Aura™ Personal Air Sampler Kit
cat.# 26484 (Electropolished) and cat.# 26485 (Siltek®-Treated)

Overview
The Aura™ personal air sampler (PAS) was developed to help environmental and occupational health experts monitor personal exposure to airborne volatile organic compounds (VOCs). The Aura™ PAS was specifically designed as an alternative to diffusive sampling badges and/or active sampling with thermal desorption (TD) tubes. The Aura™ PAS was engineered to avoid some of the significant shortcomings associated with the aforementioned personal sampling devices, and it delivers the following advantages:

1. A passive sampling device that does not require a pump and manages variations in face velocity, temperature, and humidity better than traditional sampling approaches.
2. A whole-air sampling approach that affords multiple analyses of over 100 VOCs.
3. A simple, quick connection to start and stop flow; does not require flow calibration.

The Aura™ PAS passively collects an 8-hour, whole-air sample via vacuum in a 400 cc canister. The Aura™ PAS does not use a flow controller like other canister sampling approaches; rather, flow is controlled by a proprietary critical orifice. Each Aura™ PAS is delivered with a pre-calibrated starting flow that is approximately 0.310 mL/min. The Aura™ PAS will maintain a near-constant flow (i.e., the ending flow will be within 15% of the starting flow) throughout the 8-hour sampling duration. This flow will result in a fully evacuated (e.g., 29–30" Hg) canister being filled to ~35% full (i.e., 140 mL). All of the aforementioned flows, ranges, and volumes have been established to ensure the Aura™ PAS is compliant with OSHA’s 25% bias requirement.

Note: Kit components must be used together to ensure proper sampling. Correct flow may not be obtained if sampling lines of different dimensions or canisters of different volumes are used.

This document provides step-by-step instructions on how to use the Aura™ PAS.

Aura™ Personal Air Sampler Kit Components

A – 400 cc miniature canister with 1/4" quick-connect stem (quantity 1)
B – 1/8" quick-connect body (quantity 1)
C – disposable 8-hour sampler lines (quantity 10)
D – holster (quantity 1)
E – sampler line clip (quantity 1)
F – belt (quantity 1)
G – clean-cut tubing cutter (quantity 1)

Prior to Use
The 400 cc canister with quick-connect stem (part A) is shipped under 30 psig of pressure. Prior to use, you must depressurize the canister using the following steps:

1. Unpack the 400 cc canister with quick-connect stem (part A) and remove the black rubber protective cap from the stem. Do not discard the black rubber protective cap; you will need to place it back on the stem after sampling.
2. Unpack the quick-connect body (part B).
3. Attach the quick-connect body (part B) to the 400 cc canister with quick-connect stem (part A). To obtain a complete connection, you will need to pull back the knurled end of the quick-connect body (part B).

You should hear nitrogen release as the canister depressurizes. If you do not hear this, please contact Restek Technical Service at support.restek.com or 1-814-353-1300, ext. 4.
Assembling the Sampler

1. The quick-connect body (part B) ships with a nut and a two-piece ferrule that you need to remove and discard.

2. Screw the quick-connect body (part B) onto a sampler line (part C) using the nut and pre-swaged ferrule on the end of the sampler line (part C).

3. Use two 7/16" wrenches to tighten the quick-connect body (part B) onto the sampler line (part C).

Mounting the Personal Air Sampler on the User

1. Insert the end of the sampler line (part C) into the opening on the underside of the holster (part D) strap. The opening is adjacent the Restek label.

2. Slide the sampler line (part C) through the holster (part D) strap until the end protrudes from one of the eight exit holes on the other end of the strap. The exit holes allow the user to customize the fit. Once the holster (part D) is on, the user can adjust the fit so the holster (part D) lies on the side of the hip. Restek offers an extension strap (cat.#26481) if additional length is needed for a comfortable fit.

3. If you have not already done so, be sure to verify and record the vacuum of the 400 cc canister with quick-connect stem (part A) following your internal standard operating procedure (SOP), but do not exceed 110 °C.

4. Disconnect the 400 cc canister with quick-connect stem (part A) from the cleaning system by disconnecting the quick-connect body (part B) from the canister stem.

5. Verify and record the vacuum of the 400 cc canister with quick-connect stem (part A) with the use of the quick-connect body (part B) attached to an appropriate vacuum gauge.

