

# SKC Filters

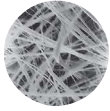
Top Quality Materials for All Agency Methods

SKC 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 Material	Features	Pages
Mixed Cellulose Ester (MCE)	<ul style="list-style-type: none"> <li>• Hydrophilic</li> <li>• Low metal background</li> <li>• Autoclavable</li> <li>• Biologically inert</li> <li>• Low artifact – dissolves/clears completely</li> </ul>	100-102
Silver	<ul style="list-style-type: none"> <li>• Chemically inert</li> <li>• High temperature resistant and autoclavable</li> <li>• Uniform porosity and thickness</li> <li>• Bacteriostatic</li> <li>• Hydrophilic and inorganic</li> </ul>	103
Polycarbonate	<ul style="list-style-type: none"> <li>• Smooth surface</li> <li>• Thin, transparent, and non-staining</li> <li>• Chemically resistant; biologically inert</li> <li>• Thermally stable up to 284 F (140 C)</li> <li>• Exceptionally low tare weight</li> </ul>	103
Polyvinyl Chloride (PVC)	<ul style="list-style-type: none"> <li>• Low tare weight</li> <li>• Very hydrophobic</li> <li>• Low ash</li> </ul>	104-105
Polytetrafluoroethylene (PTFE)	<ul style="list-style-type: none"> <li>• Strong and resistant to acids, bases, and solvents</li> <li>• Hydrophobic</li> <li>• Low background</li> <li>• Low tare mass</li> <li>• Autoclavable</li> </ul>	106
Quartz Fiber	<ul style="list-style-type: none"> <li>• Binder-free</li> <li>• Low metal background</li> <li>• Hydrophobic</li> <li>• Autoclavable</li> <li>• Heat treated</li> </ul>	107
Glass Fiber	<ul style="list-style-type: none"> <li>• Binder-free</li> <li>• High temperature tolerant</li> <li>• Autoclavable</li> <li>• Hydrophobic</li> <li>• High particle retention</li> </ul>	108
Cellulose Fiber	<ul style="list-style-type: none"> <li>• 100% pure</li> <li>• Ashless</li> <li>• Autoclavable</li> <li>• Hydrophilic</li> </ul>	108
Gelatin	<ul style="list-style-type: none"> <li>• Pre-sterilized by gamma irradiation</li> <li>• High moisture content</li> <li>• Water soluble – dissolves easily on agar</li> <li>• Suitable for bioaerosols</li> </ul>	109

### ABOUT

#### Classifying Aerosol Sampling Filters



Glass fiber filter



Polycarbonate filter

Filters used for collecting airborne particles fall into three categories. Understanding the differences is important to selecting filters that are optimal for specific applications.

#### Fibrous Filters

*Glass Fiber, Cellulose, Quartz*

Intertwined fibers that form irregular openings and complex structures that allow particles to deposit on the structural elements of the filter.

#### Porous Membrane Filters

*MCE, Nylon, PTFE, PVC, Silver*

Most commonly used type of filter for aerosol sampling. High collection efficiency; captures smaller than stated pore size.

#### Capillary Pore Filters

*Polycarbonate*

Smooth translucent surface with straight-through cylindrical holes of uniform diameter. Good for electron microscopy and x-ray fluorescence.

#### Nano-Neat – Certified Background Level for 18 Metals

SKC tests and certifies background traces of 18 metals to ensure suitability of Nano-Neat for sampling and analysis with NIOSH Method 7300. Each box of Nano-Neat Cassettes contains a list of background testing results for each metal below. See ordering below right.

Aluminum (Al)	Lead (Pb)
Antimony (Sb)	Lithium (Li)
Arsenic (As)	Magnesium (Mg)
Beryllium (Be)	Manganese (Mn)
Cadmium (Cd)	Molybdenum (Mo)
Chromium (Cr)	Nickel (Ni)
Cobalt (Co)	Titanium (Ti)
Copper (Cu)	Vanadium (V)
Iron (Fe)	Zinc (Zn)

#### Questions?

Contact skctech@skcinc.com.

## MCE Membrane Filters

### A Gold Standard for IH Sampling

#### MCE Filters

All SKC MCE filters are independently tested to verify low background.

