	-----	------	---------

SKC Size-selective Samplers	DPM Cassette	Sioutas Impactor	PEM	PMI	PEM	IMPACT	PEM	PPI	Aluminum Cyclone	GS-3 Cyclone	PPI
Main Feature/Benefit	Ideal for DPM and nano-particles	Samples ultrafine, fine, and > PM2.5 particles simultaneously	Referenced in EPA IP-10A	High collection efficiency	Referenced in EPA IP-10A	High flow for increased sensitivity	Referenced in EPA IP-10A	Precisely matches ISO 7708/CEN criteria	Specified in NIOSH 7500 and 0600	Meets ISO 7708/CEN criteria	High flow for enhanced sensitivity
Page	111	136	134	135	134	133	134	130-132	129	128	130-132



DPM Cassette
Diesel Particulate Matter
Page 111



IMPACT Sampler
PM2.5/PM10/Coarse
Page 133



Sioutas Personal Cascade Impactor
Ultrafine/Fine/ > PM2.5
Page 136



*For sample pumps
see pages 10-15, 20-31*



Personal Modular Impactor (PMI)
PM2.5/PM10/Coarse
Page 135



Disposable Parallel Particle Impactor (PPI)
Respirable and Thoracic
Pages 130-131



Reusable Parallel Particle Impactor (PPI)
Respirable and Thoracic
Page 132

selective Sampler Guide

sampling devices to meet your applications.

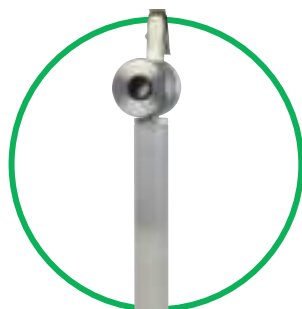
Select a 50% Cut-point or Classification	10 µm					100 µm			Particles < 10 µm but > 2.5 µm	
	Thoracic or PM10					Inhalable			PM Coarse	

Select a Flow Rate (L/min)	2	2	3	4	10	10	1	2	4	3	10
----------------------------	---	---	---	---	----	----	---	---	---	---	----

SKC Size-selective Samplers	PPI	PEM	PMI	PEM	PEM	IMPACT	IFV Pro	IOM	Button Sampler	PMI	IMPACT
Main Feature/Benefit	Precisely matches ISO 7708/CEN criteria	Referenced in EPA IP-10A	High collection efficiency	Referenced in EPA IP-10A	Referenced in EPA IP-10A	High flow for increased sensitivity	Simultaneous sampling of mixed-phase (aerosol and vapor)	Meets U.S. and international standards	Low-level PM sampling	High collection efficiency	High flow for increased sensitivity
Page	130-132	134	135	134	134	133	127	124-125	126	135	133



Aluminum Cyclone
Respirable
Page 129



IFV Pro Inhalable Sampler
Mixed-phase
Page 127



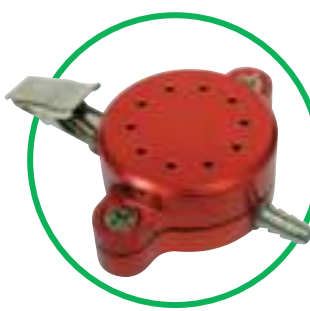
GS-3 Cyclone
Respirable
Page 128



IOM Sampler
Inhalable
Pages 124-125



Button Sampler
Inhalable
Page 126



Personal Environmental
Monitor (PEM)
PM2.5/PM10
Page 134



*For electronic real-time
particulate monitors
see pages 156-161*

Inhalable Samplers

2 L/min

MultiDust Foam Discs

MultiDust Foam Discs were developed by the UK Health and Safety Executive as a way to simultaneously collect inhalable and respirable particulate fractions and determine them by weighing the dust collected on the foam disc and final filter. **For respirable dust only, weigh the filter only.**

MultiDust Foam Discs are supplied with a certificate of conformity to ISO 7708 respirable dust criteria.

Cat. No. 225-772.....10/pk
Cat. No. 225-772-50.....50/pk



IOM Sampler with MultiDust Foam Disc inserted

Tech Tips

▶ **For simultaneous respirable and inhalable sampling,** use a plastic IOM, PVC filter, and MultiDust foam disc (see above). The plastic IOM's low tare weight is ideal for gravimetric determinations.

▶ **For bioaerosol sampling,** use the autoclavable stainless steel IOM and cassette with a polycarbonate filter and MultiDust foam disc. MultiDust fractionates the sample and better maintains microorganism survivability. See above.

* Reference: Kenny, et al., "A Collaborative European Study of Personal Inhalable Aerosol Sampler Performance," *Ann. Occup. Hyg.*, Vol. 4, No. 2, 1997, pp. 135-153

V Video	P PowerPoint	W Webinar	S Sampling Solution
------------	-----------------	--------------	------------------------

Visit skcinc.com/Training

IOM Sampler

A Gold Standard for Personal Inhalable PM Sampling

Meets U.S. and international standards

- ACGIH sampling criteria for inhalable particulate
- ISO/CEN health-related fractions of bioaerosols
- Preferred sampler for HSE Method MDHS 14/4
- Complies with MDHS 6/3 for lead (with accessory head)
- Complies with MDHS 25/3 for organic isocyanates (stainless steel only)
- NIOSH 5700 for particulate formaldehyde
- Australian standard for inhalable particulate
- OSHA-equivalent method for particulates not otherwise regulated (PNOR)[‡]

Small and lightweight

- Plastic model weighs less than 2 ounces (55 grams)

Maintains sample integrity

- Removable 25-mm cassette system eliminates filter handling
- Cassette with filter is weighed as a single unit to include all collected particles in analysis

