

#131, March, 1997

**3M Organic Vapor Monitors
3520/3530****Methylene Chloride**

(Replaces Technical Data Bulletin #120)

Background in	This bulletin contains updated information on sampling <i>Methylene Chloride</i> accordance with OSHA's new exposure limits. 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 Methylene Chloride is 37.9 cc/min.
Analytical Recovery	Recovery over a range of 0.16 to 1.59 mg using carbon disulfide was 87% with a coefficient of variation of 2.6%.
Accuracy	Table 1 on page 2 shows that the 3520/3530 meets OSHA accuracy requirements for Methylene Chloride STEL and 8 hour sampling. NOTE: The <u>3500/3510</u> should not be used for sampling Methylene Chloride.
Humidity	3M recommends limiting sampling time at high relative humidity to under 6 hours even though the 3520/3530 monitor meets OSHA accuracy levels for 8 hour sampling at these conditions (see Figure 1 and Table 1 on page 2).
Detection Limit	Assuming an analytical detection limit of 3 µg per monitor, the minimum detectable concentration is 1.5 ppm with a 15 minute sample, and 0.05 ppm with an 8 hour sample.
Reverse Diffusion	Not significant (<10%) when exposed to 50 ppm Methylene Chloride 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** Not significant (<10%) in the range of 10-40°C (50-104°F).
- 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 Methylene Chloride over a range of concentrations and times at 50% RH (and at 80% RH where noted). According to OSHA, sampling for Methylene Chloride must be accurate at the 95% confidence interval to within +/- 25% at concentrations above 25 ppm, and within +/- 35% at concentrations between 12.5 and 25 ppm.

Table 1: % Accuracies by concentration and sampling time.

Conc. (ppm)	15 min	4 hrs	6 hrs	8 hrs
4				26.6 %
10	16.7 %			
25		11.9 %	10.1 % (80% RH)	18.2 % (50% RH) 13.9 % (80% RH)
50	14.3 %			7.7 %
125	12.8 % (50% RH) 16.0 % (80% RH)			

Figure 1 gives the uptake rates for Methylene Chloride on the 3520/3530. The uptake rate is linear at 50% RH, and at 80% RH when sampling for less than 6 hours. The 3500/3510 should not be used for sampling Methylene Chloride.