Diameter (mm)	Pore Size (µm)	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. 120-121)	225-1930	100
25	0.8	No	black grid	225-1913	100
25	1.2	No	recommended for Button Sampler (p. 122)	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

† Filter supports available on page 115

#### Matched-weight MCE Filter Pairs for User-loading

Matched-weight MCE filter pairs are certified as matched in weight to within 50 µg. 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 µm, matched-weight within 50 µg, filter pairs only	225-532	50
47	MCE, 0.8 µm, matched-weight within 50 µg, filter pairs only	225-531	50

#### Preloaded MCE Filters

These preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 117.

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

\* BestChek certified; see page 102 for details † Available in conductive cassette \*\* Available with tamper-evident band around plug

#### Matched-weight MCE Filters Preloaded in Cassettes

These preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 117.

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

\*\* Available with tamper-evident band around plug

#### Nano-Neat MCE Filter Cassettes — for Clean Environments

Ultra-pure for sampling workplace metals; certified background levels for 18 metals per filter (see left). Cassettes are tinted purple for easy identification. Each box contains a Certificate of Compliance. These preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 117.

Diameter (mm)	Filter Specifications	Cassette Description	Cat. No.	Qty.
25	MCE, 0.8 µm, Nano-Neat	2-pc purple styrene, banded	225-8402	50
37	MCE, 0.8 µm, Nano-Neat	2-pc purple styrene, banded	225-8408	50

## Solu-CAP Internal Capsule Sampler

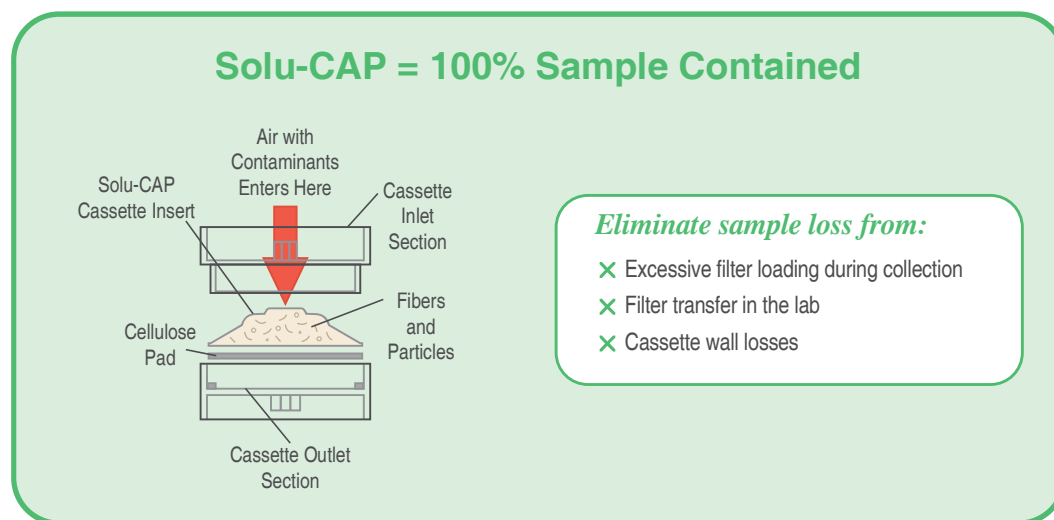
### Captures the Entire Sample for Metals Analysis

- 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 12-23*

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.



### 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, requires a sample pump (pp. 12-23) and SureSeal Cassette Opener (see below)	225-8517	50
<b>Accessory</b>		
SureSeal Cassette Opener	225-13-5B	ea

*SKC Solu-CAPs can be made using Nano-Neat filters (see page 100). Contact SKC!*

### New to Air Sampling?

Access free SKC expertise and training!



[WWW.SKCINC.COM](http://WWW.SKCINC.COM)



#### 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, <https://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, <https://doi.org/1wv3>

NIOSH Method 7306 Elements by Cellulosic Internal Capsule Sampler, <https://bit.ly/3uZ7AAi>

Video

PowerPoint

Webinar

Sampling Solution

Visit [skcinc.com](http://skcinc.com)

### 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.

SKC BestChek cassettes are certified only after they are tested twice for low background.