Stainless steel cassette available for chemical analysis

- Autoclavable for bioaerosol sampling

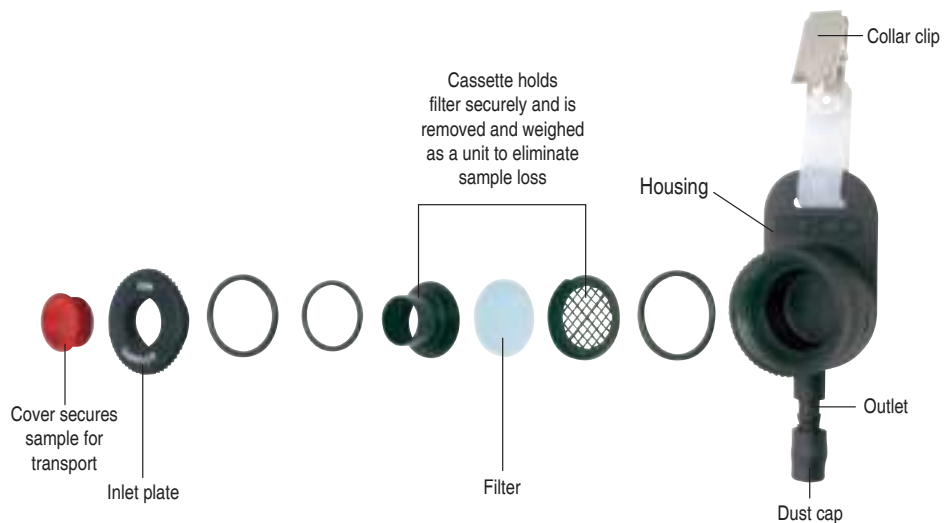
Use with MultiDust Foam Discs for simultaneous inhalable and respirable dust

- Determine respirable dust only by weighing the filter only

Sample Time:	Varies
Sample Rate:	2 L/min; see <i>Sampling News!</i> on p. 125
Sample Pump:	Universal XR or AirChek Series
Sample Media:	25-mm filters; see list on p. 125
Tubing:	1/4-inch ID

[‡] Reference: OSHA letter November 8, 2011; contact SKC for a copy

Only the authentic IOM Sampler developed by the Institute of Occupational Medicine (IOM) in Scotland has been tested by the Health and Safety Laboratory, Health and Safety Executive (HSE) in the UK and verified to meet the ISO/CEN convention (ISO 7708).^{*} The IOM Sampler houses a reusable 25-mm filter cassette that holds a method-specified filter for collection of inhalable particles. Operated with a 2 L/min personal sample pump, IOM is clipped near a worker's breathing zone and effectively traps particles up to 100 µm in aerodynamic diameter. **This method closely simulates the inhalation of particles through the nose and mouth.** The plastic cassette with filter is weighed as a single unit before and after sampling for gravimetric analysis. A stainless steel IOM cassette can be used for chemical analyses and bioaerosol sampling. Some higher flow applications for the IOM have been studied. *See Sampling News! on page 125.*



Professionals Choose the Authentic IOM

Only the original IOM Sampler can provide samples for the same measured dust concentration and aerodynamic size distribution as that inhaled by the worker, regardless of wind conditions and source of dust. IOM is widely accepted as one of the most effective inhalable particulate samplers available.

Description	Cat. No.
IOM Sampler and cassette, [†] in conductive plastic, with transport clip and cover	225-70A
IOM Sampler and cassette, [†] in stainless steel, with transport clip and cover	225-76A
IOM Sampler, [†] in conductive plastic, with stainless steel cassette, transport clip, and cover	225-79A

[†] A 25-mm filter is required for sampling with the IOM; see below.

25-mm Filters for IOM Sampler

The IOM Sampler requires a 25-mm filter for sampling. Select from the filters below to meet your application.

Description	Cat. No.	Qty.
PVC, 5.0 µm, 25 mm	225-5-25	100
Glass Fiber, 25 mm	225-702	500
MCE, 0.8 µm, 25 mm	225-1930	100
Polycarbonate, 0.8 µm, 25 mm	225-1601	100
Gelatin, sterilized, 25 mm	225-9551	50

Accessories

Description	Cat. No.
Cassette assembly, in conductive plastic, with transport clip and cover	225-71A
Cassette assembly, in stainless steel, with transport clip and cover	225-75A
Transport Clip and Cover	225-72A
IOM Calibration Adapter	391-01
Sampling Heads	
Seven Hole Head	225-50
Asbestos Head, 25-mm cowled aluminum sampler designed for use with a gridded filter as per HSG (UK) 248 for asbestos fibers	225-54A

Sampling News!

Higher Flow Rates Expand IOM Applications

There is a growing demand for higher flow inhalable sampling devices to evaluate very low levels of unique target compounds. Several studies identify alternative applications for the IOM Sampler at flows from 8.2 to 10.64 L/min while still meeting the ISO 7708 criteria. See *Technical Note 1977* at <https://bit.ly/2S97Uqe> for details.



Typically, a higher flow area sample pump, such as the SKC QuickTake 30, is used for these new applications due to the very high pressure drop of the filter at higher flow rates.



Conductive plastic cassette for gravimetric determinations



Stainless steel cassette available for chemical analysis and bioaerosol sampling

Inhalable Samplers

4 L/min

Tech Tips

Sampling Bioaerosols with the Button Sampler

► For growth cultures, use the Button Sampler with a sterile gelatin filter to help maintain microorganism viability.



Recommended Pumps for Button Sampler — AirChek TOUCH, Connect, Essential, or XR5000
see pages 10-15 or 20-21



Filter Transport Case
Cat. No. 225-67



More Information
skcinc.com

V
Video

P
PowerPoint

W
Webinar

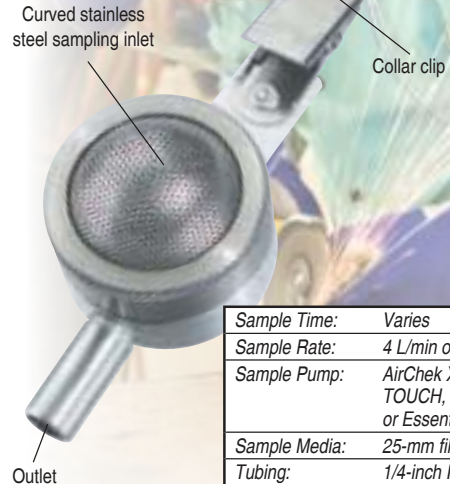
S
Sampling Solution

Visit skcinc.com/Training

Button Aerosol Sampler

Chemical or Biological Inhalable PM Sampling

- 4 L/min flow rate enhances sensitivity for low exposure limits
- Closely follows the ACGIH/ISO sampling criteria for inhalable particulate mass
- Inlet design reduces oversampling of very large particles and sensitivity to wind direction/velocity
- Suitable for area or personal sampling
- Stainless steel construction reduces electrostatic effects
- Suitable for collecting bioaerosols for viable or non-viable analysis
 - Autoclavable



Sample Time:	Varies
Sample Rate:	4 L/min optimum
Sample Pump:	AirChek XR5000, TOUCH, Connect, or Essential
Sample Media:	25-mm filters
Tubing:	1/4-inch ID

The reusable SKC Button Aerosol Sampler features a porous curved-surface inlet designed to improve the collection characteristics of inhalable dust (< 100- μ m aerodynamic diameter), including bioaerosols for viable or non-viable analysis. The conductive stainless steel inlet contains evenly spaced holes that act as sampling orifices for multi-directional sampling and low sensitivity to wind direction and velocity. The proximity of the filter to the inlet minimizes transmission losses and provides for equal distribution of particle loading and low intersample variation. The Button Sampler follows closely the ACGIH/ISO sampling criteria for inhalable particulate mass at 4 L/min. A convenient conductive plastic transport case is available for shipping samples to a laboratory for analysis.

