

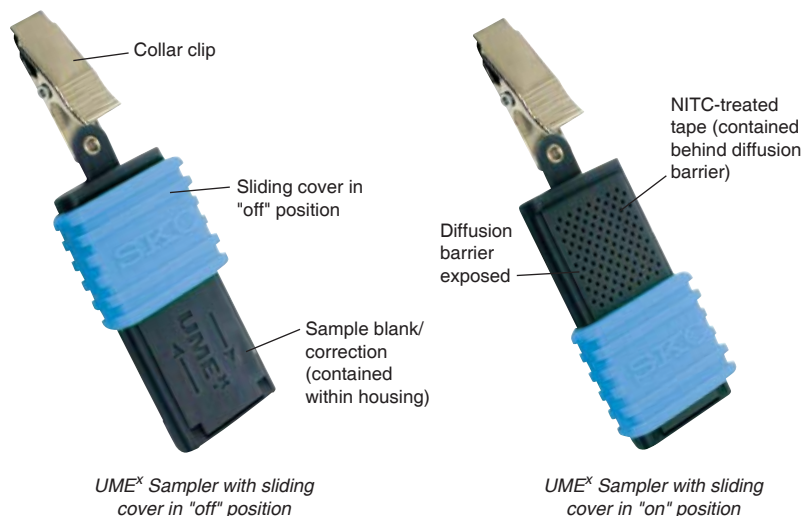


## Operating Instructions

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### UMEX<sup>400</sup> Passive Sampler for Amines Catalog No. 500-400

Developed in collaboration with the National Institute of Working Life in Umea, Sweden, the SKC UME<sup>x</sup> 400 Passive Sampler collects amines in the 0.5 to 10 ppm range. The UME<sup>x</sup> 400 Passive Sampler contains a tape treated with 1-Naphthyl-isothiocyanate with UV detection (HPLC-UV). Each sampler incorporates a "blank/correction" section in addition to the active sampling section. Analysis is by High-Performance Liquid Chromatography (HPLC) for identification of amines that may be present in the sample. Designed for single use, the SKC UME<sup>x</sup> 400 Passive Sampler is packaged in an aluminized pouch for easy sample transport to a laboratory.



## Performance Profile

Sampling rates:

Compound	Sampling Rate (ml/min)	RSD
Methyl amine	18.4	14.0
Dimethyl amine	18.2	5.8
Isopropyl amine	13.9	9.5
Ally amine	22.4	7.7
n-Butyl amine	18.1	9.2

**Concentration range:** 0.5 to 10 ppm

**Detection Principle:** Formation of a stable amine derivative, made from a reaction of the amine with NITC

**Analysis Method:** Analysis by HPLC with UV detection at 254 nm

**Accuracy:** ± 25% for all amines except methyl amine  
± 35% for methyl amine

**Shelf-life:** 12 months from date of manufacture in freezer.

**Storage:** **Before use:** ≤ 39.2 F (4 C)  
**After use:** samples can store at ambient temperatures for 14 days  
*For storage greater than 14 days, store at ≤ 39.2 F (4 C).*

 **Do not store with food.**

**Temperature effects:** No effect on sampling rate between 50 to 86 F (10 to 30 C)

**Humidity effects:** No effect on sampling rate from 10 to 80% relative humidity (RH)

**Wind velocity effects:** No effect from 5 to 100 cm/sec

**Interferences:** None found; highly specific for amines

**Validation:** Partial

**Dimensions:** 3.4 x 1.1 x 0.35 inches (8.6 x 2.8 x .89 cm)

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

**Slide Cover:** Blue

## Sampling Instructions

- Cautions:**
- Store at ≤ 39.2 F (4 C) before use.
  - Do not store with food.
  - Before sampling, check the expiration date on the label on the outside of the pouch. Do not use after the last day of the month indicated.
  - SKC recommends using gloves when handling chemically treated media.
  - UME<sup>x</sup> samplers are designed for single use. Do NOT reuse UME<sup>x</sup> samplers.

1. Open the pouch and remove the sampler. Do not discard the pouch; use it to send sampler to the laboratory. **Store pouch away from potential amine sources.**
2. Enter appropriate information on the label.
3. Position the sampler on a worker's collar for personal sampling or in an appropriate location for area sampling.
4. Slide the sampler cover to the "on" position to begin sampling. Enter the sample start time in the space provided on the back of the sampler.
5. After sampling for the desired time, up to 8 hours, slide the sampler cover to the "off" position to stop sampling. Enter the sample stop time in the space provided on the back of the sampler.
6. Place the sampler into the original pouch.
7. Seal the pouch. Send to an accredited laboratory for analysis.

## Analysis Instructions

### Calibration Standards

To prepare standards of the amine derivatives, simply add a known amount of the amine to a vial containing 3 ml of acetonitrile and a section of the NITC-treated tape.

### Sample Preparation

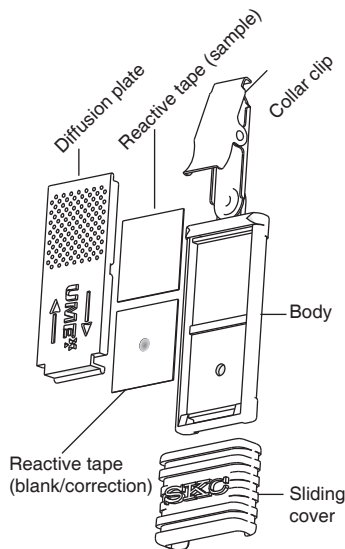
1. Remove the sampler from the pouch and the sliding cover from the sampler. Use forceps (cleaned with acetonitrile) to lift out the reactive tape from each section. Place each in a sealed vial. This provides a sample and a blank.

*Note: The blank/correction section has an indentation for easy identification.*

2. Add 3.0 ml of acetonitrile to each vial.
3. Perform sample analysis on both tapes.

### Sample Analysis

1. The amine derivative is desorbed from both the sample and control tapes by placing each in its own glass vial containing 3.0 ml of acetonitrile and shaking them for one minute by hand.
2. A 20-microliter portion of this sample is injected into a liquid chromatograph and analyzed using a C18 column and a mobile phase consisting of 60% acetonitrile and 40% water.
3. The amine derivative is detected by UV detection at 254 nanometers (nm).
4. Quantitation is performed using calibration standards prepared as described in *Calibration Standards* above.



### References

Lindahl, R., Levin, J.O., and Andersson, K., "Determination of Volatile Amines in Air by Diffusive Sampling, Thiourea Formation, and High-performance Liquid Chromatography," *Journal of Chromatography*, 643, 1993, pp. 35-41

<b>UME<sup>x</sup> Passive Samplers**</b>	<b>Catalog No.</b>
<b>UME<sup>x</sup> 400†</b> for amines	<b>500-400</b>
<b>UME<sup>x</sup> 100†</b> for formaldehyde and other aldehydes	<b>500-100</b>
<b>UME<sup>x</sup> 200</b> for sulfur dioxide and/or nitrogen dioxide	<b>500-200</b>

\* *Limited shelf-life. Do not store with food.*

† *Storage at  $\leq 39.2$  F (4 C) required*

‡ *UME<sup>x</sup> samplers are designed for single use only. Do NOT reuse UME<sup>x</sup> samplers.*

*Notice: This operating instruction may not address all safety concerns (if any) associated with this product and its use. The user is responsible for determining and following the appropriate safety and health practices and regulatory limitations (if any) before using the product. The information contained in this document should not be construed as legal advice, opinion, or as a final authority on legal or regulatory procedures.*