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



#### Microvacuum Cassettes for Asbestos

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

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

**Cat. No. 225-322**

Non-conductive clear styrene with nozzle, 37-mm, 0.45-µm MCE filter, for TEM analysis, and cellulose support

**Cat. No. 225-9543**

## Certified BestChek Asbestos Cassettes

### The Highest Standard for Cassette Reliability

#### SKC Certified BestChek Filters in Conductive Black Polypropylene Cassettes

*These preloaded 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 page 31.*

#### Flite4 Area Pump

*Programmable High Flow Asbestos Pump*

- Flows from 2 to 20 L/min
- Battery or AC operation, long run times
- Robust powder-coated mild steel casing with handle
- Weighs 4.5 pounds (2.06 kg)
- Programmable
- Backlit LCD display
- Can be operated in two orientations



*See details and ordering on page 30.*

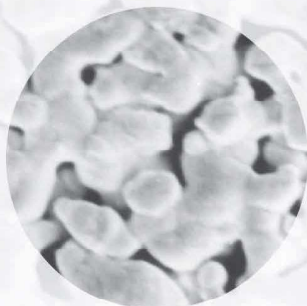
## Asbestos Sampling Heads and Accessories

Description	Cat. No.	Qty.
<b>Asbestos Sampling Heads, 25 mm, require 25-mm gridded filters</b>		
Plastic cowl	225-54	ea
Aluminum cowl	225-54A	ea
<b>Rigid Sampling Mast, aluminum, designed for use with Flite4 pump (see above), 1 meter high</b>		
Two piece	901-213	ea
Four piece	901-214	ea

<b>V</b> Video	<b>P</b> PowerPoint	<b>W</b> Webinar	<b>S</b> Sampling Solution
Visit <a href="http://skcinc.com">skcinc.com</a>			

## Silver Membrane Filters Specified for X-ray Diffraction Analysis

- **Chemically inert, high temperature resistant**
  - Autoclave and reuse repeatedly<sup>#</sup> 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**



*For size-selective samplers  
see pages 118-132*

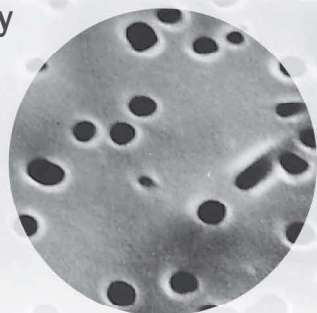
Diameter (mm)	Pore Size (µm)	Cat. No.	Qty.
25	0.8	225-1803	50
25	0.45	225-1802	50
37	0.8	225-1801	25
47	0.8	225-1804	25

<sup>#</sup> Single use only for silica analysis

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

## Polycarbonate Filters Ideal for Microscopy

- **Chemically resistant, thermally stable,<sup>†</sup> and strong**
- **Thin, transparent, non-staining, and smooth**
  - Ideal for light and electron microscopy
  - Exceptional background for sample observations
- **Exceptionally low tare weight**
- **Biologically inert**



*For filter sampling  
accessories  
see pages 114-117*

Diameter (mm)	Pore Size (µm)	Support Pad <sup>‡</sup>	Notes	Cat. No.	Qty.
25	0.4	No		225-1608	100
25	0.8	No	use with IOM (pp. 120-121)	225-1601	100
37	0.4	No		225-1609	100
37	0.8	No		225-1602	100
47	0.4	No		225-1610	100

<sup>‡</sup> Filter supports available on page 115

<sup>†</sup> Maximum operating temperature is 284 F (140 C).

### Preloaded Polycarbonate Filters

These preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 117.

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

These preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 117.