Description	Cat. No.
Button Sampler , requires a 25-mm filter; see below	225-360
Button Sampler Pump Kit includes Button Sampler, standard AirChek XR5000 Sample Pump, single charger, 3 feet of Tygon tubing, and calibration adapter, requires a 25-mm filter; see below	100-240 V 210-4121
Accessories	
Button Sampler Calibration Adapter	225-361
Filter Transport Case , for 25-mm filters, conductive plastic	225-67

Recommended 25-mm Filters for Button Sampler

The Button Sampler requires a 25-mm filter for sampling. SKC recommends pore sizes greater than 1 micron to lower back pressure and enhance sample time with personal sample pumps. Select from the filters below to meet your application.

Description	Cat. No.	Qty.
PVC, 5.0 μ m, 25 mm	225-5-25	100
Glass Fiber , 25 mm	225-702	500
MCE, 1.2 μ m, 25 mm	225-1912	100
PTFE,† 3.0 μ m, 25 mm	225-1711	50
Gelatin , sterilized, 25 mm	225-9551	50

† Back pressure on PTFE filters can vary within the same lot.

SKC IFV Pro Sampler

Designed for ACGIH TLVs with IFV Designation

- ▶ **True inhalable fraction and vapor sampling simultaneously**
 - Collects aerosol phase on a 25-mm filter using IOM-style inlet
 - Collects vapor in an 8 x 110-mm sorbent tube
- ▶ **Uses standard sorbent tubes following published methods for designated compounds**
- ▶ **Recommended 1 L/min flow rate allows for effective collection of both contaminant phases**
- ▶ **Meets European Standard 13936 by collecting the total of vapor and aerosol exposures**

Sampling mixed-phase contaminants such as pesticides, polyaromatic hydrocarbons (PAHs), inorganic acids, and explosives is challenging because the vapor and aerosol phase distribution is constantly changing.

The IFV Pro Sampler features an IOM-style inlet for true inhalable sampling and collects vapor phase on a variety of method-specified sorbents.

IFV Pro Filter and Sorbent Tube Selection Guide

Compound	Recommended Filter*	Sorbent Tube†
Acrylamide	225-702	226-10-04
Alachlor	225-702	226-30-06
Aldrin	225-702	226-30-06
Azinphos-methyl	225-702	226-30-06
Butylated hydroxytoluene	225-702	226-211
Carbaryl	225-702	226-30-06
Carbofuran	225-702	226-30-06
Chlorpyrifos	225-702	226-30-06
Clopidol	225-702	226-30-06
Coumaphos	225-702	226-30-06
Cresol, all isomers	225-702	226-211
Demeton	225-702	226-30-06
Demeton S-methyl	225-702	226-30-06
Diazinon	225-702	226-30-06
Dibutyl phosphate	225-702	226-30-06
Dichlorvos	225-702	226-30-06
Dicrotophos	225-702	226-30-06
Dieldrin	225-702	226-30-06
Diesel fuel as total hydrocarbons	225-702	226-09
Diethanolamine	225-702	226-214
Dioxathion	225-702	226-30-06
Disulfoton	225-702	226-30-06
Endosulfan	225-702	226-30-06
2-Ethylhexanoic acid	225-702	226-10-04
Fenamiphos	225-702	226-30-06
Fensulfothion	225-702	226-30-06
Fenthion	225-702	226-30-06
Fonofos	225-702	226-30-06

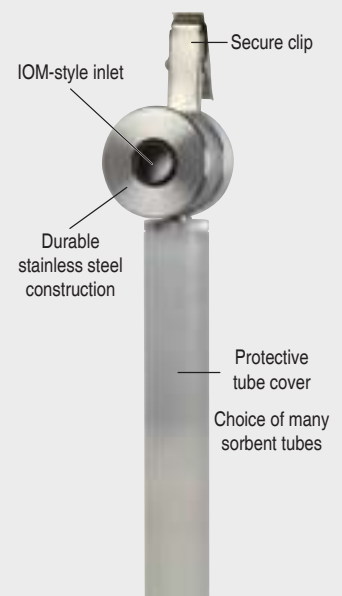
Compound	Recommended Filter*	Sorbent Tube†
Glyoxal	225-9036	226-119-7
Malathion	225-702	226-30-06
Maleic anhydride	225-9028	226-213
Methomyl	225-702	226-30-06
Methyl demeton	225-702	226-30-06
Methyl parathion	225-702	226-30-06
Mevinphos	225-702	226-30-06
Monochloroacetic acid	225-702	226-10-04
Monocrotophos	225-702	226-30-06
Naled	225-702	226-30-06
o-Phthalodinitrile	225-702	226-83
Parathion	225-702	226-30-06
Pentachlorophenol	225-702	226-211
Phorate	225-702	226-30-06
Propoxur	225-702	226-30-06
Ronnel	225-702	226-30-06
Sulfotepp	225-702	226-30-06
Sulprofos	225-702	226-30-06
Temephos	225-702	226-30-06
Terbufos	225-702	226-30-06
1,1,2,2-Tetrabromoethane	225-702	226-10-04
Tetraethylpyrophosphate (TEPP)	225-702	226-106A
Thiram	225-702	226-30-06
Toluene-2,4-diisocyanate	225-9035	—
Toluene-2,6-diisocyanate	225-9035	—
Xylidene isomers	225-702	226-10-04

* Filter details on pp. 112 and 114 † Sorbent tube details on pp. 50-54

ABOUT

ACGIH IFV Designation

ACGIH has assigned a TLV with Inhalable Fraction and Vapor (IFV) designation to over 50 compounds that exert sufficient vapor pressure such that the contaminant may be present in both particle and vapor phases, with each phase contributing a significant portion of the dose. See compounds in table at below left.



