

ULTRA

The Passive Alternative for Low-level VOCs

ULTRA low ppb to ppt-level detection of VOCs in ambient or indoor air

ULTRA convenient miniature samplers are easy to transport and set up

ULTRA lightweight — 0.4 ounce

ULTRA economical — no pump, no cleaning, no certification, no high shipping cost

ULTRA sample integrity with seamless sorbent transfer and storage to maintain low sorbent background

ULTRA reliable sampling for EPA Method TO-17

ULTRA passive convenience, thermal desorption sensitivity

Patented** SKC ULTRA Passive Samplers provide reliable sampling of low-level volatile organic compounds (VOCs) without the use of a pump. Target chemicals simply diffuse from the atmosphere into the sampler at a fixed rate. Analysis is by highly sensitive thermal desorption (TD) with gas chromatography (GC).

** U.S. Patent No. 6,607,581

ULTRA Samplers for EPA TO-17

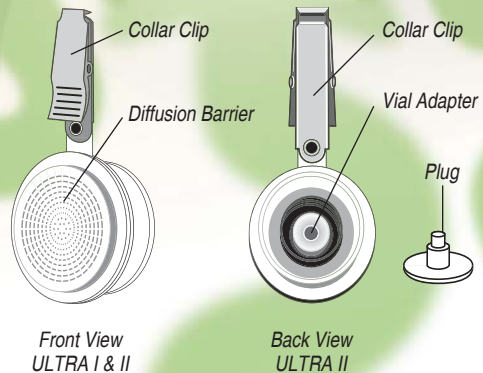
EPA TO-17 for VOCs specifies sorbent tube sampling followed by thermal desorption and gas chromatography analysis, typically with mass spectrometry. SKC ULTRA Samplers use the same sorbents and analysis providing low limits of detection in the low ppb to ppt concentration range for some chemicals. SKC ULTRA offers the added benefits of economy and convenience.

See an SKC update to EPA TO-17 at www.skcinc.com/instructions/1667.pdf.

ULTRA Samplers for OSHA Sampling

ULTRA Passive Samplers with Chromosorb® 106 (Cat. No. 590-200) were shown by the OSHA Salt Lake Technical Center to be an effective means to sample a mixture containing common solvent analytes. It is anticipated that this sampler could be used to develop a new fully validated OSHA method that would find its best application in low-level, long-term workplace sampling for designated chemicals.

See the OSHA ULTRA Study at www.osha.gov and search on ULTRA.



2 Convenient Configurations

ULTRA Convenience of a Passive Sampler with the ULTRA Sensitivity of Thermal Desorption

ULTRA I — Prefilled with thermally purged sorbent

- Ready for immediate use up to 30 days

Easier Sorbent Transfer in the Lab!

Prefilled samplers permit easy and direct transfer of sorbent to a thermal desorption tube in the laboratory.



ULTRA I

Diffusive samplers prefilled with cleaned/purged sorbent. See SKC update to EPA TO-17 at www.skcinc.com for recommended sorbent for target compounds.

ULTRA I Passive Sampler prefilled with:	Cat. No.	Qty.
Tenax TA*, 265 mg	590-100	5
Chromosorb 106* [∞] , 285 mg	590-200	5
Anasorb GCB1** [‡] , 370 mg	590-102	5
Carbopack X*, 500 mg	590-103	5
Carbograph 5*, 450 mg	590-104	5

* Use within 30 days; storage at ≤ 39.2 F (4 C) recommended

[‡] Equivalent to Carbopack B

[∞] See Reference 3 for additional information on sampling rates for Chromosorb 106.

ULTRA II — User-filled with thermally purged sorbent

- Low background ensured with separate sorbent vial
- Ideal for vapor intrusion studies

Easier Sorbent Transfer in the Field!

The user transfers sorbent directly into and out of the sampler housing. Before and after sampling, sorbent is stored in glass vials to maintain low background and longer shelf-life and to facilitate shipping to the laboratory for analysis.



ULTRA II

For each sample, purchase empty sampler housing and separate vial of cleaned/purged sorbent. See SKC update to EPA TO-17 at www.skcinc.com for recommended sorbent for target compounds.

