



What's new with...

SAMPLING METALS

Nearly 150 years ago, steel sparked the Industrial Revolution. SKC's hometown of Pittsburgh, Pennsylvania produced much of the steel that built our nation's bridges, skyscrapers, and automobiles. Still today, society is dependent on the mining and metals industries to provide essential components for modern conveniences. The National Mining Association (www.nma.org) reports that telephones are made from as many as 42 different minerals including aluminum, beryllium, copper, gold, and iron. A television requires 35 different minerals and more than 30 minerals are needed to make a computer.



Pittsburgh, PA — The "Steel City"

U.S. occupational health professionals have focused on the safety and health of mining and metal industry workers since the pioneering work of Dr. Alice Hamilton. In 2012, unfortunately, many problems have not yet been solved and exposed individuals continue to suffer health effects from toxic levels of metallic compounds.

So, the work continues. Environmental and occupational health agencies remain diligent in their efforts to develop technologies to measure and control exposures. SKC is pleased to work with these agencies to bring sampling technologies to those in the front line protecting the health and safety of exposed individuals.

Open this publication to view the latest updates on sampling technologies available from SKC for metallic compounds.

What's new with...

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- SAMPLE PUMPS FOR METALS
AIRCHEK XR5000 Sample Pump Page 12



What's new with...

LEAD

Field Detection Kit

THE ISSUE

Even minute amounts of lead on skin can result in a toxic accumulation with sufficient doses over time. Lead on hands and surfaces can transfer to food, beverages, and cigarettes, where it is ingested resulting in a toxic body burden in lead workers. In addition, lead dust on worker skin and clothing can be carried home posing a significant, yet preventable, exposure risk to family members.

NIOSH conducted health hazard evaluations (HHEs) at two lead battery-manufacturing plants to further study this issue¹. Hand wipe samples taken at the facilities showed lead levels of 6000 to 20,000 µg per pair of hands in target areas. This contamination was spread by hand contact to work surfaces including doorknobs, railings, food tables, and vending machine buttons. NIOSH found that workers who had washed their hands before entering the lunchroom actually had higher lead levels on their hands when leaving the lunchroom due to lead contamination on surfaces. This contamination occurred in spite of work practices that included removing outer work garments, vacuuming clothing, and changing table covers in lunchrooms daily. NIOSH found similar results in other industries that work with lead.

In the past few years, NIOSH inventors have developed simple lead detection kits that identify the presence of lead on skin and surfaces.

FULL DISCLOSURE



SKC Full Disclosure Kit
Cat. No. 550-001

FULL DISCLOSURE Colorimetric Wipe Test Kit

Developed by U.S. NIOSH, Full Disclosure addresses the need for safe on-site skin and surface lead testing. During breaks or at the end of a workshift, lead workers typically decontaminate by washing their hands and other exposed skin areas. Full Disclosure can be used to determine if washing was effective and to ensure workers do not take lead home.

Here's how it works: Use a wet wipe from the kit to wipe the test area, spray the wipe with kit reagents, and look for a color change. If lead is present at or above 18 µg, a red color will develop on the wipe alerting workers to wash for further decontamination. Full Disclosure is safe and meets NIOSH Method 9105 for Lead in Dust Wipes. If desired, exposed wipes with positive results can be sent to a laboratory for quantification of lead levels.



Full Disclosure for direct reading of lead on skin and surfaces



Pink to red result = lead ≥ 18 µg

Reference

¹ Esswein, E. and Boeniger, M., "Preventing the Toxic Hand-Off," Occupational Hazards, Sept. 2005, pp. 53-61

Description	Cat. No.
Full Disclosure Wipe Test Kit [†] , includes 11 pair nitrile gloves, 10 wipes [‡] , Disclosing SR powder, extraction solution, deionized water, 10 sheets waxed paper, and instructions	550-001
Full Disclosure Kit for Quantitative Analysis [†] includes all items in above kit, 10 sample collection bottles with labels, and 10 disposable templates	550-002