IFV Pro Sampler



For Sample Pumps
see pages 10-15 and 20-29

Description	Cat. No.
IFV Pro Sampler Kit includes sampling head (aerosol sampler body, cassette, and front plate), protective tube cover, calibration adapter, cassette cap, cassette transport container, 10 extra tube holders (rubber sleeves), and case; requires 25-mm filter and sorbent tube (see table above)	225-49K
Tube Holders (Rubber Sleeves), pack of 25, change after each sample	P3022A

Respirable Samplers

Cyclones: 2.75 and 1.7 or 2 L/min

Tech Tips

▶ Traditionally, respirable dust sampling with a cyclone has been performed using a clear styrene cassette. NIOSH now suggests that conductive black polypropylene cassettes are a better option for this application to minimize cassette wall losses (*Journal of Occ. and Env. Hygiene*, 10:3, 2013, pp. D29-D33). For conductive black polypropylene cassettes, see page 113.

GS Cyclones Accessories/ Replacement Parts

Replacement Cassette Adapters for GS-3 only	
37 mm.....	Cat. No. 225-102.....ea
25 mm.....	Cat. No. 225-101.....ea
Filter Cassette/Cyclone Holder, see p. 120 for details	
Cat. No. 225-1	ea
Standard-size Multi-purpose Calibration Jar, see p. 120 for details	
Cat. No. 225-111	ea
Replacement Grit Pots	
Cat. No. P225012.....	pk/25



More Information

Gautam, M. and Sreenath, A., "Performance of a Respirable Multi-inlet Cyclone," *Jnl. of Aerosol Science (U.K.)*, Vol. 28:7, 1997, pp. 1265-1281

Kar, K. and Gautam, M., "Orientation Bias of the Isolated 10 mm Nylon Cyclone at Low Stream Velocity," *AIHA Journal*, Vol. 56, 1995, pp. 1090-1098

skcinc.com



Visit skcinc.com/Training

GS-3 Respirable Dust Cyclone

Meets ISO 7708/CEN Criteria

- ▶ Operates at 2.75 L/min to conform to the ISO 7708/CEN criteria
 - Meets OSHA criteria
 - Suitable for ACGIH respirable TLVs
 - Higher flow rate increases sensitivity for lower concentrations
- ▶ Unique design overcomes disadvantages of 10-mm nylon cyclone
 - Multiple inlets eliminate ambient wind speed and orientation effects
- ▶ Conductive plastic eliminates electrostatic effects
 - Not a spark hazard for underground mine use



Sample Time:	Varies
Sample Rate:	2.75 L/min for 4-µm cut-point* (OSHA silica rule)
Sample Pump:	Universal XR or AirChek Series
Sample Media:	25 or 37-mm filters in 3-piece cassettes
Tubing:	1/4-inch ID

Use the lightweight 10-mm GS-3 Cyclone with a 25 or 37-mm three-piece filter cassette. See *Tech Tips* at above left.

Description		Cat. No.
GS-3 Cyclone with bowl adapter, cassette adapter, and grit pot	37 mm	225-100
	25 mm	225-103

* Calibrated at UK Health and Safety Laboratory; visit skcinc.com/prod/225-100.asp to view the collection efficiency curve

GS-1 Respirable Dust Cyclone

Equivalent to 10-mm Nylon Cyclone Without Static Concerns

- ▶ Use at 1.7 or 2 L/min with DPM Cassette for MSHA DPM compliance sampling
 - Screens out large particles to prevent DPM Cassette impactor and filter overload
- ▶ Conductive plastic construction
 - Eliminates electrostatic effects experienced with the 10-mm nylon cyclone
 - Not a spark hazard for underground mine use



Sample Time:	Varies
Sample Rate:	1.7 or 2 L/min with DPM Cassette (MSHA DPM sampling)
Sample Pump:	Universal XR or AirChek Series
Sample Media:	DPM Cassette or 37-mm filters in 3-piece cassettes
Tubing:	1/4-inch ID

Use the lightweight 10-mm GS-1 Cyclone with a 37-mm three-piece filter cassette or the SKC DPM Cassette.

Description	Cat. No.
GS-1 Cyclone with bowl adapter, 37-mm cassette adapter, and grit pot	225-105

Respirable Dust Aluminum Cyclone Listed in OSHA Silica Rule and NIOSH Methods

- ▶ **Operates at 2.5 L/min to conform to the ISO 7708/CEN criteria**
 - Meets requirements in the OSHA silica rule
 - Suitable for ACGIH respirable TLVs
- ▶ **Specified in NIOSH Method 7500 for silica and NIOSH 0600 for respirable particulates**
- ▶ **Eliminates adverse electrostatic effects**
- ▶ **Small and lightweight**
 - 2.6 x 1.5 inches (6.6 x 3.8 cm)
- ▶ **Used with an open-face three-piece cassette for more even particle deposition on the filter**
 - Available in 25 or 37 mm
 - Inserts into middle ring of cassette

Sample Time:	Varies
Sample Rate:	2.5 L/min for 4- μ m cut-point (OSHA silica rule)
Sample Pump:	Universal XR or AirChek Series
Sample Media:	25 or 37-mm filters in 3-piece cassettes
Tubing:	1/4-inch ID



The SKC Aluminum Cyclone is a lightweight respirable dust sampler that is placed into the middle ring of a three-piece cassette loaded with the appropriate filter. When attached to a sample pump, respirable particles collect on the filter and larger particles fall into the grit pot to be discarded. Available in 25 or 37 mm, the SKC Aluminum Cyclone provides sharp size selection of the respirable fraction. The SKC Aluminum Cyclone eliminates the electrostatic problems associated with nylon (non-conductive) cyclones and allows the cyclone to sample particles more efficiently. See *Tech Tips* at right.

ACGIH, NIOSH, the European Standard Committee (CEN), and the OSHA silica rule specify a respirable collection efficiency curve with a median cut-point of 4 μ m. A leading aerosol research organization calibrated the SKC Aluminum Cyclone. Results showed that using the cyclone at a flow rate of 2.5 L/min provided the optimum match to the ISO 7708/CEN respirable criteria. *Publication available upon request*

Easy-to-use Calibration Adapter

The aluminum calibration adapter fits both the 25 and 37-mm Aluminum Cyclones and allows standard 1/4-inch ID Tygon tubing to be attached for simple calibration.



