

# UME<sup>x</sup>100 Passive Sampler

## Formaldehyde Sampling

- **Accurate and reliable for formaldehyde collection**

- Sample integrity is assured
- Accuracy exceeds OSHA standards
- Uses popular 2,4-DNPH chemistry
- Validated by OSHA and Swedish Institute

- **Economical and easy to use**

- No pump or training required
- Low-cost sampler
- Sample medium and blank/correction section in one unit

- **Conforms to EU ISO 16000-4-2004**

- **Meets specifications of OSHA Method 1007<sup>‡</sup>**

- **Referenced in EPA IP-6C**

- **Highly sensitive and specific analysis method**

- **Small and unobtrusive**

- **Simple-to-use “on/off” sliding cover**

- **Safe**

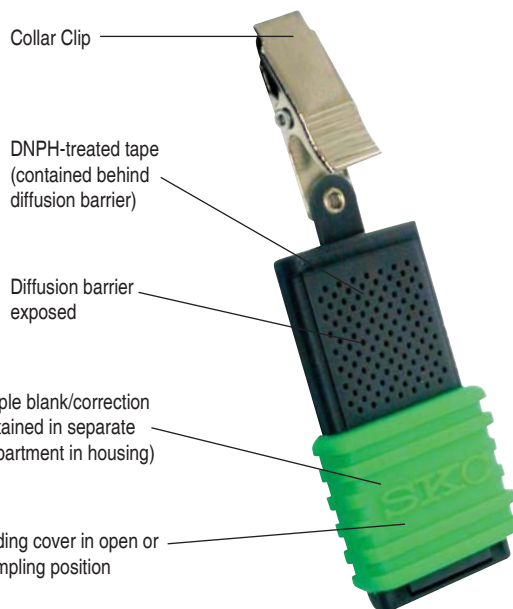
- No glass or chemical liquids in the sampler

- **Low limits of detection**

- **28.6 ml/min uptake rate enhances sensitivity for 15-minute, 8-hour, and 24-hour sampling\***

- **Versatile Sampler**

- Workplace sampling from 15 minutes to 12 hours
- Indoor air sampling with validated rates for 24-hour or 7-day samples\*



UME<sup>x</sup>100 Sampler with sliding cover in sampling position

### Description

UME<sup>x</sup> 100 Passive Sampler for formaldehyde, the professional's No. 1 choice, was developed in collaboration with the National Institute of Working Life in Umea, Sweden. Constructed of tough polypropylene, the single-use UME<sup>x</sup> 100 contains a tape treated with 2,4-dinitrophenylhydrazine (DNPH) for reliable collection of formaldehyde. Samplers are provided in individual aluminized pouches that can be used to transport the sampler to a laboratory after sampling. For convenience and quality control assurance against contamination, each sampler incorporates a “blank/correction” section in addition to the active sampling section so there is no need to send extra samplers to the laboratory. The shelf-life date is printed on a label on the outside of each pouch for easy inventory management. The UME<sup>x</sup> 100 Sampler includes a clip for attachment to a worker's collar for personal sampling or in an appropriate location for area sampling.

\* Sampling periods between 24 hours and 7 days have not been evaluated.

‡ Note: If sampling in an atmosphere containing formalin, see [www.skinc.com/instructions/1795.pdf](http://www.skinc.com/instructions/1795.pdf) for field study information.



# UMEX<sup>100</sup> Passive Sampler

Formaldehyde Sampling

## Using the UMEX<sup>100</sup> Passive Sampler

Sampling with the UMEX<sup>100</sup> Passive Sampler for formaldehyde is easy and requires no pump or training. Simply remove the sampler from the pouch, record sampling information, and slide the cover to the "on" position. Clip the sampler on a worker for personal sampling up to eight hours or in an appropriate location for area sampling up to 24 hours or for 7 days (*sample periods between 24 hours and 7 days have not been evaluated*). When sampling is complete, simply slide the cover to the "off" position, place the sampler back in the pouch immediately, and seal. Send the sampler to an accredited laboratory for analysis by high-performance liquid chromatography (HPLC). The UMEX<sup>100</sup> sampler is designed for single use only. Do not reuse UMEX<sup>100</sup> samplers.

