BMC
LABORATORY FUME HOODS

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TEST RESULTS
ANSI/ASHRAE 110-1995
Method of Testing Performance of Laboratory Fume Hoods

BMC Fume Hood Model B-615

This report contains the test results, for the specified fume hood, when tested in accordance with the ANSI/ASHRAE 110-1995 "Method of Testing Performance of Laboratory Fume Hoods" test guideline. This method of testing applies to conventional, bypass, add air and VAV fume hoods.

The sub-headings listed below correspond to the sub-headings listed in the ANSI/ASHRAE 110-1995 guideline.

4. INSTRUMENTATION AND EQUIPMENT

Tracer Gas:	98% Sulfur Hexafluoride.
Ejector System:	Custom Fabricated Ejector per figures 1-3.
Critical Orifice:	Provides a flow rate of 4.0 Lpm at an upstream pressure of 34 psi. Calibration Date 3-8-99 Calibration Time 2:35 PM.
Detector Instrument:	Miran 203, S/N 8016 Range of detection 0 to 0.6 PPM / 0 to 600 PPM Calibration Date 3-9-99 Calibration Time 8:35 AM. Recalibration Date 3-9-99 Recalibration Time 4:05 PM. Calibration Variance 0%.
Recorder:	Readings are recorder with a computer with accuracy of better than ±0.5% of full scale.
Manikin:	Of size and placement as specified in the ASHRAE guideline.
FV Measuring Inst.:	Alnor 8525 Anemometer, S/N 007130 Calibration Date 1-12-99 Range 0 to 999 fpm
Smoke:	Local and large-volume generating devices in accordance with the ASHRAE guideline.

5. TEST CONDITIONS

Room Ventilation:	At full normal operation.
BMC's Test Laboratory:	Crosscurrents in the area 5' in front of the hood are far below 30 fpm. Room pressurization is measured and maintained at 0.02 in. w.g. below the static pressure outside the test room.
Background Levels:	The background level is below 10% of control level.
Preliminary Data:	The test laboratory is 15' X 12' X 12' high with a 92" X 36" supply air fixture centered in the 15' wall. The fume hood is centered along the 15' wall opposite the supply air fixture. The room has two doors, one on each of the 12' walls. The doors remain closed during the test.

HOOD DESCRIPTION

BMC Model No.:	B-615
Baffle type & position:	Fixed lower and center slots. Adjustable upper set at 1/2" open.
Sash Opening:	31", 14 sq. ft.
Specified Face Velocity:	100 fpm
Volume:	1400 CFM
Static Pressure:	0.36 in. w.g.

6. FLOW VISUALIZATION AND VELOCITY PROCEDURE

LOCAL VISUALIZATION CHALLENGE

Smoke was applied to the following locations with the listed results.

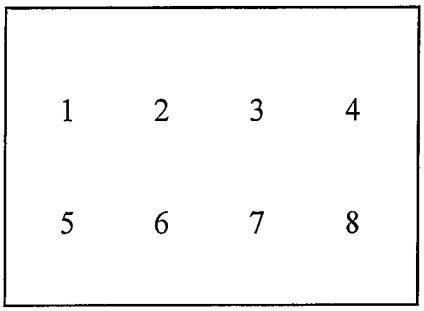
Under the airfoil:	Smoke was exhausted smoothly and was not entrained in the vortex at the top of the hood.
Along both walls:	Positive air movement, no reverse flows.
Along the floor:	Positive air movement, no reverse flows.
8" dia. on back:	Positive air movement, no reverse flows, no dead air space, no visible smoke flow out of the front of the hood.
Along equipment:	There was no equipment present in the hood. Smoke generated at the work top flowed evenly into the lower baffle opening almost immediately.

LARGE-VOLUME VISUALIZATION CHALLENGE

Large volume release:	All smoke was rapidly and smoothly exhausted. There was no visible release of smoke from the hood. There was no equipment present in the hood.

FACE VELOCITY MEASUREMENTS

Face velocity readings were taken at each of the following points indicated by number. Four readings were taken at each point at approximately five second intervals.