Cat. No. 225-01-03

Description		Cat. No.
Cyclone [‡] with grit pot	25 mm	225-01-01
	37 mm	225-01-02
Accessories		
Calibration Adapter, 25/37 mm		225-01-03
Filter Cassette Holder, 25/37 mm		225-1
Replacement Grit Pots, pk/25		P225013
Replacement O-rings, for 37-mm cyclones, pk/5		P22501

[‡] Three-piece cassettes are required for use with SKC Aluminum Cyclones; see filter cassettes on pages 104-114.

Tech Tips

- ▶ A cyclone will not sample optimally if it is influenced by electrostatic charge. SKC cyclones are constructed of conductive plastic or aluminum that eliminates the static problem associated with non-conductive nylon cyclones.
- ▶ Cleaning cyclones before sampling prevents deviation in the collection efficiency curve.
- ▶ The cyclone grit pot must be in place during sampling for size selection to occur. Do **not** remove the grit pot during calibration and sampling.
- ▶ When calibrating size-selective samplers such as cyclones, use the sampler's calibration adapter. If an adapter does not exist, use the multi-purpose calibration jar with the smallest volume. See page 120.

Plastic Cyclone

The SKC Plastic Cyclone is designed to sample respirable dust as per MDHS 14/4 and the ISO/CEN criteria. The static-dissipating cyclone features a snap-together cassette system and is used at a 3.0 L/min flow rate with a 25 or 37-mm cyclone cassette. Cyclones include a grit pot. The Plastic Cyclone is also suitable for MDHS 10/2 and 91.



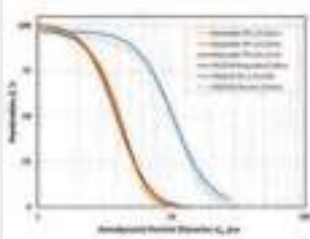
Description	Cat. No.
Plastic Cyclone with 25-mm plastic cassette	225-69-25
Plastic Cyclone with 37-mm plastic cassette	225-69-37
Filter Transport Cassette, for 25-mm filters	225-67
Cassette, 25 mm	225-62-25
Cassette, 37 mm	225-62-37

Respirable and Thoracic Samplers

Disposable — 2, 4, or 8 L/min

PPI Advantages

- ▶ **Patented* PPI four-impactor design** provides a closer match to the entire ISO 7708/CEN curve (see graphed comparison of PPIs and criteria below).



- ▶ **Small, less obtrusive for worker**



- ▶ **Handy calibration adapter** — no calibration jar needed!



- ▶ **No tipping hazard!**
Invert PPI without causing large particles to invalidate the filter sample.



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 and NIOSH respirable dust methods**
- ▶ **Available in three flow rates for your applications**
 - 2 and 4 L/min models for TWA sampling
 - 8 L/min model for shorter-term sampling
- ▶ **Disposable anti-static plastic, designed for one-time use**
- ▶ **Disposable PPI® Sampler Options**
 - **Preloaded** with filter by SKC
 - **Empty** for filter loading by a laboratory or the user
 - **All disposable PPIs** are preloaded with pre-oiled impaction substrates in the inlet section
- ▶ **Performance published in Journal of Physics and referenced in the OSHA final silica rule**
- ▶ **Thoracic model ideal for sampling metalworking fluids (NIOSH Method 5524 and TLV), hard metals with Co, and tungsten carbide as Co**
- ▶ **Ask us about respirable PPI with preweighed filter!**



Sample Time:	Select PPI model and contact lab for sample time to meet LOQ
Sample Rate:	2, 4, or 8 L/min
Sample Pump:	Universal XR or AirChek Series; Leland Legacy for 8 L/min
Sample Media:	37-mm filter and support
Tubing:	1/4-inch ID

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

SKC Silica Sampling Kits

Make compliance monitoring of airborne silica concentrations easy by choosing a basic or deluxe SKC Silica Sampling Kit as your complete silica sampling toolbox. Each kit includes preloaded Disposable PPI Respirable Dust Samplers, sample pump and charger, calibrator or rotameter, and calibration and sampling accessories, all in a convenient tool case.



Cat. No. 220-5000TC-K-S with AirChek TOUCH pump and chek-mate Calibrator shown

See more at skcinc.com/silicabrochure

Disposable Parallel Particle Impactors (PPIs) Single-use Plastic — Convenient for Professionals and Labs

Preloaded Disposable Plastic PPI Samplers





Select the PPI for the desired convention.

Description	Cat. No.	Qty.
Preloaded Disposable PPI Samplers* contain four porous plastic disc impaction substrates, one 37-mm cellulose support, and one collection filter as noted		
Respirable PPI (red) , 8 L/min, plastic, with 5.0- μ m PVC filter	225-3841	ea
Respirable PPI (orange) , 4 L/min, plastic, with 5.0- μ m PVC filter	225-3871	ea
Respirable PPI (gold) , 2 L/min, plastic, with 5.0- μ m PVC filter	225-3851	ea
Thoracic PPI (blue) , 2 L/min, plastic, with 0.8- μ m MCE filter	225-3861	ea
With Preweighed Filter		
Respirable PPI (red) , 8 L/min, plastic, 5.0- μ m PVC filter preweighed to 5 decimals	225-3841-PW	ea
Respirable PPI (orange) , 4 L/min, plastic, 5.0- μ m PVC filter preweighed to 5 decimals	225-3871-PW	ea
Respirable PPI (gold) , 2 L/min, plastic, 5.0- μ m PVC filter preweighed to 5 decimals	225-3851-PW	ea

* Designed for one-time use

User-loaded Disposable Plastic PPI Samplers

Select the PPI for the desired convention.

Description	Cat. No.	Qty.
User-loaded Disposable PPI Samplers* contain four porous plastic disc impaction substrates, require collection filter and support; see information below and select based on application		
Respirable PPI (red) , 8 L/min, plastic 	225-384	ea
Respirable PPI (orange) , 4 L/min, plastic 	225-387	ea
Respirable PPI (gold) , 2 L/min, plastic 	225-385 225-385A	ea 25
Thoracic PPI (blue) , 2 L/min, plastic 	225-386	ea
Filters for User-loaded PPI Samplers		
PVC Filters , 37 mm, 5.0- μ m pore size	225-5-37	100
MCE Filters , 37 mm, 0.8- μ m pore size	225-5	100
Filter Supports for User-loaded PPI Samplers		
Support Pads , cellulose, 37 mm	225-27	100
Stainless Steel Screen , 37 mm, wide mesh	225-26	ea

* Designed for one-time use

Accessory	Cat. No.	Qty.
Calibration Adapter , for Disposable PPI Samplers only	225-389	ea

For Reusable PPIs, see page 132.