UMEX<sup>100</sup> can be used to sample other aldehydes. *See the Passive Sampling Guide at [www.skcinc.com](http://www.skcinc.com) for UMEX<sup>100</sup> sampling rates for other aldehydes.*

## UMEX<sup>400</sup> for Amines

UMEX<sup>400</sup> contains a tape treated with 1-naphthylisothiocyanate (NITC) for the passive collection and analysis of ppm-level aliphatic amines such as methyl amine, dimethyl amine, isopropyl amine, ally-amine, and n-butyl amine. Analysis is by high-performance liquid chromatography with UV detection (HPLC-UV). *Contact SKC for details or visit [www.skcinc.com](http://www.skcinc.com).*

## UMEX<sup>200</sup> for Sulfur Dioxide and/or Nitrogen Dioxide

UMEX<sup>200</sup> uses tape treated with triethanolamine (TEA) for the passive collection and analysis of sulfur dioxide and/or nitrogen dioxide. Analysis is by ion chromatography (IC) with conductivity detection. *Contact SKC for details or visit [www.skcinc.com](http://www.skcinc.com).*

### Reference:

Levin, J.O. and Lindahl, R., "Diffusive Air Sampling of Reactive Compounds - A Review," *Analyst*, Vol. 119, January 1994, pp. 79-83

Levin, J., Lindahl, R., and Andersson, K., "High-performance Liquid Chromatographic Determination of Formaldehyde in Air in the ppb and ppm Range Using Diffusive Sampling and Hydrazone Formation," *National Institute of Occupational Health, Research Department in Umea, Analytical Chemistry Division, P.B. 6104, S-90006 Umea, Sweden Environmental Technical Letter 9, 1988, pp. 1423-1430*

OSHA Method 1007 Formaldehyde (Diffusive Samplers), May 2005

Levin, J. O., Lindahl, R., and Andersson, K., "A Passive Sampler for Formaldehyde in Air Using 2,4-Dinitrophenylhydrazine-coated Glass Fiber Filters," *Environmental Science and Technology*, Vol. 20, No. 12, 1986, pp. 1273-1276

### 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>.



## Performance Profile

**Sampling Rate for Formaldehyde:**

- 28.6 ml/min with an RSD of 18% for 15 min to 8 hr or 24 hr
- 20.4 ml/min for 7 days \*

**Detection Principle:** Formation of stable DNPH-hydrazone in the presence of formaldehyde

**Concentration Range:** 5 ppb to 5 ppm

**Lower Detection Limits:**

- 15 min: 200 ppb (.24 mg/m<sup>3</sup>)
- 8 hr: 5 ppb (.006 mg/m<sup>3</sup>)
- 24 hr: 2 ppb (.002 mg/m<sup>3</sup>)
- 7 days: 0.2 ppb (.0002 mg/m<sup>3</sup>) \*

**Shelf-life:** 12 mos from date of manufacture at ≤ 39.2 F (4 C)

**Capacity:** 29 µg/sample

**Analysis:** High-performance liquid chromatography with UV detection (HPLC-UV)

**Accuracy:** ± 25%, exceeds OSHA requirements

**Storage:** *Before use:* ≤ 39.2 F (4 C)  
*After use:* ≤ 39.2 F (4 C) and analyze within three weeks  
**Do not store with food.**

**Temperature Effects:** No effect on sampling rate between 10 and 30 C

**Humidity Effects:** No effect from 10 to 80% relative humidity; do not use below 10% RH

**Wind Effects:** No effect from 0.05 to 1.0 m/s; good correlation at 0.02 m/s

**Interferences:<sup>‡</sup>**

- Large amounts of carbonyl compounds may reduce the uptake of formaldehyde
- Use in ozone levels < 0.5 ppm

**Dimensions:** 3.4 x 1.1 x .35 in (8.6 x 2.8 x .89 cm)

**Weight:** 0.38 oz (10.8 gm)

\* *Sampling periods between 24 hours and 7 days have not been evaluated.*

## Ordering Information

Description	Cat. No.
<b>UMEX<sup>100</sup> Passive Sampler for Formaldehyde<sup>‡</sup> and Other Aldehydes,<sup>†</sup> individually packaged in aluminized pouch, pk/10</b>	<b>500-100</b>
<b>Treated Tape, for QC purposes only, pk/50</b>	<b>P20084</b>

<sup>†</sup> *Limited shelf-life; storage at ≤ 39.2 F (4 C) required. Do not store with food.*

<sup>‡</sup> *Note: If sampling in an atmosphere containing formalin, see [www.skcinc.com/instructions/1795.pdf](http://www.skcinc.com/instructions/1795.pdf) for field study information.*

<sup>#</sup> *Designed for single use only. Do not reuse UMEX<sup>100</sup> samplers.*