[†] Not designed for detecting lead in paint, paint chips, on painted surfaces, or embedded in material such as plastic; not suitable for lead chromate

[‡] Wipes conform to ASTM E1792

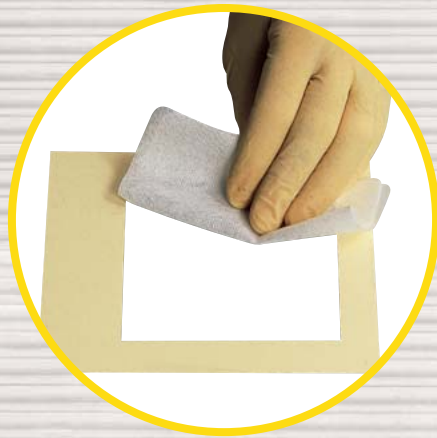
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Pb

What's new with...

LEAD

Surface Sampling Options



Ghost Wipe for collection of wipe samples with lab analysis

SURFACE WIPES with Lab Analysis

Addendum B of OSHA Method ID-125 describes the use of Ghost Wipes for the collection of wipe samples for metallic compounds. Ghost Wipes have replaced baby wipes previously used for wipe sampling of lead and other metals. Ghost Wipes are made of a robust material that remains intact for surface wiping, but dissolves rapidly and completely with acid digestion for lab analysis. Unlike previous wipe materials, Ghost Wipes do not clog sample uptakes or analyzers. Ghost Wipes also meet ASTM E1792 specifications for lead in settled dusts.

The Wipe Sample Test Kit provides the necessary supplies to sample surfaces for toxic materials that can gain entry into the body via ingestion or skin absorption. Each kit includes paper and glass fiber filters, sterile sample bags, latex gloves, cotton swabs, pH paper, cover slips, 25 Ghost Wipes for lead and other metals, 72 microslides, 20 sample containers, 3 dropper bottles, 1 plastic template (10 x 10 cm), marking pen, masking tape, clear tape, stainless steel forceps, and carry case. *Solvents are not included.*

Description	Cat. No.	Qty.
Ghost Wipes , moistened with deionized water, individually sealed packets, require 10 x 10-cm template listed below	225-2414	200
	225-2413	1000
Wipe Sample Test Kit , solvents are <i>not</i> included	225-2401A	ea
Templates		
Reusable plastic , 10 x 10 cm (included in Wipe Sample Test Kit)	225-2403	ea
Disposable manila paper , 10 x 10 cm	225-2415	250
	225-2415A	10
Reusable plastic , 1 x 1 foot, for HUD Lead Guidelines	225-2406	ea
Disposable manila paper , 1 x 1 foot	225-2416	250
	225-2416A	10



LeadCheck Swabs for direct reading of lead on surfaces and components

LEADCHECK SWABS with Colorimetric Indication

LeadCheck® Swabs have been used widely to detect lead in paint and on surfaces. Each swab contains 2 glass ampoules of test reagents. Once activated, the swabs are used to wipe the test area. A red color on the tip of the swab indicates the presence of lead at or above 1 µg. LeadCheck swabs provide only qualitative (yes/no) results, however, color intensity is linear to concentration.

These colorimetric indicators are a handy tool for new green initiatives. In an effort to protect the planet, the European Union has mandated the removal of certain hazardous substances, including lead, from all electrical/electronic equipment. This is known as the Removal of Hazardous Substances (RoHS) directive. All manufacturers of electronic equipment must identify components such as resistors, capacitors, and printed circuit boards that contain lead and replace them with suitable alternatives. Non-compliant products could be banned from sale and/or confiscated.