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

\* Available in a Carpet Sampling Cassette Kit; see page 138



*For sample pumps  
see pages 16-21*

### Accu-CAP Internal Capsule Eliminates Cassette Wall Losses

*For filter cassette holders, openers, adapters, and other accessories see pages 114-117*



*SKC recommends AirChek Series Pumps for use with Accu-CAP see pages 12-21*

- 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 0501), respirable dust (NIOSH 0600), carbon black (NIOSH 5100), and more



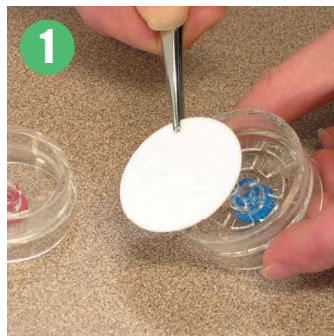
Use Accu-CAP® Internal Capsules to meet NIOSH 0501 requirements for inclusion of all wall deposits in the sample. Accu-CAP features a static-dissipative plastic dome sealed to a quality PVC filter. The user preweighs the Accu-CAP, places it between the inlet and outlet sections of a two-piece 37-mm SKC-manufactured 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

##### 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, <https://doi.org/ww3>

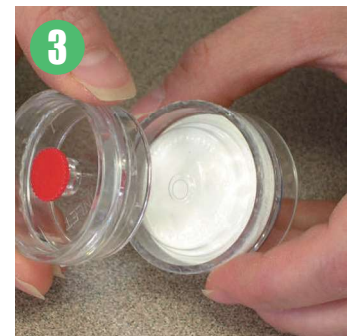
NIOSH Backup Data Report, NIOSH Method No. 0501/5100, [www.cdc.gov/niosh/nmam/pdf/0501\\_5100\\_bud.pdf](http://www.cdc.gov/niosh/nmam/pdf/0501_5100_bud.pdf)



1 Prepare SKC 2-piece cassette with support pad.



2 Weigh Accu-CAP and insert in cassette.



3 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. 115)	225-8516GLA	60

60 pk means more savings!

V Video	P PowerPoint	W Webinar	S Sampling Solution
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Visit [skcinc.com](http://skcinc.com)

## GLA-5000 PVC Membrane Filters

### The No. 1 Filter for Silica and Other Dusts

► **Low ash, suitable for multiple NIOSH/OSHA/ASTM/HSE 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 127*

### PVC Filters

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

<sup>‡</sup> Filter supports available on page 115

<sup>†</sup> Recommended for use with IOM and Button Samplers; see pages 120-122

### Accu-CAP PVC Internal Capsule — see page 104

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 0501, 0600, and 5100.

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



### Preloaded PVC Filters

These preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 117.

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
Preloaded Prewighed PVC Filters				
37	5.0 µm, preweighed, 5 decimals	2-piece clear styrene, banded	225-8204A	10
			225-8205A	50
37	5.0 µm, preweighed, 5 decimals	3-piece clear styrene, banded	225-8208A	10
			225-8209A	50

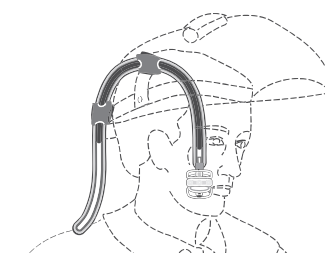
\*\* Available with tamper-evident band around plugs

### Matched-weight PVC Filters

These comprise two same-type filters matched in weight to within 25 µg; they do not require pre-weighing. Those supplied preloaded in SureSeal leak-free cassettes require a SureSeal Cassette Opener; see page 117.

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



### Helmet Adapter<sup>#</sup>

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

<sup>#</sup> Developed in Canada by IRSST (Institut de recherche Robert-Sauvé en santé et en sécurité du travail)



### Face Level Headset

With its headband-behind-the-neck design, the Face Level Headset securely holds welding aerosol sampling media while providing a comfortable fit under a welding helmet.

*See page 117 for details*

<b>V</b> Video	<b>P</b> PowerPoint	<b>W</b> Webinar	<b>S</b> Sampling Solution
Visit <a href="http://skcinc.com">skcinc.com</a>			

### TECH TIPS

- ▶ Back pressure on PTFE filters can vary within the same lot.
- ▶ PTFE filter temperature resistance provides stability up to 500 F (260 C).
- ▶ Use PTFE filters for industrial hygiene sampling of polynuclear aromatic hydrocarbons (PAHs).
- ▶ These hydrophobic PTFE filters are specified for environmental particulate sampling with gravimetric analysis.



*For size-selective samplers  
see pages 118-132*

*Looking for preweighed PTFE Membrane Filters?  
Contact SKC for details.*



*For Sample Pumps  
see pages 14-23*

## 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**
- ▶ **Also available in 10.0-µm pore size — contact SKC**

PTFE filters are the versatile choice. 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, metalworking fluids, in the pharmaceutical industry, and more.

