3M

Technical Data Bulletin

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3M Organic Vapor Monitors *3500/3510/3520/3530*

Perchloroethylene

Background This report contains supplemental information for sampling *Perchloroethylene* using 3M organic vapor monitors. Please see Tech Data Bulletin #124 for more information on the test protocol used to generate this report.

Sampling Rate The published sampling rate for Perchloroethylene is 28.3 ± 0.5 cc/min.

Analytical Recovery Recovery over a range of .243 to 2.6 mg using carbon disulfide was 103% with a coefficient of variation of 2.7%.

Accuracy The accuracy is within ±25% as determined from a series of concentration and time experiments (see Table 1 on page 2).

Humidity Not significant (uptake rate was linear) when monitors were exposed to 25 ppm Perchloroethylene for 2, 4, 6 and 8 hour periods at 50% and 80% RH.

Detection Limit Assuming an analytical detection limit of 2 µg per monitor, the minimum detectable concentration is 1 ppm with a 15 minute sample, and 0.02 ppm with an 8 hour sample.

Reverse Diffusion Not significant (<10%) when exposed to 54 ppm Perchloroethylene for 30 minutes, and then 450 minutes clean air at 80% RH, 23°C.

Storage Samples may be stored at room temperature (23°C) or refrigerated (4°C) for 21 days without significant change from initial recovery.

Temperature No specific experimental data. No significant effects (<10% bias) observed for Toluene, 1,1,1 -Trichloroethane, Methylene Chloride and Hexane.

Interferences The sampling rate is not affected by the presence of other solvents provided that the monitor is not overloaded.

Orientation/ Air Velocity To accurately sample at any orientation, there must be a minimum air velocity of 25 ft/min.

Table 1 indicates the sampler accuracy for Perchloroethylene over a range of concentrations and times at 50% RH. According to our protocol, accuracy must be within ±25%. Concentrations were chosen to bracket certain published exposure limits for Perchloroethylene at the time that this work was done.

Table 1: % Accuracies by concentration and sampling time.

	15 minutes	8 hours
2.4 ppm	19.0 %	9.9 %
51 ppm	11.2 %	9.6 %