*Partner SKC pumps
with PPI Samplers
see pages 10-31*



*For the SM-4000
Direct-reading
Silica Monitor
see page 156*

*See PPI Silica Sampling
Solution Video and other
silica sampling training.*

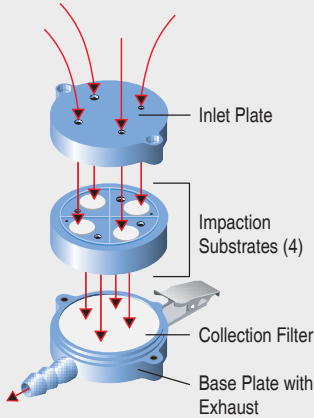
V Video	P PowerPoint	W Webinar	S Sampling Solution
Visit skcinc.com/Training			

Respirable and Thoracic Samplers

Reusable - 2, 4, or 8 L/min

PPI Advantages

► **Patented* PPI four-impactor design** provides a closer match to the entire ISO 7708/CEN curve (see graph on page 130).



► **No tipping hazard!**
Invert PPI without causing large particles to invalidate the filter sample.



Partner SKC pumps with PPI Samplers see pages 10-31

V P W S
Video PowerPoint Webinar Sampling Solution

Visit skcinc.com/Training

Reusable 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**
- **Available in three flow rates for your applications**
 - 2 and 4 L/min models for TWA sampling
 - 8 L/min model for shorter-term sampling
- **Reusable conductive aluminum — use with any suitable 37-mm filter**
- **Load with disposable pre-oiled impaction substrates**
 - Reduce particle bounce and buildup effects
- **Only 3.3 ounces (93.6 grams) — ideal for personal and area sampling**
- **Performance published in *Journal of Physics* and referenced in the OSHA final silica rule**
- **Thoracic model ideal for sampling metalworking fluids (NIOSH Method 5524 and TLV), hard metals with Co, and tungsten carbide as Co**



Sample Time:	Select PPI model and contact lab for sample time to meet LOQ
Sample Rate:	2, 4, or 8 L/min
Sample Pump:	Universal XR or AirChek Series; Leland Legacy for 8 L/min
Sample Media:	37-mm filter and support (and four impaction substrates)
Tubing:	1/4-inch ID

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

Reusable Aluminum PPI Samplers

Select the PPI for the desired convention, choose application-appropriate filter and support, and order impaction substrates (see below).

Description	Cat. No.	Qty.
Reusable PPI Samplers, require substrates, filters, and supports		
Respirable PPI (red), 8 L/min, aluminum	225-383	ea
Respirable PPI (orange), 4 L/min, aluminum	225-382	ea
Respirable PPI (gold), 2 L/min, aluminum	225-380	ea
Thoracic PPI (blue), 2 L/min, aluminum	225-381	ea

Collection Filters, required for sampling	Cat. No.	Qty.
PVC Filters, 37 mm, 5.0-µm pore size	225-5-37	100
MCE Filters, 37 mm, 0.8-µm pore size	225-5	100

Impaction Substrates, four required for each sample for Reusable Aluminum PPI models	Cat. No.	Qty.
Porous Plastic Discs, 3/8-inch diameter, pre-oiled, ready to use, disposable	225-388	200

Accessories	Cat. No.	Qty.
Multi-purpose Calibration Jar	225-111	ea
Forceps, stainless steel, with non-serrated flat tips	225-8371	ea
Filter-Keeper, for transport and storage of 37-mm filters	225-8303A	10

For Disposable PPIs, see pages 130-131.

IMPACT Sampler

Ambient PM10, PM2.5, or PM Coarse Sampling at 10 L/min

- Ideal for environmental PM sampling and indoor air studies
- Use with Leland Legacy or any pump at 10 L/min
- Compact design
- Higher flow rate provides increased sensitivity
- Convenient operation
 - Removable filter cassette for fast media changes
 - Disposable ready-to-use pre-oiled impaction discs reduce particle bounce — no cleaning or greasing
 - Included rain cover protects sampler during outdoor use
 - Optional quick-mount bracket secures sampler virtually anywhere

**Featured in
the DPS System!
see pages 32-33**



Leland Legacy Pump for IMPACT

While IMPACT can be used with any pump at 10 L/min, partnering IMPACT with the Leland Legacy sample pump provides a highly efficient sampling system for environmental monitoring or indoor air studies. See more information on the Leland Legacy Pump on pages 30-31 and the DPS System on pages 32-33.

The patented[‡] SKC IMPACT single-stage inertial impactor is designed for the efficient collection of PM10, PM2.5, or PM Coarse (10-2.5) in ambient air. IMPACT media changes are as easy as removing the filter cassette and replacing it with one already loaded. IMPACT's higher flow rate requirement provides increased sensitivity for low levels of PM. Go to skcinc.com/instructions/Modular_Impactors_Poster.pdf for sampling efficiency data.

Sample Time:	Varies
Sample Rate:	10 L/min
Sample Pump:	Leland Legacy
Sample Media:	47-mm filter, requires impaction substrate
Tubeing:	3/8-inch ID

