



Operating Instructions

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SKC VOC ✓ 575-007 Passive Sampler for Methanol



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)
Sorbent/Amount:	Anasorb® 747, 500 mg
Concentration Range:	20 to 400 ppm
Analysis:	Solvent desorption, gas chromatography/flame ionization detector (GC/FID); 50:50 carbon disulfide (CS ₂): dimethylformamide (DMF)
Shelf-life:	2 years at ambient temperature
Sample Storage:	Store sample at ambient temperature for up to one week or at < 39.2 F (4 C) for up to 3 weeks.
Sample Time:	Validated for 15-min to 8-hr occupational exposure sampling. <i>For sampling times, visit www.skcinc.com and click on Sampling Guides.</i>
Sampling Rate:	1.20 ml/min

Sampling

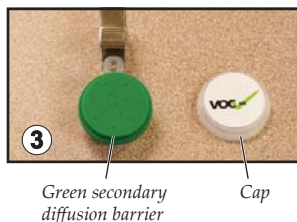
1. Remove the sampler and the green secondary diffusion barrier from the sealed pouch. **Do not discard the pouch as it is used to protect the sampler during shipment.**



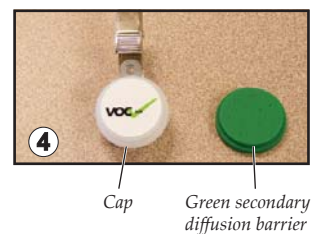
2. Write the date, start time, and sampler ID number (found on the sampler) on the label on the pouch.



3. Remove the cap on the front of the sampler and set it aside. Press the green secondary diffusion barrier onto the front of the sampler. **Do NOT remove the plastic plug on the back of the sampler. Removing this plug will VOID the sample.** 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 the worker's clothing. Remove the green secondary diffusion barrier and replace the cap on the front of the sampler.



5. Write the stop time on the label on the pouch. **Important:** Measure and record ambient temperature and atmospheric pressure. Include in information sent to the laboratory.



6. Carefully package the sampler in the pouch and send it, blanks, and pertinent information to an AIHA-accredited laboratory for analysis.



Ensure holes are not covered in any way. Do not expose to rain/spray or splashing chemicals. Do not handle with dirty fingers/gloves.

Analysis

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 ml of 50:50 CS₂:DMF to vial.
3. Cap vial with a PTFE-lined cap.

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 opposite 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

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

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

 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 Resources, Find A Lab.

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. Click on Resources, Product Publications, Research/Validation Reports.

Ordering Information

Passive Sampler for:	Sorbent/Amount	Cat. No.	Qty.
Organic vapors	Charcoal, Lot 2000, 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

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