



# Operating Instructions

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## SKC VOC ✓ 575-007 Passive Sampler for Methanol



### Performance Profile

<b>Housing material:</b>	Nylon
<b>Diameter:</b>	1.4 in (3.5 cm)
<b>Length (including clip):</b>	2.5 in (6.3 cm)
<b>Depth:</b>	0.6 in (1.5 cm)
<b>Sorbent/Amount:</b>	Anasorb® 747, 500 mg
<b>Concentration range:</b>	20 to 400 ppm
<b>Analysis:</b>	Solvent desorption, Gas Chromatography/Flame Ionization Detector (GC/FID); 50:50 carbon disulfide (CS <sub>2</sub> ): dimethylformamide (DMF)
<b>Shelf-life:</b>	2 years at ambient temperature. For low-level measurements, SKC recommends storage at < 39.2 F (4 C).
<b>Storage:</b>	Store at ambient temperature for up to one week or at < 39.2 F (4 C) for up to 3 weeks.
<b>Sample time:</b>	Validated for 15-min to 8-hr occupational exposure sampling. <i>For sampling times, visit <a href="http://www.skcinc.com">www.skcinc.com</a> and click on Sampling Guides.</i>
<b>Sampling rate:</b>	1.20 ml/min

### Sampling

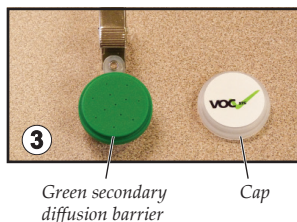
1. Remove the sampler and the green secondary diffusion barrier from the sealed pouch.



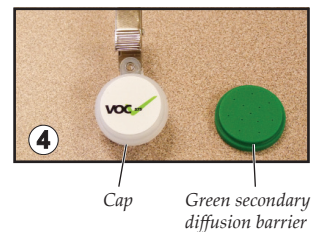
2. Write the date, start time, and sampler ID number (found on the sampler) on the label on the pouch.



3. Remove the cap on the front of the sampler and set it aside. Press the green secondary diffusion barrier onto the front of the sampler. 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.



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



## 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 CS<sub>2</sub>: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:

- T<sub>1</sub> = Sampling site temperature (in kelvin)  
T<sub>2</sub> = 298 K  
P<sub>1</sub> = Sampling site pressure (in mm Hg)  
P<sub>2</sub> = 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.skinc.com](http://www.skinc.com). Click on Sales & Service, 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.skinc.com](http://www.skinc.com). Enter "575" in the Google search box and click on the More Information tab.

## 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.skinc.com/warranty.asp>.