Description	Cat. No.	Qty.
ULTRA II Sampler, empty sampler housing only, packaged in reusable pouch <i>Requires sorbent vial listed below</i>	590-259	ea
Sorbent Vial Cleaned and purged (< 20 ng typical background levels)		
Tenax TA Sorbent in vial*, 265 mg	590-260	ea
Chromosorb® 106 Sorbent in vial* [∞] , 285 mg	590-261	ea
Anasorb® GCB1 Sorbent [‡] in vial*, 370 mg	590-262	ea
Carbopack X Sorbent in vial*, 500 mg	590-265	ea
Carbograph 5 Sorbent in vial*, 450 mg	590-266	ea

* Use within 30 days; storage at ≤ 39.2 F (4 C) recommended

[‡] Equivalent to Carbopack B

[∞] See Reference 3 for additional information on sampling rates for Chromosorb 106.

Analysis Accessories	Cat. No.	Qty.
Transfer Funnel for ULTRA II, aluminum, facilitates transfer of sorbent from vial to 0.25-inch OD thermal desorption tubes	590-264	ea
Thermal Desorption Tube for ULTRA I and II, Perkin Elmer, 0.25 x 3.5 inches, includes screens and end caps	P226530	ea

See the SKC Passive Sampling Guide online at www.skcinc.com.



ULTRA Passive Samplers

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Validation

ULTRA Passive Samplers were evaluated by the U.S. Military^{1,2}, OSHA Technical Center (Salt Lake)³, Swedish researchers⁴, and SKC Research and Development Laboratories^{5,6}. Samplers with specific sorbents were found to be suitable for eight-hour workshift sampling, 24-hour indoor air studies targeting medium-to-high boiling point compounds, and for 24-hour or seven-day sampling of benzene and 1,3-butadiene[†].

ULTRA Passive Samplers use the same sorbents and analysis as specified in the active method EPA TO-17. ULTRA samplers provide comparable low limits of detection in the low ppb to ppt concentration range for some chemicals while offering the benefits of economy and convenience.⁷

† Uptake rates for 1,3-butadiene declined over a one-week period.

References

- ¹ Hendricks, W.D., et. al., *Feasibility of Diffusive Sampling to Monitor U.S. Military Personnel for Exposure to Toxic Chemical Substances*, U.S. Dept. of Labor, OSHA, Salt Lake Technical Center, Salt Lake City, UT, 2002
- ² Hendricks, W., *The Marines Project: A Laboratory Study of Diffusive Sampling/Thermal Desorption/Mass Spectrometry Techniques for Monitoring Personal Exposure to Toxic Industrial Chemicals*, Industrial Hygiene Division, OSHA, Salt Lake Technical Center, Salt Lake City, UT, April 2002
- ³ Hendricks, W., *Performance of SKC ULTRA Passive Samplers Containing Carboxen 1016, Carbotrap Z, or Chromosorb 106 When Challenged With a Mixture Containing Twenty of OSHA SLTC's Top Solvent Analytes*, Methods Development Team, Industrial Hygiene Chemistry Division, OSHA, Salt Lake Technical Center, Salt Lake City, UT, February 2003
- ⁴ Strandberg, B., et. al., "Evaluation of Two Types of Diffusive Samplers and Adsorbents for Measuring 1,3-butadiene and Benzene in Air," *Atmospheric Environment*, Vol. 39, Issue 22, July 2005, pp. 4104-4110
- ⁵ Coyne, L., et. al., *Using Diffusive Samplers for Monitoring for Ppb Levels of Volatile Organic Compounds in Indoor Air*, presented at AirMon 02 Fourth International Symposium on Modern Principles of Air Monitoring, Lillehammer, Norway, Feb. 3-7, 2002
- ⁶ Coyne, L., et. al., *Using Diffusive Samplers for Monitoring for Ppb Levels of Volatile Organic Compounds in Air*, presented at AIHce 2002, San Diego, CA, June 2002
- ⁷ SKC Update to EPA Method TO-17 available at www.skcinc.com.

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>.