Position Number	Reading #1	Reading #2	Reading #3	Reading #4	Average
1	105	102	102	102	103
2	91	92	93	94	93
3	94	96	98	95	96
4	100	97	98	99	99
5	101	103	101	102	102
6	92	96	96	98	96
7	104	99	103	100	102
8	103	103	101	104	103
			Average Face Velocity:		99 FPM
			Highest Reading:		105 FPM
			Lowest Reading:		91 FPM

7. TRACER GAS TEST PROCEDURE

The tracer gas test results are recorder on the following three reports.

Report #1: With the sash set at the specified opening, three five minute tests are preformed with the ejector located in the left, center and right positions. Ratings for each position and the overall hood rating are as shown.

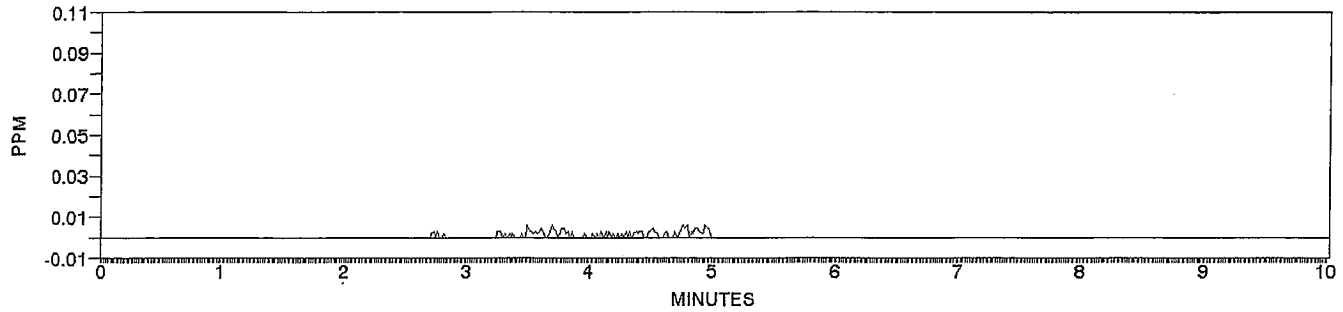
Report #2: With the sash set at the specified opening, three 1-2 minute tests are performed with the manikin removed and the ejector located in the left, center and right positions. The periphery of the hood is traversed and the rating for each position is as shown. The maximum concentration and location are noted.

Report #3: After a two minute background check, with the sash closed, the recorder is activated and the sash is opened to the specified opening. After two minutes the sash is closed. This cycle is repeated three times for each of the three ejector positions. The timeline on the graph can be interrupted as follows; 0-2 minutes, sash open; 2-4 minutes, sash closed; 4-6 minutes, sash open; 6-8 minutes, sash closed; 8-10 minutes sash open. The first few seconds in each range indicate the sash movement.

