3M

Technical Data Bulletin

#121, September, 1996

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

Methyl Ethyl Ketone

Background This report contains supplemental information for sampling *Methyl Ethyl Ketone (MEK)* 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 MEK is 36.3 ± 0.9 cc/min.

Analytical Recovery Recovery over a range of 1.05 to 10.47 mg using carbon disulfide was 91% with a coefficient of variation of 1.9%.

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 200 ppm MEK 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 0.04 ppm with an 8 hour sample.

Reverse Diffusion Reverse diffusion was not significant (<10%) when exposed to 400 ppm MEK for 30 minutes, and then 450 minutes clean air at 80% RH, 23°C.

Storage When sampling under humid conditions, samples should be stored refrigerated (4°C) for not more than 3 weeks (see Table 2 on page 2).

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 MEK 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 MEK at the time that this work was done.

Table 1: % Accuracies by concentration and sampling time.

	15 minutes	8 hours
10 ppm	13.1 %	10.3 %
200 ppm	19.9 %	8.0 %

With regards to storage, Table 2 shows the recovery at room temperature (23°C) and 4°C at various intervals after monitors were spiked at 100 ppm and 40 uL water (maximum amount of water collected by monitors at 80% RH).

Table 2: Recovery after storage

23°C Initial	**23°C 2 wks**	**23°C 3 wks**	**23°C 4 wks**
0.87 +/- .01	0.67 +/- .01	0.62 +/- .01	0.62 +/- .01
	4°C 2 wks	**4°C 3 wks**	**4°C 4 wks**
	0.81 +/- .02	0.78 +/- .01	0.76 +/- .01