6. Remove the quick-connect body (part B) from the cleaning system.

Cleaning and Evacuating the Sampling Canister

If the 400 cc canister with quick-connect stem (part A) has already been cleaned/evacuated, then proceed to step 1 in the Sampler Setup section.

Otherwise, perform the following steps for cleaning/evacuating the 400 cc canister with quick-connect stem (part A).

1. Connect the 400 cc canister with quick-connect stem (part A) to your canister cleaning/evacuating system using the quick-connect body (part B).

   The quick-connect body (part B) has a 1/8" end; therefore, if your cleaning/evacuating system is set up for 1/4" connections, a 1/8" tube to 1/4" tube end reducer (cat.# 23178) is required.

   To save time, we recommend you buy an additional quick-connect body (part B, cat.# 26482) and attach it to your canister cleaning/evacuating system and/or autosampler.

2. Clean the 400 cc canister with quick-connect stem (part A) following your internal standard operating procedure (SOP), but do not exceed 110 °C.

3. After cleaning, fully evacuate (e.g., 29–30" Hg) the 400 cc canister with quick-connect stem (part A).

4. Disconnect the 400 cc canister with quick-connect stem (part A) from the cleaning system by disconnecting the quick-connect body (part B) from the canister stem.

5. Verify and record the vacuum of the 400 cc canister with quick-connect stem (part A) with the use of the quick-connect body (part B) attached to an appropriate vacuum gauge.

6. Remove the quick-connect body (part B) from the cleaning system.
10. Unpack the sampler line clip (part E), which is shipped in the closed position. This clip is composed of two clips that are attached together: a tubing clip and a strap clip. Open the entire sampler line clip (part E) by pulling the padded end of the tubing clip up off of the tab. Once the entire sampler line clip (part E) is in the open position, the padded end of the tubing clip will be open and ready for insertion of the sampler line (part C).

11. Place the sampler line (part C) between the tubing clip pads and close the entire sampler line clip (part E).

12. Attach the sampler line clip (part E) to the strap on the holster (part D) with the strap clip.

13. Connect belt (part F) to holster (part D) and adjust length for a comfortable fit.

**After Sampling**

1. After 8 hours of sampling, disconnect the quick-connect body (part B) from the 400 cc canister with quick-connect stem (part A). Sampling has now stopped, so be sure to record the end time.

2. Remove the sampler from the wearer.

3. Verify and record the vacuum of the 400 cc canister with quick-connect stem (part A) using an appropriate vacuum gauge that is equipped with a quick-connect body (part B).

4. Place the black rubber protective cap back on the stem of the 400 cc canister with quick-connect stem (part A).

5. Ship the 400 cc canister with quick-connect stem (part A) to a laboratory capable of conducting U.S. EPA TO-15 analyses.

**In the Laboratory**

1. If you have not already done so, verify and record the vacuum of the 400 cc canister with quick-connect stem (part A).

2. Download the testing data template Excel file from the Aura kit product page.

3. Enter your information into the cells marked “enter data.” The mean flow based on vacuum and volume will be automatically calculated for you using the data you entered.

<table>
<thead>
<tr>
<th>Serial Number of 400 cc Canister:</th>
<th>Serial Number of Sampler Line:</th>
<th>Date:</th>
<th>Sampling Start Time*:</th>
<th>Sampling End Time*:</th>
<th>Sampling Elapsed Time:</th>
<th>Start Date:</th>
<th>Mean Flow (mL/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter Data</td>
<td>Enter Data</td>
<td>Enter Data</td>
<td>Enter Data</td>
<td>Enter Data</td>
<td>#VALUE</td>
<td>Enter Data</td>
<td>#VALUE</td>
</tr>
</tbody>
</table>

**Mean Flow Based on Vacuum and Volume**

<table>
<thead>
<tr>
<th>Starting Vacuum (“ Hg)</th>
<th>Ending Vacuum (“ Hg)</th>
<th>Vacuum Remaining (%)</th>
<th>Volume Consumed (mL)</th>
<th>Sampling Duration (hr)*</th>
<th>Mean Flow (mL/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter Data</td>
<td>Enter Data</td>
<td>#VALUE</td>
<td>#VALUE</td>
<td>Enter Data</td>
<td>#VALUE</td>
</tr>
</tbody>
</table>

*Enter hours and minutes based on a 24-hour clock (e.g., 22:00 for 10 p.m.)