TRACER GAS TEST EVALUATION
REPORT #1, FIVE MINUTE TEST

TRACER GAS TEST

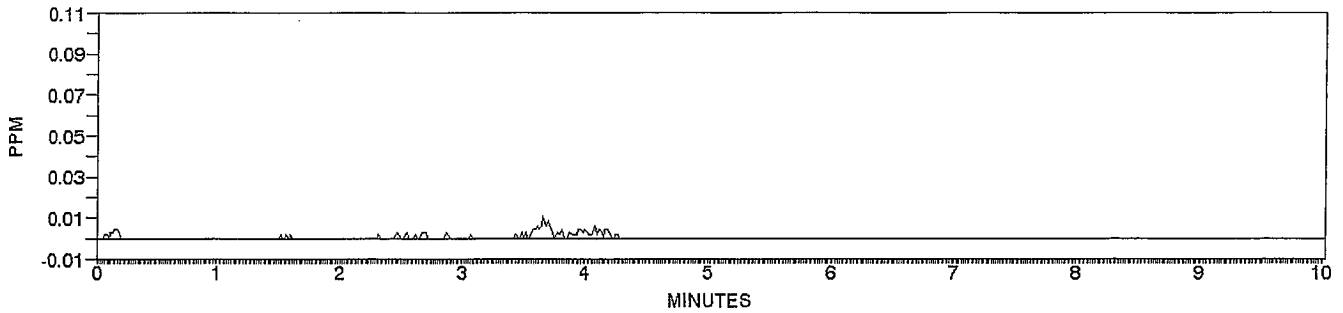
LEFT POSITION



4.0 AM 0.0007

EJECTOR IS LOCATED 12" FROM THE LEFT SIDE OF THE HOOD. THE FRONT OF THE EJECTOR IS 6" FROM THE HOOD FACE.

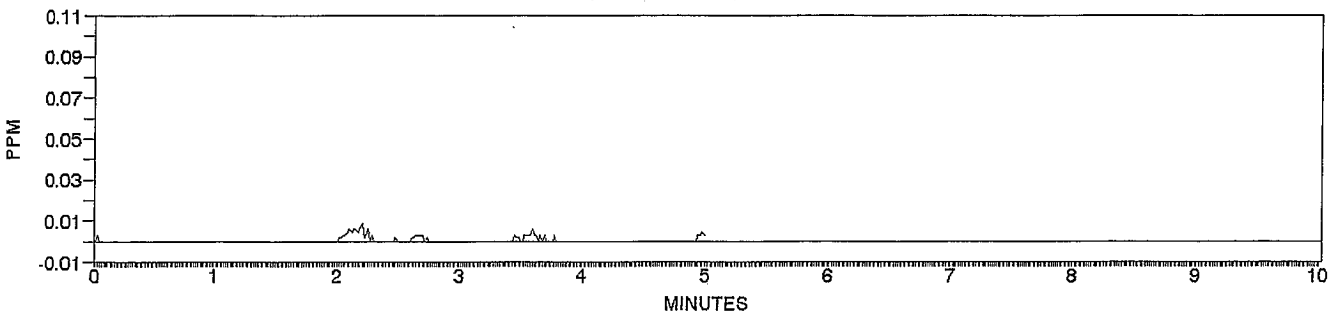
CENTER POSITION



4.0 AM 0.0007

EJECTOR IS LOCATED EQUIDISTANT FROM EITHER SIDE OF THE HOOD. THE FRONT OF THE EJECTOR IS 6" FROM THE HOOD FACE.

RIGHT POSITION



4.0 AM 0.0005

EJECTOR IS LOCATED 12" FROM THE RIGHT SIDE OF THE HOOD. THE FRONT OF THE EJECTOR IS 6" FROM THE HOOD FACE.