LeadCheck swabs can be used for RoHS compliance testing of printed circuit boards using the following procedure:

- Wipe the test area with isopropyl alcohol and rub the swab directly onto the board OR rough up the surface with sandpaper and rub the surface with a cotton swab.
- Squeeze one drop of reactive dye from the swab into a tray and dip the cotton swab into the dye.
- Look for the red color on the cotton swab to indicate the presence of lead.

Description	Cat. No.	Qty.
LeadCheck Swabs , direct-reading for lead on surfaces and screening for lead in air	225-2404	8
	225-2404A	16

LEAD

Air Sampling Options

LEAD IN AIR — SCREENING METHODS

LeadCheck Swabs described on the previous page can also be used as a screening method for lead in air by NIOSH Method 7700.

Here's how it works: Collect an air sample using a standard 0.8- μm MCE filter at 2 L/min. After sampling, use a LeadCheck swab to test the dust collected on the filter. Samples with a positive indication on the colorimetric swab can be further evaluated by laboratory analysis to quantitate levels.

LEAD IN AIR — COMPLIANCE METHODS

NIOSH and OSHA have published a variety of sampling and analytical methods for metals including lead. The sampling medium for most methods is a 0.8- μm MCE filter.

Diameter (mm)	Filter Specifications	Cassette Description	Cat. No.	Qty.
37	MCE, 0.8 μm	3-piece clear styrene, banded	225-3-01	50
		3-piece clear styrene, banded	225-3-01A	500
		3-piece clear styrene, not banded	225-3-01NB	50
Accessory				
Filter Cassette/Cyclone Holder, for attaching a DPM or standard filter cassette to a worker's clothing in the breathing zone, may be used with or without a cyclone, required when using DPM Cassette with GS-1 Cyclone			225-1	ea



0.8- μm MCE filter and AirChek XR5000 sample pump for collecting lead in air

Sample Pump for Lead in Air

AIRCHEK XR5000 Sample Pump

Personal sample pumps are available with lithium-ion (Li-Ion) batteries for extended flow rates, run times, and backpressure capabilities. The SKC AirChek XR5000 pump with a standard lithium-ion battery pack will provide more than 20 hours of run time with a 0.8- μm MCE filter at 2 L/min with high back pressures up to 50 inches of water. Run times in excess of 10 hours are possible at flows up to 5 L/min with this filter.



See page 12 for more details on the SKC AirChek XR5000 sample pump.

Lead Renovation, Repair, and Painting Rule

On April 22, 2008, EPA issued a rule requiring the use of lead-safe practices and other actions aimed at preventing lead poisoning. Beginning in April 2010, contractors performing renovation, repair, and painting projects that disturb lead-based paint in homes, child care facilities, and schools built before 1978 must be certified and must follow specific work practices to prevent lead contamination. *For more information, go to www.epa.gov/oppt/lead/pubs/renovation.htm.*

HEXAVALENT CHROMIUM

Surface Sampling Options

THE ISSUE

In section 1910.1026 (j)(1)(i) of the hexavalent chromium [Cr(VI)] standard, OSHA requires employers to ensure that all surfaces are maintained as free from Cr(VI) accumulations as is practicable. This requirement was put in place to avoid absorption of this toxic metal into the body through the dermal route. Note that there are no OSHA surface "limits" for Cr(VI) or any other contaminant. The requirement is to have NO hexavalent chromium accumulation on surfaces.



Filters for OSHA Method W4001
wipe samples

SURFACE WIPES with Lab Analysis

OSHA released Method W4001 for the collection of Cr(VI) wipe samples. This method specifies a 37-mm, 5.0- μ m PVC filter as the wipe collection medium. Alternatively, 37-mm binderless quartz fiber filters can be used if a more robust filter is needed to avoid tearing when used on rough surfaces.

Special handling requirements:

1. When sampling in chrome plating operations, it is necessary to stabilize the filters after collection by placing them in a vial containing 5 ml of 10% sodium carbonate/2% sodium bicarbonate immediately after sampling.
2. In any operation, inadvertent contamination of filter samples can occur from metal forceps used to handle the filters. SKC offers PTFE-coated forceps for this application.

