Technical Note

SKC 575-005 Passive Sampler
Ethylene Oxide Method Summary (1.0 ppm PEL)
Validation to ANSI/ISEA 104-1998 Standard

PROCEDURE: Adsorption on the Passive Sampler Cat. No. 575-005 containing 500 mg Anasorb® PC (Petroleum Charcoal†) coated with hydrobromic acid (HBr), with desorption (in situ) with 2 ml methanol and analysis by gas chromatography with electron capture detection.

SAMPLING RATE: 21.2 ml/min tested for linearity over the range of 15 minutes to eight hours.

ANALYTICAL RECOVERY:

% Recovery	% RSD*	Validation Range (8-hour TWA ppm)
102%	7.0	0.1 to 4

STORAGE: Exposed samples can be stored for three weeks in the freezer.

HUMIDITY EFFECTS: Sampling rate was not affected by humidity.

REVERSE DIFFUSION: Not significant ($\leq$ 10%) when samplers exposed to 1 ppm Ethylene Oxide for four hours, then four hours of clean air.

LIMIT OF QUANTITATION: The limit of quantitation was found to be 0.5 µg/2 ml (RSD 5.4%) and the lowest limit of detection was 0.35 µg/2 ml (RSD 13%).

VALIDATION DATE: May 2000

* *Relative Standard Deviation*

† *Petroleum charcoal is no longer available. In 2007, OSHA tested and approved Anasorb® 747 (synthetic charcoal analogous to petroleum charcoal) as a base medium that provides excellent performance for the sampling of ethylene oxide according to OSHA Method 1010 (revised OSHA 50).*

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