



Technical Data Bulletin

1018
Page 1 of 3

#122, September, 1996

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

Isopropanol

Background <i>(IPA)</i>	This report contains supplemental information for sampling <i>Isopropanol</i> 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 IPA is 39.4 cc/min.
Analytical Recovery	Recovery over a range of 1.96 to 18.84 mg using acetonitrile was 96% with a coefficient of variation of 3.8%.
Accuracy	The accuracy is within $\pm 25\%$ as determined from a series of concentration and time experiments (See Table 1 on page 2).
Humidity	Uptake rate was linear when monitors were exposed to 200 ppm IPA for 2, 4, 6 and 8 hour periods at 50% RH. The 3520/3530 should be used for sampling above 400 ppm longer than 4 hours at 80% RH (see figures on page 2 and 3).
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	Not significant (<10%) when exposed to 800 ppm IPA for 30 minutes, and then 450 minutes clean air at 80% RH, 23°C.
Storage Temperature	Samples may be stored at room temperature (23°C) or refrigerated (4°C) 21 days without significant change from initial recovery. No specific experimental data. No significant effects (<10% bias) observed for Toluene, 1,1,1 -Trichloroethane, Methylene Chloride and Hexane.

1018
Page 2 of 3

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 IPA over a range of concentrations and times at 50% RH. According to our protocol, accuracy must be within $\pm 25\%$. Concentrations were chosen to bracket certain published exposure limits for IPA at the time that this work was done.

Table 1: % Accuracies by concentration and sampling time.

	15 minutes	8 hours
40 ppm	10.4 %	6.6 %
800 ppm	18.7 %	20.5 % (3500) 6.8 % (3520)

Figures 1 and 2 give the uptake rates for the 3500/3510 and the 3520/3530 at 50 and 80% RH.