Description	Cat. No.	Qty.
37-mm, 5.0 μ m PVC Filters	225-8-01-1	50
37-mm Quartz Filters, binderless Tissuquartz™, alternative filter for rough surfaces	225-1822	25
Templates		
Reusable plastic, 10 x 10 cm	225-2403	ea
Disposable manila paper, 10 x 10 cm	225-2415	250
Reusable plastic, 1 x 1 foot, for HUD Lead Guidelines	225-2406	ea
Disposable manila paper, 1 x 1 foot	225-2416	250
Accessory		
PTFE-coated Forceps, non-serrated tip	225-1344	ea



HEXAVALENT CHROMIUM

Air Sampling Options

FILTER CASSETTES

The OSHA Technical Center released Version 2 of OSHA Method ID-215 for Cr(VI) in air in conjunction with the new OSHA standard. OSHA Method ID-215 (Version 2) allows use of either 37 or 25-mm cassettes containing PVC filters with backup pads. The 25-mm filter provides a more convenient option when sampling inside a welding helmet.

SKC offers PVC filters for this application preloaded in either 37 or 25-mm cassettes. A Welding Helmet Adapter accessory is also available to hold the filter cassette in the breathing zone regardless of visor position.

OSHA ID-215 Version 2 contains the following new requirements:

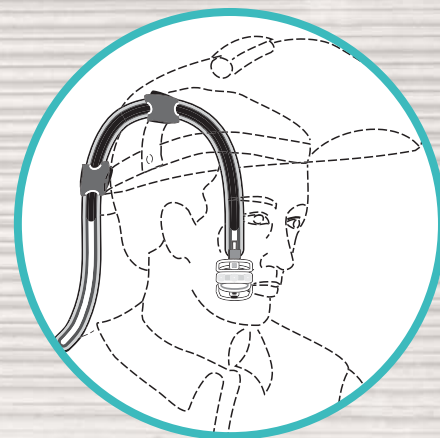
- **All samples** — must be shipped to the laboratory within 24 hours of sample collection.
- **Welding samples** — must be analyzed within 8 days after collection to ensure sample stability.
- **Spray painting samples** — must be shipped within 24 hours and require multiple extractions to release Cr(VI) from the paint.
- **Chrome plating samples** — PVC filter samples must be stabilized after collection following instructions in the method. An alternative collection method using NaOH-coated quartz fiber filters is described, but special sample prep is required to ensure low background levels. NaOH-coated quartz filters are **not** available from SKC for this application.
- **Laboratories** — must wipe the interior walls of filter cassettes as sample deposition in this area of the sampling device can be significant.

Diameter (mm)	Filter Specifications	Cassette Description	Cat. No.	Qty.
25	PVC, 5.0 µm	2-piece clear styrene, banded	225-8214	50
25	PVC, 5.0 µm	3-piece clear styrene, banded	225-8215	50
37	PVC, 5.0 µm	2-piece clear styrene, banded	225-802	50
37	PVC, 5.0 µm	3-piece clear styrene, banded	225-803	50
Accessory				
Welding Helmet Adapter*			225-600	ea

* Developed in Canada by IRSST



Preloaded 37-mm and 25-mm filters for hexavalent chromium sampling



Welding Helmet Adapter accessory

Sample Pump for Hexavalent Chromium in Air

AIRCHEK XR5000 Sample Pump

The SKC AirChek XR5000 sample pump provides extended flows to 5 L/min, longer run times with a powerful Li-Ion battery, and high back pressure capabilities.



See page 12 for more details on the SKC AirChek XR5000 sample pump.



What's new with...

MERCURY

Air Sampling Options



SKC Met Traps

SKC MET Traps provide low-cost total vapor-phase mercury monitoring in coal-fired power plants and cement kilns. SKC MET Traps are:

- Vapor-spiked
- Available from stock or custom spiked for your application
- Reliable, with high quality assurance and extensive field testing
- Backed by technical support from scientific professionals
- Feature the lowest price per trap

Contact SKC for more information.