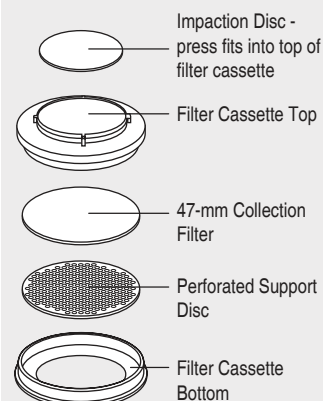
IMPACT Sampler	Cat. No.	Qty.
IMPACT Sampler includes sampler inlet and body, filter cassette, calibration adapter, and rain cover for sampler; requires collection media and impaction substrate sold separately; see below		
PM2.5	225-392	ea
PM10	225-390	ea
PM Coarse includes 2 filter cassettes	225-3911	ea
Collection Filters for IMPACT Sampler (not supplied with IMPACT or DPS System) Select a filter based on your application; required for sampling		
Quartz Filters , 47 mm, Tissuquartz, 432 µm thick	225-1823	25
PTFE Filters , [§] 47 mm, 2.0-µm pore size, with PMP support ring	225-1747	50
Impaction Substrate , required for sampling; limited shelf-life		
Impaction Discs , 37 mm, pre-oiled, ready to use, disposable	225-395	25
	225-395A	50
Accessories		
IMPACT Sampler Inlet Only , interchangeable on IMPACT body	PM2.5 PM10	P54204 P54202
		ea ea
Filter Cassette	225-396	ea
Filter Cassette Opener	225-397	ea
Mounting Bracket	225-399	ea
PM Coarse Ring includes filter cassette, adapts IMPACT PM10 to an IMPACT PM Coarse	225-3912	ea
Petri Dish Slide , for filter transport	225-2-01	100
Calibration Adapter	225-394	ea

[‡] U.S. Patent No. 7,334,453

[§] Back pressure on PTFE filters can vary within the same lot.

For a deployable particulate sampling system featuring the IMPACT Sampler, see the DPS System on pages 32-33.

Convenient All-in-one Filter Cassette



V Video	P PowerPoint	W Webinar	S Sampling Solution
Visit skcinc.com/Training			

PM2.5/PM10 Samplers

2, 4, or 10 L/min

Pumps for sampling with the PEM



- 2 or 4 L/min flow rates, see the AirChek Series on pages 10-15, 20-21, or 28-29
- 10 L/min flow rate and 24-hour sampling, see the Leland Legacy on pages 30-31

PEM Applications

- Childhood asthma studies
- Green Building certification
- IAQ studies
- School zone investigations



► **LEED Green Buildings**
Indoor Air Maximum
Concentration: 15 µg/m³

Source: LEED for New Construction Rating System v4 (U.S. Green Building Council, usgbc.org)

V	P	W	S
Video	PowerPoint	Webinar	Sampling Solution

Visit skcinc.com/Training

Personal Environmental Monitor (PEM) Choice of Flows for PM10 and PM2.5 in Indoor Air

- Referenced in EPA Method IP-10A
 - For particles in indoor air
- Small and unobtrusive
 - Can be connected to a personal sample pump and worn in the breathing zone
- Suitable for LEED Green Building sampling



The Personal Environmental Monitor is a small, lightweight impaction device used with a personal sample pump to provide effective sampling of PM10 and PM2.5 in indoor air. Personal exposure is determined through gravimetric analysis for particle mass and chemical analysis for specific compounds.

Sample Time:	Varies
Sample Rate:	2, 4, or 10 L/min
Sample Pump:	Universal, AirChek Series, or Leland Legacy
Sample Media:	37-mm PTFE filters*
Tubing:	3/16-inch ID

How the PEM Works

The PEM consists of three major parts: cap, impaction ring assembly, and base. A 37-mm after-filter is inserted in the base and the PEM assembled. When used with a personal sample pump at the required flow rate, aerosol is accelerated through a number of nozzles in the cap. Through inertia, particles larger than the 50% cut-point of the sampler impact onto a greased impaction ring and can be discarded after sampling. Particles smaller than the 50% cut-point pass through the impactor and collect on the 37-mm after-filter. Six models of PEM are available for the collection of PM10 or PM2.5 at three different flow rates.

Cut-point	Model	Flow Rate	Cat. No.
2.5 µm		2 L/min	761-203
		4 L/min	761-203A
		10 L/min	761-203B
10 µm		2 L/min	761-200
		4 L/min	761-200A
		10 L/min	761-200B
Accessories			
	PEM Calibration Adapter		761-202
	After-filter, 37-mm, 2.0-µm PTFE* with PMP support ring, pk/50		225-1709

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

Personal Modular Impactor (PMI)

Personal PM10, PM2.5, or PM Coarse Sampling at 3 L/min

- Closely follows PM2.5 or PM10 as defined by EPA (see far right)
- Use with any constant flow pump at 3 L/min
- Disposable, pre-oiled impaction discs
 - Reduce particle bounce for high collection efficiency
- Compact and lightweight — only 2.5 ounces (71 grams)!
 - Ideal for personal or micro-environmental sampling
- Convenient modular design for easy operation
 - Removable filter cassette for easy media changes
 - Convenient clip for mounting sampler in the breathing zone
- PMI PM10 model is easily converted with accessory ring to measure PM Coarse

No cleaning or greasing!



Sample Time:	Varies
Sample Rate:	3 L/min
Sample Pump:	Universal XR or AirChek Series
Sample Media:	37-mm filter, requires impaction substrate
Tubing:	1/4-inch ID

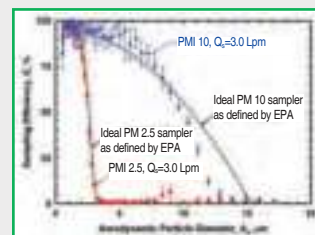
The patented* SKC single-stage Personal Modular Impactors are designed for the highly efficient collection of PM10, PM2.5, or PM Coarse (10-2.5). The samplers are easy to use with their removable filter cassette and pre-oiled impaction disc. The 25-mm pre-oiled impaction disc mounts directly on top of the filter cassette to reduce particle bounce for high collection efficiency. A 25-mm filter may be used as an alternative impaction substrate for chemical analysis of particles. The PMI Coarse model includes a second filter cassette to allow collection of particles < 10 µm but > 2.5 µm (see About at right).

PMI Sampler	Cat. No.	Qty.
Personal Modular Impactor includes impactor and filter cassette with support screen, requires collection filter and impaction substrate sold separately; see below		
PM2.5 (gold)	225-352	ea
PM10 (silver)	225-350	ea
PM Coarse includes 2 filter cassettes and filter retainer	225-351	ea
Recommended Collection Filters, required for sampling		
Quartz Filters, 37 mm, Tissuquartz, 432 µm thick	225-1822	25
PTFE Filters,† 37 mm, 2.0-µm pore size, with PMP support ring	225-1709	50
PTFE Filters,† 37 mm, 1.0-µm pore size	225-3705	150
Recommended Impaction Substrate, required for sampling; limited shelf-life		
Pre-oiled Porous Plastic Discs,‡ 25 mm, ready to use, disposable	225-355	25
	225-355A	50
Accessories		
PM Coarse Ring includes filter cassette, adapts a PMI 10 to a PMI Coarse	225-3512	ea
Replacement Filter Cassette	225-356	ea
PMI Cassette Opener	225-357	ea
Forceps, stainless steel, non-serrated flat tips, see p. 121	225-8371	ea
Filter-Keepers, 37 mm, for filter transport, see p. 121	225-8303	100
	225-8303A	10
PMI Calibration Adapter	225-358	ea
Filter Retainer, secures filter in impaction substrate position on top of cassette	225-354	ea

* U.S. Patent No. 7,334,453 † Back pressure on PTFE filters can vary within the same lot.
 ‡ A 25-mm filter may be used as an alternative impaction substrate for chemical analysis; see pages 104-112 for filters.

