



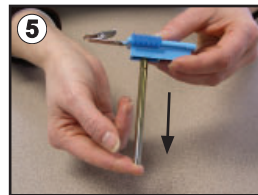
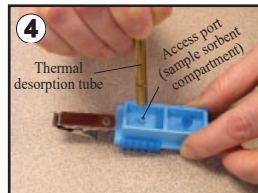
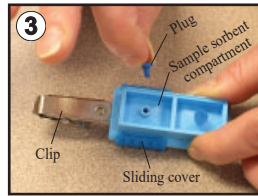
ULTRA Passive Samplers (Thermal Desorption)

Cat. Nos. 690-101, -103, -104, -106, -101-NB, -103-NB, -104-NB, -106-NB, -201, -203, -204, and -206

Analysis

Transfer Sorbent from Sampler to Tube

1. Remove the sampler from the resealable pouch.
2. Prepare a blank thermal desorption tube (0.25-inch OD x 3.5-inch length, Perkin Elmer) by inserting a stainless steel screen and glass wool separator in one end.
3. **With the back of the sampler facing upward** and clip oriented to the left, remove the plug from the compartment containing the sample sorbent (on left side, immediately above the diffusion holes).
4. Place the unplugged end of the thermal desorption tube over the compartment access port.
5. Transfer the sorbent to the tube by tipping the sampler upside down while holding the tube in place securely beneath the sampler. Gently tap the sampler to remove any remaining sorbent.
6. Remove the sampler from the tube and place a stainless steel screen and glass wool separator in the unplugged end of the tube.
7. Seal the tube with PTFE caps or Swagelok® fittings.
8. Thermally desorb the sample and analyze by gas chromatography with the detector specified in the method for the compound of interest.
9. Analyze the blank/correction sorbent, as needed, by repeating Steps 2 through 8.



4. Align the mouth of the open vial with the wide part of the funnel. Carefully pour the sorbent from the vial into the thermal desorption tube. Gently tap the vial on the rim of the funnel to remove any remaining sorbent.
5. Once the sorbent transfer is complete, remove the funnel from the tube. Place a stainless steel screen and glass wool separator in the open end of the tube to secure the sorbent.
6. Seal the tube with the PTFE caps or Swagelok fittings.
7. Thermally desorb the sample and analyze by gas chromatography with the detector specified in the method for the compound of interest.
8. Analyze the blank/correction sorbent, as needed, by repeating Steps 1 through 7.

Calculations

$$C = \frac{[(SW) - (BW)] (24.45 \times 10^6)}{(DE) (MW) (SR) (MIN) (PT)}$$

Where:

- C = Concentration of chemical (ppb)
- SW = Sample weight by analysis (µg)
- BW = Analyte weight in blank (µg)
- PT = Pressure/temperature correction (*see below*)
- DE = Desorption efficiency (*see below*)
- MW = Molecular weight of chemical
- SR = Sampling rate (ml/min) - available at www.skcinc.com/catalog/passive-guide.php
- MIN = Sampling time (minutes)

The equation above is correct for 25 C (298 K) and standard atmospheric pressure (760 mm Hg). To convert to other temperatures and pressures, the correction factor is:

$$PT = (T_1/T_2)^{1.5} (P_2/P_1)$$

Where:

- T₁ = Sampling site temperature (in Kelvin)
- T₂ = 298 K
- P₁ = Sampling site pressure (in mm Hg)
- P₂ = 760 mm Hg

In most cases, desorption efficiency should be 100% and expressed as a decimal (e.g., 100% = 1.0).

For sampling rates, go to Sampling Guides at www.skcinc.com and select Passive Sampling Guide.

Transfer Sorbent from Vial to Tube

1. Prepare a blank thermal desorption tube (0.25-inch OD x 3.5-inch length, Perkin Elmer) by inserting a stainless steel screen and glass wool separator in one end.
2. Remove the cap from the vial.
3. Fit the tapered end of the Transfer Funnel accessory (Cat. No. 590-264) onto the end of the prepared thermal desorption tube.



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