SORBENT TUBES, PASSIVE SAMPLERS, FILTERS

NIOSH Method 6009 and OSHA Method ID-140 for inorganic mercury vapor specify the use of a specialty sorbent tube. SKC sorbent tube 226-17-1A containing proprietary sorbent Anasorb® C300 meets the method requirements. Anasorb C300 performance is equivalent to Hydrar and Carulite®.

Description	Cat. No.	Qty.
Sorbent Tubes for OSHA ID-140, 6-mm OD x 70-mm length, single section, 200 mg Anasorb C300, sealed glass ends, requires tube cover size A	226-17-1A	50

OSHA Method ID-140 also describes a passive sampler as an alternative to tube sampling for inorganic mercury vapor. Anasorb C300 sorbent capsules fit into a reusable capsule holder as a convenient passive sampling option for workplace assessments.

Description	Cat. No.	Qty.
520 Series Inorganic Mercury Passive Samplers , alternative sampler for OSHA ID-140		
Sorbent Capsules contain Anasorb C300* and include replacement foams and resealable bags	520-02A	10
	520-02C	30
Reusable Capsule Holder	520-03	ea

* Anasorb C300 is equivalent to Hydrar and Carulite.
Note: For sampling of low levels of mercury, use a sorbent tube.

OSHA Method ID-145 for inorganic particulate mercury specifies the use of a 0.8-µm MCE filter at a typical flow rate of 2 L/min.

Description	Cat. No.	Qty.
Preloaded 37-mm, 0.8-µm MCE Filters, for inorganic particulate mercury, with cellulose supports, in 3-piece clear styrene cassettes with bands	225-3-01	50

What's new with...

INHALABLE METALS

Air Sampling Options



THE ISSUE

Over the past two decades, many occupational hygiene organizations and standard-setting bodies worldwide have abandoned the concept of “total” dust. Instead, they have adopted “inhalable” particulate matter size-selective sampling criteria. Inhalable particulate mass is defined as those materials that are hazardous when deposited anywhere in the respiratory tract including large and small particles. Personal sampling devices meet the inhalable criterion when they capture the same dust concentration and aerodynamic size distribution as that inhaled by the wearer. Inhalable samplers have a 50% cut-point of 100 μm .

IOM SAMPLER

The patented* IOM personal inhalable sampling head houses a removable and reusable 25-mm filter cassette that holds a specified filter for collecting inhalable particles. When attached to a personal sample pump operating at 2 L/min and clipped near a worker's breathing zone, the IOM effectively traps particles up to 100 μm in aerodynamic diameter. The cassette and filter are weighed as a single unit to include all collected particles in analysis. The IOM has been specified in standards published by several agencies worldwide. *For more information, see www.skinc.com.*



Description	Cat. No.
IOM Sampler and cassette†, for gravimetric determinations, in conductive plastic, with transport clip and cover	225-70A
IOM Sampler and cassette†, for chemical analysis, 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. See filters and accessories at www.skinc.com.

* U.S. Patent No. 4,675,034

BUTTON AEROSOL SAMPLER

The patented‡ Button Sampler features a porous curved-surface inlet designed to reduce oversampling of large particles and wind direction and velocity bias. A 25-mm filter is placed directly onto a stainless steel support inside the sampler. The proximity of the filter to the inlet minimizes transmission losses and provides equal distribution of particle loading. The Button Sampler follows closely the ACGIH/ISO sampling criteria for inhalable particulate mass when operated with a sample pump at 4 L/min. *For more information, see www.skinc.com.*



Description	Cat. No.
Button Sampler, requires a 25-mm filter with pore size > 1 micron#	225-360
Button Sampler Pump Kit includes Button Sampler, standard XR5000 Sample Pump, single charger (100-240 V), 3 feet of Tygon tubing, and calibration adapter, requires a 25-mm filter#	210-4121

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

See filters and accessories at www.skinc.com.