ABOUT

PMI Performance
 The graph below demonstrates the high sampling efficiency of the PMI PM2.5 and PM10 Samplers when compared to the EPA PM2.5 and PM10 criteria curves. For more information, visit skcinc.com/instructions/Modular_Impactors_Poster.pdf.



ABOUT

PM Coarse Sampling with PMI
 The PMI Coarse model includes a PM10 inlet, PM2.5 inlet (Coarse Ring), and two filter cassettes. **In Stage 1**, a 25-mm impaction substrate is placed in the top of the filter cassette beneath the PM10 inlet, but no collection filter is installed. **In Stage 2**, a 25-mm filter is placed in the impaction substrate position in the top of the second filter cassette beneath the PM2.5 (Coarse Ring) while a 37-mm collection filter is loaded into the cassette bottom. This allows for the collection of particles < 10 µm but > 2.5 µm.

Data Interpretation

Particulates as PM10

- ▶ **LEED Green Buildings**
 Indoor Air Maximum
 Concentration: 50 µg/m³
- ▶ **Health Care Facilities Maximum**
 Concentration: 20 µg/m³

Source: LEED for New Construction Rating System v4 (usgbc.org)

Ultrafine/Fine/> PM2.5 Samplers

9 L/min

the Sioutas Impactor **Advantage!**

Choose the Sioutas Personal Impactor for the highly efficient collection of airborne particles in five size ranges:

- ✓ > 2.5 µm
- ✓ 1.0 to 2.5 µm
- ✓ 0.50 to 1.0 µm
- ✓ 0.25 to 0.50 µm
- ✓ < 0.25 µm

Recent epidemiological studies show that ultrafine, fine, and > 2.5-µm particles may have greater pulmonary inflammatory potency than larger particles and associate increased morbidity and mortality with increased exposure to these particles. The Sioutas Impactor is the only personal impactor that precisely separates and collects ultrafine, fine, and > 2.5-µm particles simultaneously.

SKC Sioutas Impactor and Leland Legacy

U.S. EPA-ETV Performance Verified **ETV**

The U.S. EPA Environmental Technology Verification (EPA-ETV) Program has verified the performance of the SKC Sioutas Impactor with the Leland Legacy Sample Pump (see pages 30-31) as an improved and cost-effective technology. See the report at epa.gov/etv/vt-ams.html.



More Information

Misra, C., et al., "Development and Evaluation of a Personal Cascade Impactor Sampler (PCIS)," *Journal of Aerosol Science*, 33, 2002, pp. 1027-1047

V

Video

P

PowerPoint

W

Webinar

S

Sampling Solution

Visit skcinc.com/Training

Sioutas Personal Cascade Impactor

Separates Ultrafine, Fine, and > 2.5-µm Particles Simultaneously

- **Precise particle separation**
 - Particle size cut-points: 2.5, 1.0, 0.50, and 0.25 µm
 - The only personal impactor that efficiently samples ultrafine, fine, and > 2.5-µm particles simultaneously
 - Maintains high collection efficiency even at high particle concentrations
- **Optimized at a 9 L/min flow rate with low pressure drop for 24-hour sampling**
 - Improves analytical sensitivity
 - Minimizes non-detectable samples
- **Preserves unstable compounds**
 - Chemically inert collection substrate
 - No impaction grease to contaminate sample
- **Minimal particle bounce and internal wall losses**
- **Suitable for sampling in outdoor** and indoor environments**
- **Size-fractionated samples can be analyzed gravimetrically, chemically, and microscopically**
- **Small and lightweight for personal or area sampling**

Sample Time:	Varies
Sample Rate:	9 L/min
Sample Pump:	Leland Legacy
Sample Media:	25 and 37-mm filters
Tubing:	3/8-inch ID



Leland Legacy Sample Pump

The compact, portable, and battery-operated Leland Legacy Sample Pump provides a 9 L/min flow rate for optimum Sioutas Impactor performance. For more information, see pages 30-31.

The patented[†] Sioutas Personal Cascade Impactor* separates and collects airborne particles in five size ranges: > 2.5 µm, 1.0 to 2.5 µm, 0.50 to 1.0 µm, 0.25 to 0.50 µm, and < 0.25 µm. When used with PTFE filters, the Sioutas Impactor is highly efficient at collecting particles without using impaction grease or substrate coatings and at retaining unstable compounds for size-fractionated chemical analysis.

Use the Sioutas Impactor with the Leland Legacy Sample Pump at 9 L/min to ensure precise particle separation at the specified cut-points. Particles above each cut-point are collected on a 25-mm filter in the appropriate stage with particles less than 0.25 µm collecting on the 37-mm after-filter (optional). The small, lightweight Sioutas Impactor simply clips to a worker's collar or lapel for personal sampling and is also suitable for area sampling.

Description	Cat. No.
Sioutas Personal Cascade Impactor	225-370
Tubing, Tygon, 3/8-inch ID, fits Sioutas Impactor and Leland Legacy pump, 10 feet	225-1351

Filters for Sioutas Impactor

Description	Qty.	Cat. No.
After-filter, PTFE, ‡ 37 mm, 2.0 µm (optional)	50	225-1709
Collection Filter (filter for 4 stages), PTFE, ‡ 25 mm, 0.5 µm, required	250	225-3708

* Developed by Dr. Constantinos Sioutas of the University of Southern California in partnership with the Mickey Leland National Urban Air Toxics Research Center (NUATRC)

† U.S. Patent No. 6,786,105 (University of Southern California)

‡ Back pressure on PTFE filters can vary within the same lot.

** Requires special provisions; see product operating instructions