^Enter hours and minutes to the nearest quarter hour (e.g., 8 hours and 10 minutes = 8.25)

This example shows typical results for an 8-hour sampling event:

<table>
<thead>
<tr>
<th>Starting Vacuum (“ Hg)</th>
<th>Ending Vacuum (“ Hg)</th>
<th>Vacuum Remaining (%)</th>
<th>Volume Consumed (mL)</th>
<th>Volume Remaining (mL)</th>
<th>Mean Flow (mL/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>28.65</td>
<td>18.64</td>
<td>65.1</td>
<td>139.8</td>
<td>260.2</td>
<td>0.29</td>
</tr>
</tbody>
</table>

4. Analyze field samples following your internal SOP for the analysis of canisters (e.g., fill canister to desired pressure and analyze via U.S. EPA Method TO-15).

**Note:** The Aura™ PAS canister will be partially filled ~35% (i.e., 140 mL); therefore, most analytical laboratories will need to fill the canister in order to conduct a TO-15 analysis. We recommend that the canister be filled to 7.5 psig and 200 mL of sample be analyzed. If larger sample volumes are desired, the canister may be filled to 15 psig. The filling of the canister to 7.5 psig will generally result in a 4x dilution of your sample.
Replacement Parts and Accessories

Aura™ Personal Air Sampler Kits

<table>
<thead>
<tr>
<th>Description</th>
<th>Electropolished cat.#</th>
<th>Siltek Treated cat.#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aura Personal Air Sampler Kit (Includes: 400 cc miniature canister with ( \frac{1}{4} )&quot; quick-connect stem, quick-connect body, holster and belt, 10-pk. of disposable 8-hour sampler lines, tubing cutter, and lapel clip)</td>
<td>26484</td>
<td>26485</td>
</tr>
</tbody>
</table>

Aura™ Personal Air Samplers (Disposable 8-Hour Sampler Lines)

<table>
<thead>
<tr>
<th>Description</th>
<th>qty.</th>
<th>cat.#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aura Personal Air Samplers (Disposable 8-Hour Sampler Line)</td>
<td>ea.</td>
<td>26475</td>
</tr>
<tr>
<td></td>
<td>10-pk.</td>
<td>26476</td>
</tr>
</tbody>
</table>

Replacement Filter with 2 µm Frit for Aura™ Personal Air Samplers

<table>
<thead>
<tr>
<th>Description</th>
<th>qty.</th>
<th>cat.#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter with 2 µm Frit for Aura Personal Air Samplers</td>
<td>ea.</td>
<td>26479</td>
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</table>

Replacement 2 µm Frits for Aura™ Personal Air Samplers

<table>
<thead>
<tr>
<th>Description</th>
<th>qty.</th>
<th>cat.#</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 µm Frit for Aura Personal Air Sampler</td>
<td>ea.</td>
<td>26477</td>
</tr>
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<td></td>
<td>10-pk.</td>
<td>26478</td>
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</table>

Accessories for Aura™ Personal Air Samplers

<table>
<thead>
<tr>
<th>Description</th>
<th>qty.</th>
<th>cat.#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holster and Belt for Aura Personal Air Sampler</td>
<td>ea.</td>
<td>26480</td>
</tr>
<tr>
<td>Belt Extension for Aura Personal Air Sampler</td>
<td>ea.</td>
<td>26481</td>
</tr>
<tr>
<td>Lapel Clip</td>
<td>ea.</td>
<td>26486</td>
</tr>
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</table>

Replacement \( \frac{1}{8} \)" Quick-Connect Body for Aura™ Personal Air Samplers

<table>
<thead>
<tr>
<th>Description</th>
<th>qty.</th>
<th>cat.#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replacement ( \frac{1}{8} )&quot; Quick-Connect Body for Aura Personal Air Sampler</td>
<td>ea.</td>
<td>26482</td>
</tr>
<tr>
<td>Replacement ( \frac{1}{8} )&quot; Quick-Connect Body with ( \frac{1}{4} )&quot; Adaptor for Aura Personal Air Sampler</td>
<td>ea.</td>
<td>26483</td>
</tr>
</tbody>
</table>

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