METALLIC COMPOUNDS WITH INHALABLE TLV®s AS OF 2009

- Borate compounds, inorganic (Note: semi-metallic)
- Beryllium
- Magnesium oxide
- Molybdenum (metal and insoluble compounds)
- Nickel (elemental, soluble, and insoluble compounds)
- Nickel subsulfide
- Vanadium pentoxide



Button Sampler and AirChek XR5000 pump for sampling inhalable metals
See XR5000 pump on page 12.



What's new with...

NANO-SIZE METALS

Particle Counters

THE ISSUE

Nano-size materials are being engineered for applications including electronics, magnetic and medical imaging, drug delivery, and consumer products. Engineered nanoparticles have at least one dimension between 1 and 100 nanometers (nm) in size and exhibit unique physical and chemical properties.

Metal and metal oxide nanoparticles are used for many applications. For example, titanium dioxide (TiO₂) and zinc oxide (ZnO) are used as pigments to enhance polymeric product durability. These nanoparticles are also under study for use in solar panels, environmental remediation, and to create super alloys that are exceptionally strong and corrosion resistant.

NIOSH has published a guidance document on managing the health and safety concerns associated with engineered nanomaterials. *Approaches to Safe Nanotechnology* is available online at www.cdc.gov/niosh/docs/2009-125/. The document's appendix describes the NIOSH strategy for assessing sources of, releases of, and exposures to engineered nanomaterials. With no occupational exposure limits at this time, the NIOSH approach is to determine: 1) if airborne releases are occurring during specific job tasks and 2) if control measures are effective. This approach compares particle NUMBER and relative SIZE at the emission source to background levels. NIOSH recommends use of both direct-reading particle counters and filter samples with lab analysis to obtain key particle metrics including: particle number, size, and shape, degree of particle agglomeration, and mass concentration of elemental constituents.



The handheld Kanomax 3800 Condensation Particle Counter for single-channel measurement of particles ranging from 0.015 to > 1 µm



The handheld 3887 Optical Particle Counter for 3-channel measurement of particle sizes 0.3, 0.5, and 5.0 µm (3886 model measures 5 channels — 0.3, 0.5, 1.0, 3.0, and 5.0 µm)

DIRECT-READING PARTICLE COUNTERS

NIOSH recommends condensation particle counters (CPCs) for measuring particles as small as 10 to 15 nm and as large as 1.0 µm. CPCs, however, only provide one particle count and may not detect larger agglomerates. Therefore, NIOSH also recommends optical particle counters (OPCs), which measure the total number of particles per liter of air within several defined size ranges depending on the particle counter used. An OPC can only detect particle sizes down to 300 nm, but can detect larger particles including agglomerated particles up to 5 µm.

Condensation Particle Counter

Description	Cat. No.
3800 Condensation Particle Counter includes instrument with 6 AA alkaline batteries, AC adapter (100-240 V), zero filter, USB cable, software, hard carry case, calibration certificate, and instructions	745-3800

Optical Particle Counters (OPCs)

Description	Cat. No.
3886 Optical Particle Counter includes AC adapter (100-240 V), zero filter, tube, handle, 4 AA NiMH batteries, battery charger, calibration certificate, and operating manual	745-3886
3887 Optical Particle Counter includes AC adapter (100-240 V), zero filter, datalogging software, PC communication cable, 4 AA NiMH batteries, battery charger, calibration certificate, and operating manual	745-3887

Accessories available at www.skcinc.com

NANO-SIZE METALS

Filter Sampling

FILTER SAMPLES with Lab Analysis

If particle counters detect elevated nanoparticles at the emission source, NIOSH recommends collecting two filter samples to further characterize nanoparticle metrics. For example, to determine particle morphology using TEM according to NIOSH Method 7402, select a 25-mm 0.8- μm filter in conductive cassette with cowl. For elemental mass analysis according to NIOSH 7300, choose a 37-mm 0.8- μm MCE filter. If elemental analysis of carbon following NIOSH 5040 is desired, select a 37-mm quartz filter and cyclone (if required).

