

Button Aerosol Sampler

For Low-level Inhalable PM Sampling

- 4 L/min flow rate enhances sensitivity
- Follows closely the ACGIH/ISO sampling criteria for inhalable particulate mass at 4 L/min
- Low sensitivity to wind direction and velocity
- Reduces electrostatic effects
- Small and lightweight for personal sampling
- Reduces oversampling of very large particles
- Can collect bioaerosols for viable or non-viable analysis
- Kit available for sampling heavy metals during abrasive blasting
- Autoclavable
- Ideal for personal and area sampling



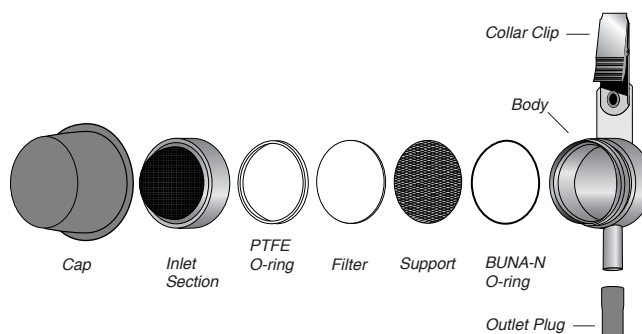
Description

The patented*, reusable SKC Button Aerosol Sampler is a filter sampler with a porous curved-surface inlet designed to improve the collection characteristics of inhalable dust ($< 100 \mu\text{m}$ aerodynamic diameter), including bioaerosols for viable or non-viable analysis. The curved, multi-orificed inlet, made of conductive stainless steel, reduces electrostatic effects and reduces sensitivity to wind direction and velocity. The proximity of the filter to the inlet minimizes transmission losses and provides equal distribution of particle loading and low intersample variation. The Button Sampler closely follows the ACGIH/ISO sampling criteria for inhalable particulate mass at 4 L/min. A convenient conductive plastic transport case is available for shipping the filters to a laboratory for analysis.

* U.S. Patent Nos. 5,954,845 and 5,958,111

Collection of Inhalable Bioaerosols

The SKC Button Aerosol Sampler provides superior collection of inhalable particles including bacteria and fungal spores. Use the Button Sampler with a 25-mm membrane filter such as MCE or PVC to collect bioaerosols for viable or non-viable analysis. Using SKC gelatin filters with the Button Sampler helps to maintain viability of stress-sensitive microorganisms during short sampling periods. The Button Sampler is used with a sample pump capable of 4 L/min for personal inhalable particulate sampling following the ACGIH/ISO criteria.



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Operation

The SKC Button Sampler is easy to operate. Simply unscrew the inlet section, remove the PTFE O-ring, place a conditioned and weighed 25-mm filter on the stainless steel support screen, replace the O-ring, and screw the inlet section back onto the sampler. Connect the Button Sampler to a personal sampling pump; clip the sampler onto a worker's collar and the pump to the worker's belt. Sample for the appropriate time period.

An easy-to-use calibration adapter is available for the Button Sampler. Simply push the calibration adapter onto the Button Sampler inlet and connect the adapter inlet to a primary standard calibrator. Calibrate to 4 L/min.



Button Sampler
with Calibration
Adapter

Abrasive Blasting Sampler for Heavy Metals

SKC has created an Abrasive Blasting Sampler for Heavy Metals Kit that contains a Button Aerosol Sampler and a protective shield. This sampler is designed to withstand the mechanical stress from blasting operations. The sampler's shield protects the filter from shredding or being overloaded by large particles thrust into the sampler. The Abrasive Blasting Sampler for Heavy Metals efficiently collects inhalable heavy metal particles[#] with low sensitivity to ambient conditions. The U.S. military has used the SKC Abrasive Blasting Sampler for Heavy Metals during abrasive blasting operations. The sampler withstood very high particle concentration and provided recoverable samples and meaningful exposure information.



[#] The SKC Abrasive Blasting Sampler for Heavy Metals is not suitable for sampling silica. While silica is commonly found in abrasive blasting environments, sampling for silica using OSHA Method ID 142 requires a cyclone.

References

Gao, P., Chen, B., Baron, P., Soderholm, S., "A Numerical Study of the Performance of an Aerosol Sampler with a Curved, Blunt, Multi-Orificed Inlet," *Aerosol Science and Technology*, Vol. 36, 2002, pp. 540-553

Aizenberg, V., Reponen, T., Grinshpun, S., Willeke, K., "Performance of Air-O-Cell, Burkard, and Button Samplers for Total Enumeration of Airborne Spores," *American Industrial Hygiene Association Journal*, Vol. 61, Nov/Dec, 2000, pp. 855-864

Aizenberg, V., Grinshpun, S., Willeke, K., Smith, J., Baron, P., "Performance Characteristics of the Button Personal Inhalable Aerosol Sampler," *American Industrial Hygiene Association Journal*, Vol. 61, 2000, pp. 398-404

Aizenberg, V., England, A., Grinshpun, S., Willeke, K., Carlton, G., "Metal Exposures Among Abrasive Blasting Workers at Four U.S. Air Force Facilities," *Applied Occupational and Environmental Hygiene*, Vol. 15, No. 10, 2000, pp. 766-772

Performance Profile

Flow Rate: 4 L/min^Δ

Construction: **Sampling inlet:** Conductive stainless steel
Body: Aluminum
Support screen: Stainless steel
Clip: Stainless steel and nylon
O-rings: PTFE (inlet) and BUNA-N (body)

Filter: 25 mm**

Analysis: **Inhalable dust:** Gravimetric (GR)
Fungal spores: Epifluorescence microscopy, immunoassay, or polymerase chain reaction (PCR)
Metals: X-ray Fluorescence (XRF)

Tubing: 1/4-inch ID

^Δ The Button Sampler closely follows the ACGIH/ISO inhalability curve at 4 L/min. This provides optimum sampling.

^{**} A filter pore size of 1.0 μm or larger is recommended for use with the Button Sampler to reduce back pressure.

Ordering Information

Description	Cat. No.
Button Sampler , requires a 25-mm filter, see below	225-360
Abrasive Blasting Kit includes Button Sampler and protective shield; requires a 25-mm filter, see below	225-367
Button Sampler Pump Kit includes Button Sampler, standard AirChek XR5000 Sample Pump, single charger with cable, 3 feet (0.9 meter) Tygon tubing, and calibration adapter; requires a 25-mm filter, see below	100-240 V 210-4121
Accessories	
Protective Shield , for abrasive blasting environments	225-366
Button Sampler Calibration Adapter	225-361
Filter Transport Case , for 25-mm filters, conductive plastic	225-67

Filters (25 mm)	Cat. No.
Glass fiber , pk/500	225-702
Polyvinyl chloride (PVC) , 5.0 μm , pk/100	225-5-25
PTFE[†] with PMP support (Teflo[®]) , 3.0 μm , pk/50	225-1711
Mixed cellulose ester (MCE) , 1.2 μm , pk/100	225-1912
Gelatin[†] , sterilized, pk/50	225-9551

[†] Gelatin filters dissolve when placed on agar.

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

[∞] Maximum operating temperature is 464 F (240 C) based on PMP support ring.

SKC Limited Warranty and Return Policy

SKC products are subject to the SKC Limited Warranty and Return Policy, which provides SKC's sole liability and the buyer's exclusive remedy. To view the complete SKC Limited Warranty and Return Policy, go to <http://www.skcinc.com/warranty.asp>.



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