### PTFE Membrane Filters

Diameter (mm)	Pore Size (µm)	Support Pad <sup>†</sup>	Notes	Cat. No.	Qty.
25	0.5	No	unlaminated	225-17-21	100
25	1.0	No	unlaminated	225-17-22	100
25	2.0	No	unlaminated	225-17-23	100
25	5.0	No	unlaminated	225-1728A	100
37	0.5	No	unlaminated	225-17-31	100
37	1.0	No	unlaminated	225-17-32	100
37	2.0	No	unlaminated	225-17-33	100
37	5.0	Yes	unlaminated	225-17P	100
47	0.5	No	unlaminated	225-17-41	100
47	2.0	No	unlaminated	225-17-43	100
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 <sup>†</sup>	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

<sup>†</sup> Recommended for use with the Button Sampler; see page 122

<sup>‡</sup> Filter support pads available on page 115

### Preloaded PTFE Membrane Filters

These preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 117.

Diameter (mm)	Filter Specifications	Cassette Description	Cat. No.	Qty.
25	PTFE, 1.0 µm, with polyethylene support pad	2-piece black conductive, goblet style, not banded	225-1725	50
		3-piece black conductive, goblet style	225-1721	50
37	PTFE, 0.3 µm, laminated with spun-bound polyester with cellulose support; for viruses and other bioaerosols	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

\*\* Available with tamper-evident band around plugs



## 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  $\geq 1$  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](http://cdc.gov/niosh/docs/2013-145)



### DPM Cyclone

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

DPM Cyclone includes grit pot, retaining ring, and clip to attach to worker's clothing  
Cat. No. 225-68

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 on DPM Cassette is 8.04 cm <sup>2</sup>	225-317*	10

\* Limited shelf-life † Requires 1/4-inch ID tubing or Filter Cassette/Cyclone Holder; see pp. 114

### 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

These preloaded filters include supports and are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 117.

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

\*\* Available with tamper-evident band around plugs



See GS-1 Cyclone on page 124

## ABOUT

### Quartz Fiber Filters

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

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

Tissuquartz has a typical retention efficiency of 99.90% for 0.3- $\mu$ m DOP particles at 32 L/min per 100 cm<sup>2</sup> filter media.

Video

PowerPoint

Webinar

Sampling Solution

Visit [skcinc.com](http://skcinc.com)

## Quartz Fiber Filters

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

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

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

¥ 432  $\mu$ m thick

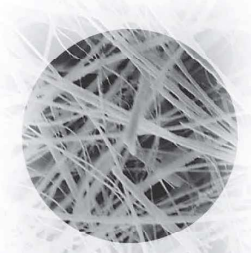
# 380  $\mu$ m thick

‡ 450  $\mu$ m thick

### ABOUT

#### Fibrous Filter Pore Size Rating

The pore size rating for fibrous filters is commonly termed “nominal” or approximate. This is due to the method for determining pore size. Fibrous 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 fibrous 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  $\geq x \mu\text{m}$ .”



Glass fiber filters are specified in EPA methods for environmental particulate matter gravimetric analysis

**Need a different size or tamper-evident banded cassette?**

Contact SKC!

## Glass Fiber Filters

- High-temperature tolerant — autoclavable
- Made of binder-free borosilicate glass fiber for purity
- Chemical and pH resistant; biologically inert
- Available with binder for excellent wet strength, easier handling, and filter integrity
- High particle retention
- Hydrophobic

SKC quality Glass Fiber Filters are suitable for both liquid and air filtration and are used where high flow rate and micron/submicron filtration are required. Select from several options.

### A/E Glass Fiber Filters

Pure and ideal for gravimetric analysis of air pollutants and testing dissolved/suspended wastewater solids.