NIOSH recommends heat-treated filter sample collection at high flows of approximately 7 L/min to enhance detection capabilities. The SKC Leland Legacy[®] pump can achieve 7 L/min with 37-mm filters for elemental analysis and 5 L/min with 25-mm MCE filters due to the increased back pressure of this filter.

Description	Cat. No.	Qty.
Filter for NIOSH 7402 25-mm 0.8- μm MCE Filter, in conductive cassette with cowl, banded	225-321	50
Filter for NIOSH 7300 37-mm 0.8- μm MCE Filter, in 3-piece clear styrene cassette, banded	225-3-01	50
Filter for NIOSH 5040 37-mm DPM Cassette includes 2 heat-treated quartz filters in a 1-piece cassette with precision-jeweled impactor that screens out particles $\geq 1.0 \mu\text{m}$, tamper-evident sealed	225-317	10
Accessories		
GS-1 Cyclone for DPM Cassette , single inlet, 10 mm, conductive plastic, includes bowl adapter and 37-mm cassette adapter, screens out large particles that may interfere with the sample	225-105	ea
Filter Cassette/Cyclone Holder , for attaching a DPM or standard filter cassette to a worker's clothing in the breathing zone, may be used with or without a cyclone, <i>required when using DPM Cassette with GS-1 Cyclone</i>	225-1	ea



Filter in conductive cassette with cowl for NIOSH 7402 and DPM Cassette for NIOSH 5040

Sample Pump for Nano-size Metals in Air

LELAND LEGACY Sample Pump

The Leland Legacy Sample Pump provides the high flows and long runs needed for sampling low levels of nano-size metal particles in the air. With patented[†] advanced flow control, PC programmability, CalChek automatic calibration, and lithium-ion (Li-Ion) battery pack, Leland Legacy is the ultimate choice as a sample pump for nano-size metals in air. *For more information on Leland Legacy, see www.skcinc.com/pumps/100-3000.asp.*

Description	Cat. No.
Single Pump Kit** includes Leland Legacy pump, Li-Ion battery pack, single charger (100-240 V), in a Pelican carry case	100-3002K
5-pack Pump Kit** includes 5 Leland Legacy pumps, Take Charge 5 Multi-charger (100-240 V), and DataTrac Software, in a Pelican case	100-3002K5A

[†] U.S. Patent No. 5,892,160

* Leland Legacy is not recommended for high back pressure applications such as asbestos clearance sampling.



Leland Legacy sample pump with high-powered lithium-ion battery pack

See more information at www.skcinc.com.



SKC Inc.
863 Valley View Rd.
Eighty Four, PA 15330 USA

What's new with...

SAMPLING METALS

PRESORTED
STANDARD
U.S. POSTAGE
PAID
PITTSBURGH, PA
PERMIT NO. 1719



AirChek XR5000 Sample Pump

Supercharged Li-Ion Battery Power!

- Extended flow from 5 to 5000 ml/min
- ≥ 20-hour run times with Li-Ion battery
- Extended back pressure capabilities up to 50 inches water at 2 L/min
- Disposable AA alkaline battery option
- Timed start and run options
- Standard model weighs only 16 ounces (454 grams)



Description	High-power (4 cell) Li-Ion Battery Model Cat. No.	Standard (2 cell) Li-Ion Battery Model Cat. No.
Single Pump Kit includes pump, charger (100-240 V), cassette holder (225-1), and soft-side nylon carry case	210-5001K	210-5002K

*For pump only, additional kits, alkaline models,
and accessories, see www.skcinc.com.*