



Technical Note

SKC 575-001 Passive Sampler Pentane Validation Summary Validation to NIOSH Protocol*

PROCEDURE:	Adsorption on the 575-001 Passive Sampler containing 350 mg Lot 120 coconut-base charcoal with desorption (in situ) with 2 ml carbon disulfide and analysis by gas chromatography with flame ionization detection.			
SAMPLING RATE:	14.9 ml/min tested for linearity over the range of 7.5 minutes to 12 hours.			
BIAS AND PRECISION:	The pooled % RSD** for all samplers was 3.5%. Since the uptake rate of the sampler has been calibrated against standard atmospheres, the method can be considered free from bias. Meets NIOSH accuracy criteria of $\leq 25\%$.			
ANALYTICAL RECOVERY	% Recovery	% RSD	Validation Range	
	105.2	1.3	(mg) 1.3 to 28	(8-hour TWA ppm) 60 to 1200
STORAGE:	Samples, which were collected for eight hours at the PEL at 80% RH, can be stored for 14 days at ambient (25 C) or refrigerator (3 C) temperatures with no loss in recovery.			
HUMIDITY EFFECTS:	High humidity conditions (80% at 25 C) did not affect the uptake rate or recovery.			
REVERSE DIFFUSION:	Not significant (< 10%) when samplers were exposed to 1500 ppm Pentane for four hours then four hours of clean air at 80% RH (25 C).			
LIMIT OF DETECTION:	0.1 PEL eight-hour TWA concentration was easily determined. No studies were made to determine the absolute detection limit.			
FACTOR EFFECTS:	A 16-run six-factor factorial test indicated no statistically significant effects of concentration, exposure time, relative humidity, face velocity, orientation, or the presence of 200 ppm hexane or any interaction of these factors at the 95% confidence level.			
VALIDATION DATE:	December 1989			

* Sampler passed all criteria of Full Validation to NIOSH Protocol at PEL of 610 ppm.

** Relative Standard Deviation

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