Dia. (mm)	Pore Size ( $\mu\text{m}$ ) <sup>Δ</sup>	Description	Cat. No.	Qty.
13	1.0	Binder free	225-16	500
25	1.0	Binder free, recommended for IOM & Button Sampler (pp. 120-122)	225-702	500
37	1.0	Binder free	225-7	500
47	1.0	Binder free	225-7047	100
			225-714	500
8 x 10 inches	1.0	Binder free	225-7-07	100

Δ Liquid nominal; see About at above left

### Specialty Glass Fiber Filters

These specialty options provide for applications that require additional characteristics such as high purity, strength, and long duration or suitability for high pressure, wet, high dirt loading, and large sample volumes.

Dia. (mm)	Pore Size ( $\mu\text{m}$ ) <sup>Δ</sup>	Description	Cat. No.	Qty.
25	1.0	Extra thick (50 mil) with acrylic binder	225-703	100
25	1.6	Binder free, GF/A	225-58F	100
25	0.7	Binder free, GF/F	225-731	100
37	1.0	Binder free, A/B	225-701	100
37	—	PTFE coated	225-705	100

Δ Liquid nominal; see About at above left

### Preloaded Glass Fiber Filters

SKC preloaded filters are in SureSeal leak-free cassettes requiring a SureSeal Cassette Opener; see page 117.

Dia. (mm)	Filter Specifications	Cassette Description	Cat. No.	Qty.
25	Glass Fiber, A/E, 1.0 $\mu\text{m}$ , <sup>Δ</sup> no support	2-piece clear plastic, banded	225-710	50
25	Glass Fiber, Type GF/F, 0.7 $\mu\text{m}$ , polyethylene support	3-piece black conductive	225-730	50
37	Glass Fiber, A/E, 1.0 $\mu\text{m}$ , <sup>Δ</sup> cellulose support	2-piece clear plastic, banded	225-709**	50
37	Glass Fiber, A/E, 1.0 $\mu\text{m}$ , <sup>Δ</sup> cellulose support	3-piece clear plastic, banded	225-706**	50

Δ Liquid nominal; see About at above left

\*\* Available with tamper-evident band around plugs

*Glass Fiber GF/F is available in 37 and 47-mm packs for EPA Method 1311 (TCLP). Contact SKC!*

## Cellulose Fiber Filters

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

Dia. (mm)	Pore Size ( $\mu\text{m}$ )	Description	Cat. No.	Qty.
37	—	Type 40	225-18A	500

## Gelatin Membrane Filters

### Maintain Viability of Collected Microorganisms

- **Absolute retention rate**
  - 99.9995% for *Bacillus subtilis var. niger* spores<sup>†</sup>
  - 99.94% for T3 phages (coli phages)<sup>‡</sup>
  - 99.9% T1 phages (coli phages)<sup>‡</sup>
- **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 membrane filters provide unequalled bacteria retention levels for quantitative analysis. Sampling with gelatin membrane filters is easy and efficient and can provide information about relative changes in microorganism concentration throughout the day. Gelatin membrane 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 membrane filters with the SKC Button Sampler; see below.**

Dia. (mm)	Support Pad	Notes	Cat. No.	Qty.
25	No	Water soluble	225-9551 <sup>†*</sup>	50
37	No	Water soluble	225-9552 <sup>*</sup>	50

<sup>†</sup> Recommended for use with IOM and Button Samplers; see pages 120-122

<sup>\*</sup> Storage at 39.2 to 46.4 F (4 to 8 C) recommended. Avoid temperatures < 39.2 F (4 C), moisture, and chemical vapors.

<sup>‡</sup> At inlet velocities of 0.25 m/s, 0.3 m/s (80% RH), and 0.3 m/s (50% RH), respectively

## Gelatin Membrane Filters with the Button Sampler

### Autoclavable Inhalable Sampler

The sterile, high moisture properties of gelatin membrane 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 membrane 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 122.**



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

## ABOUT

### Why Use Gelatin Membrane 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 membrane filters helps to maintain microorganism viability for sampling periods up to 30 minutes. In addition, studies with T3 viruses and coronavirus have shown gelatin membrane filters to be the most suitable for sampling viruses (low passage and high detection sensitivity) due to their complete solubility.

