SKC

Operating Instructions

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SKC VOC 575 Series Passive Samplers for Organic Vapors

Performance Profile

Housing material:	Nylon
Diameter:	1.4 in (3.5 cm)
Length (including clip):	2.5 in (6.3 cm)
Depth:	0.6 in (1.5 cm)

	575-001	575-002	575-005	575-006
Sorbent/Amount:	Charcoal, 350 mg	Anasorb® 747, 500 mg	Anasorb 747 treated with hydrobromic acid, 500 mg	Anasorb 747, treated with tert-Butyl catechol, 500 mg
Concentration range:	Varies - dependent upon chemical of interest		0.1 to 4 ppm	0.1 to 202 ppm
Analysis:	Solvent desorption, Gas Chromatography/Flame Ionization Detector (GC/FID)		Solvent desorption, Gas Chromatography/Electron Capture Detector (GC/ECD)	Solvent desorption, Gas Chromatography/Flame Ionization Detector (GC/FID)
Shelf-life:	2 years at < 39.2 F (4 C)		18 months at < 39.2 F (4 C)	2 years at < 39.2 F (4 C)
Storage:	**Before use:** Store at ambient temperature. **After use:** For sample storage information, refer to the method for the chemical of interest. ***Expedited shipping is recommended.***		**Before use:** Store at < 39.2 F (4 C). **After use:** Store at < 39.2 F (4 C) for up to 3 weeks. ***Expedited shipping is recommended.***	**Before use:** Store at ambient temperature. **After use:** Up to 2 weeks at ambient temperature or refrigerator temps (< 4 C)
Sample time:	Validated for 15-min and 8-hr occupational exposure sampling. Lab and field studies conducted with several compounds show suitability for 24-hr air sampling. *For sampling times, visit www.skcinc.com and click on Sampling Guides.*		Validated for 15-min and 8-hr occupational exposure sampling	Validated for 15-min and 8-hr occupational exposure sampling (cannot be used for peak sampling)
Sampling rate:	Dependent upon chemical of interest. *For compound-specific sampling rates, visit www.skcinc.com and click on Sampling Guides.*		21.2 ml/min	13.55 ml/min

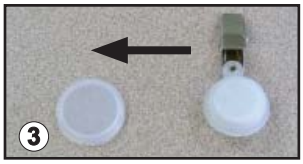
Sampling

Select the passive sampler with the sorbent best suited for the chemical analysis of interest. *Visit www.skcinc.com and click on Sampling Guides to determine the recommended sampler for a specific compound.*

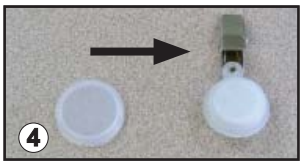
1. Remove the sampler from the sealed pouch.

2. Write the date, start time, and sampler ID number (found on the sampler) on the label on the pouch.

3. Remove the cap on the front of the sampler and set aside. Clip the sampler to the worker's clothing in the breathing zone. Ensure small holes are facing out.



4. At the end of the desired sampling period, unclip the sampler from worker's clothing. Replace the cap on the front of the sampler.



5. Write the stop time on the label on the pouch.

6. Carefully package and send the sampler to an AIHA-accredited laboratory for analysis.

Analysis

Note: *See Ordering Informaion below for sorbent tubes for desorption efficiency studies.*

Desorption

1. Take out small plug from back of sampler and remove foam disc with a pair of tweezers. Transfer sorbent to vial. Tap sampler lightly to get all sorbent particles out of sampler.
2. Add 2 mls of recommended desorption solvent* to vial.
3. Cap vial with a PTFE-lined cap.

* ***Refer to 575 Guide at www.skcinc.com for desorption solvents, times, and efficiency data.***

Calculations

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

Where:

C = Concentration of chemical (ppm)
SW = Sample weight by analysis (mg)
PT = Pressure/temperature correction *(see right)*
DE = Desorption efficiency *(see right)*
MW = Molecular weight of chemical
SR = Sampling rate (ml/min)
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:

T_1 = Sampling site temperature (in kelvin)
T_2 = 298 K
P_1 = Sampling site pressure (in mm Hg)
P_2 = 760 mm Hg

Desorption efficiency should be determined and expressed as a decimal (e.g. 98% = 0.98).

Example: Sampling toluene at 38°C and 695 mm Hg

$$\frac{(3.03\ mg)\ (24.45 \times 10^6)}{(0.99)\ (92.14)\ (14.5)\ (480)\ \ (1.166)} = 100\ ppm$$

The 575 Series diffusive samplers have been validated for specific compounds according to specific methods. Substituting a solvent other than that stated in these methods or other modifications of these methods may result in inaccurate results.

A listing of AIHA-accredited laboratories analyzing SKC 575 Series Passive Samplers is available at www.skcinc.com. Click on Sales & Support, Find A Laboratory.

References

Cassinelli, M.E., Hull, R.D., Crable, J.V. and Teass, A.W., "Diffusive Sampling: An Alternative to Workplace Air Monitoring," A. Berlin, R.H. Brown and K.J. Saunders (Royal Society of Chemistry, London) (eds.), *NIOSH Protocol for the Evaluation of Passive Monitors,* 1987, pp. 190-202

Guild, L.V., Myrmel, K.H., Myers, G. and Dietrich, D.F., "Bi-Level Passive Monitor Validation: A Reliable Way of Assuring Sampling Accuracy for a Larger Number of Related Chemical Hazards" *Appl. Occup. Environ. Hyg.,* Vol. 7, No. 5, May 1992, pp. 310-317. Reprints available from SKC.

SKC 575 Passive Sampler Validation (Research) Reports. Available at www.skcinc.com. Enter "reports" in the Google search box and click on Research Reports.

Ordering Information

Passive Sampler for:	Sorbent/Amount	Cat. No.	Qty.
Organic vapors	Charcoal, 350 mg	**575-001**	**5**
		575-001A	**25**
		575-001B	**100**
		575-001C	**500**
Organic vapors	Anasorb 747, 500 mg	**575-002**	**5**
		575-002A	**25**
		575-002B	**100**
		575-002C	**500**
Ethylene oxide	Anasorb 747 treated with hydrobromic acid, 500 mg	**575-005**	**5**
		575-005A	**25**
Styrene	Anasorb 747 treated with tert-Butyl catechol, 500 mg	**575-006**	**5**
Methanol	Anasorb 747, 500 mg, includes secondary diffusion barrier	**575-007**	**5**

Analysis Accessories	Cat. No.
Desorption Efficiency Tubes, each single-section tube contains the sorbent type and amount equal to the corresponding passive sampler, pk/10	
For 575-001 Samplers	**575-048**
For 575-002 and 575-007 Samplers	**575-049**
For 575-005 Samplers	**575-051**
For 575-006 Samplers	**575-052**

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.