

October 14, 1986

Brenda Nero
Polyethylene "B"

POLY B LAB - FUME VENTILATION HOOD

The two ventilation hoods in Poly B lab were checked for performance using an air velocity meter and smoke tubes.

The purification hood does not meet minimum guidelines for fume ventilation. The minimum average face velocity for this hood should be 80 FPM. The measured average velocity was 64 FPM. The balance of the hood or the variability of the measured face velocities should ideally be $<.4$ (range/mean), but not $>.7$. The variability was 1.3. Smoke tube tests showed a great deal of turbulence inside the hood with some smoke occasionally escaping the hood. Consequently, air capture is rated as poor. A ventilation hood that is functioning properly should have little turbulence inside and should clear the smoke quickly, with none escaping. To correct these problems, the first step would be to dispose of or remove as many of the bottles in the hood as is practical. Oftentimes, too much equipment under a hood will decrease face velocities in spots and increase turbulence. If this doesn't correct all of the problems, the next step would be to have the blower checked for proper operation.

Let me know when you're going to try these corrections and I will check to see if it improves the hood performance.

Purification Hood	90	45	77
(FPM)	93	108	48
	36	51	27

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The polymer hood face opening velocities averaged 109 FPM, which is good. The variability of the measurements was not so good and equalled 1.0 (range/mean). Some turbulence was observed inside the hood and the air capture was sluggish in spots, but no smoke escaped. I think we can improve the balance and air capture on this hood by moving some of the equipment around. Again, when you are ready to take a look at these things, give me a call.

Polymer Hood	160	49	148
(FPM)	123	147	151
	93	52	63

You know Brenda, these checks I make are once a year and as you can see from these tests, a lot can happen in a year. I think if we had a manometer permanently mounted on the hood maybe we could detect decreases in hood performance faster and take corrective action before the hood becomes ineffective.

Mark Ryland/cp

Mark Ryland
Industrial Hygienist
Plastics Department
Building 807

/cd

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