### References

Fairfield Estill, C., Baron, P., et al., "Comparison of Air Sampling Methods for Aerosolized Spores of *B. anthracis* Sterne," *Jnl. of Occ. and Env. Hyg.*, 8:3, 2011, pp. 179-186, <https://doi.org/cppbh7>

Yao, M. and Mainelis, G., "Analysis of Portable Impactor Performance for Enumeration of Viable Bioaerosols," *Jnl. of Occ. and Env. Hyg.*, 4:7, 2007, pp. 514-524, <https://doi.org/cxd7kk>

Burton, N., Grinshpun, S., and Reponen, T., "Physical Collection Efficiency of Filter Materials for Bacteria and Viruses," *Annals of Occup. Hygiene*, 51:2, 2007, pp. 143-151, <http://dx.doi.org/10.1093/annhyg/mel073>



*For sample pumps  
see pages 14-23*



## Coated Filter Selection Guide

Chemical	Method	Preloaded Filter; Coating (in 37-mm cassettes)	Cat. No.*	Qty.
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. 111)	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, organic	MDHS 25/4 (UK)	1 25-mm A/E 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-Tolidine	NIOSH 2017 †	2 Glass Fiber filters; sulfuric acid	225-9004 †	10
Tolidine (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; contact SKC

† Made to order due to very limited shelf-life

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

§ Storage ≤ 39.2 F (4 C) required

‡ Also requires Sorbent Tube Cat. No. 226-15, see page 48

# Collects both vapor and aerosol phases of fluorides

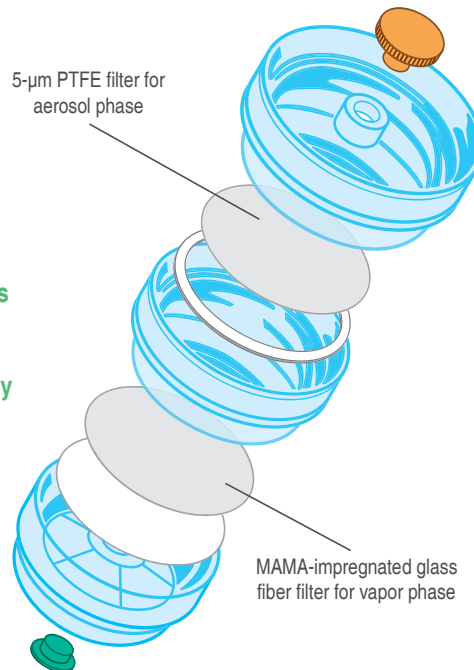
• Requires 22-ml threaded midjet impinger and sorbent-containing trap. See method for more information.

‡ Limited shelf-life, storage ≤ 39.2 F (4 C) required; refrigerated shipping not required. Requires Cat. No. 225-9050; see p. 111.

## ISO-CHEK

### Simultaneous and Separate Collection of Isocyanate Phases

- **Accurately samples diisocyanates: HDI, MDI, IPDI, 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 MDI
- **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](http://skcinc.com/lab)



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

Calibration standards available!

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, <sup>†††</sup> preloaded clear cassettes (not banded) and jars of Derivatizing Solution (MOPIP in toluene)	225-9023	4
	225-9023A	10
ISO-CHEK Sampling Cassettes, <sup>**</sup> preloaded clear cassettes (not banded) for isocyanates, <i>require Derivatizing Solution; see below</i>	225-9022	12
	225-9022A	36

Accessories	Cat. No.	Qty.
Derivatizing Solution, <sup>†††</sup> 5 ml of MOPIP in toluene, in jars	225-9050	12
Jars, 37 mm with PTFE-lined cap	225-8377	36
Calibration Standard, <sup>‡</sup> MAMA-HDI, 1 gram	225-9053	ea
Calibration Standard, <sup>‡</sup> MAMA-IPDI, 1 gram	225-9054	ea
Calibration Standard, <sup>‡</sup> MAMA-MDI, 1 gram	225-9062	ea
Calibration Standard, <sup>‡</sup> MAMA-2,4-TDI and 2,6-TDI, 1 gram	225-9052	ea
Calibration Standard Set, <sup>‡</sup> HDI, MDI, IPDI, 2,4-TDI, 2,6-TDI, 1 gram each	225-9055	ea
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, storage ≤ 39.2 F (4 C) required; refrigerated shipping not required

### ADVANTAGES

- ✓ **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).

*For ISO-CHEK analytical laboratories visit [skcinc.com/lab](http://skcinc.com/lab)*

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