Application Guide

Sampling with 575 Series Passive (Diffusive) Samplers

Passive sampling is the collection of airborne gases and vapors at a rate controlled by a physical process such as diffusion, **without** the use of an air sampling pump. Passive (diffusive) samplers rely on the movement of contaminant molecules across a concentration gradient (i.e., molecules diffuse from an area of high concentration in air to an area of low concentration onto the sampler). This rate of diffusion can be calculated mathematically and determined experimentally for individual chemicals. SKC provides diffusion or sampling rates for many organic vapors that can be sampled with SKC 575 Series Passive Samplers. This Application Guide demonstrates how to collect a sample and defines the critical sampling information that should be sent to a laboratory for analysis when using SKC 575 Series Passive Samplers.

Introduction

SKC offers 575 Series Passive Samplers with a choice of sorbents. Choose the passive sampler with the sorbent best suited for the chemical(s) of interest. Refer to the SKC Passive Sampling Guide at www.skcinc.com for more information. Note that U.S. OSHA diffusive methods typically specify the use of SKC 575-002 samplers. These samplers contain a versatile sorbent that can collect a variety of compounds thus simplifying OSHA inventory needs. Either the 575-001 or the 575-002 sampler can be used for many compounds.

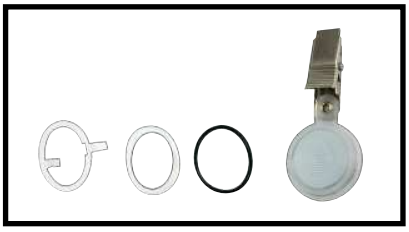
Consult the SKC Passive Sampling Guide to determine minimum and maximum sample times. If the maximum sample time is less than the typical 8-hour workday, two or more passive samplers should be used to measure chemical levels over the entire workshift. Samplers may be left on the worker during breaks or lunch if they are part of the 8-hour workday and if they occur in the work area. Otherwise, remove and seal samplers with the provided cap during breaks/lunch. When the worker returns to work, resume sampling by removing the cap to expose the perforated face of the sampler. Reclip the sampler on the worker's collar. Note time that sampling was stopped and then restarted.

1. Sample Collection

Remove the sampler with cap in place from the sealed pouch. Set aside all small parts, including the sorbent tube enclosed in the pouch, as the laboratory will require them for analysis.

Write the start time, date, and a user-assigned sampler identification number on the label on the back of the sampler.

Remove the cap and O-ring from the sampler and set aside for later use. Clip the sampler to a worker's collar or shirt pocket as close to the breathing zone as possible. Ensure that the small holes are facing out and that the worker's clothing does not cover the sampler.



Publication 1737 Rev 0906

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After sampling, unclip the sampler from the worker and place the O-ring and cap (removed previously) back onto the sampler. They will slide onto the sampler front and cover the small holes stopping further sample collection. Write the stop time on the label on the back of the sampler.

2. Sampler Storage and Shipment to Analytical Laboratory

Before use: Store at ambient temperature. For low-level measurements, SKC recommends storage at < 39.2 F (4 C) for lower backgrounds and optimum results.

After use: For sample storage information, refer to the method for the chemical of interest. SKC recommends expedited shipment of samples due to the unstable nature of some compounds.

Be sure to send to the laboratory all small parts included in the sampler pouch along with the sorbent tube, which the laboratory can use for desorption efficiency studies. Blank samples (samplers that are opened and then immediately capped) should also be included for quality control purposes.

3. Critical Information to Include in Sample Shipment

The laboratory will need to know the air volume for each of the chemicals of interest. Calculate as follows:

Chemical sampling rate supplied by SKC (ml/min)	X	Sampling time (min)	=	Air volume (ml or L)

The laboratory will determine the total micrograms found on the sampler for each of the chemicals of interest. Air volume for each compound will be used to report the chemical concentration in air as parts per million (ppm).

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