HOOD RATING:
4.0 AM 0.0007

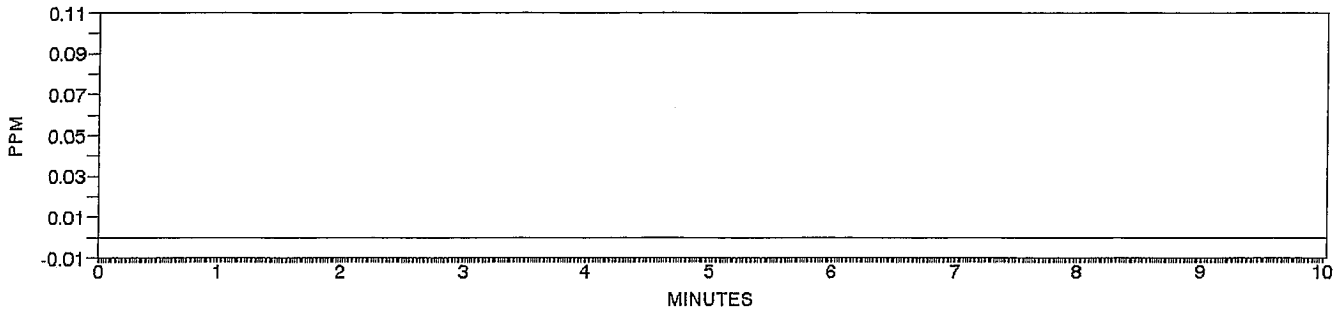
TESTED BY:
BMC

Brian White March 9, 1999

TRACER GAS TEST EVALUATION
REPORT #2, ONE MINUTE TEST

TRACER GAS TEST

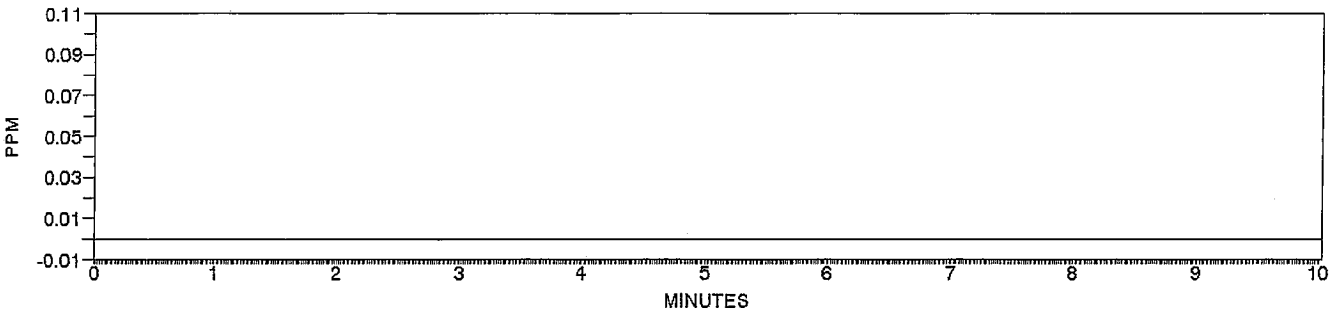
LEFT POSITION



4.0 AM 0

EJECTOR IS LOCATED 12" FROM THE LEFT SIDE OF THE HOOD. THE FRONT OF THE EJECTOR IS 6" FROM THE HOOD FACE.

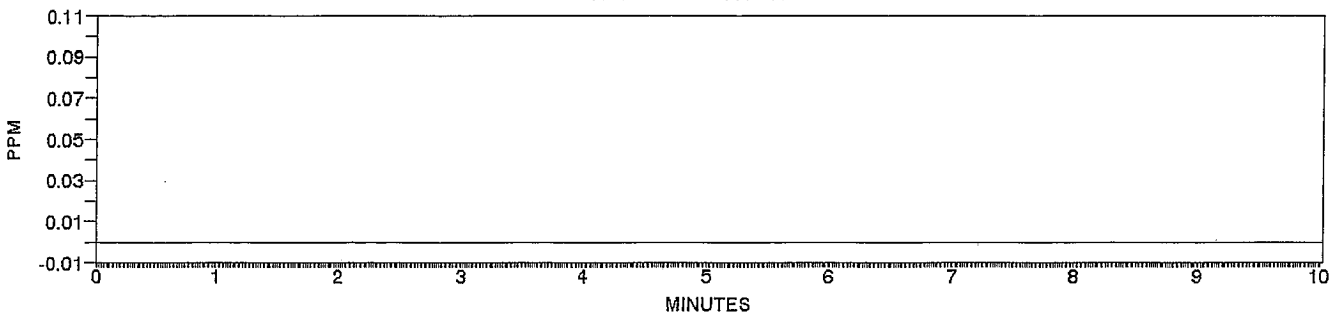
CENTER POSITION



4.0 AM 0

EJECTOR IS LOCATED EQUIDISTANT FROM EITHER SIDE OF THE HOOD. THE FRONT OF THE EJECTOR IS 6" FROM THE HOOD FACE.

RIGHT POSITION



4.0 AM 0

EJECTOR IS LOCATED 12" FROM THE RIGHT SIDE OF THE HOOD. THE FRONT OF THE EJECTOR IS 6" FROM THE HOOD FACE.

HOOD RATING:		
4.0	AM	0

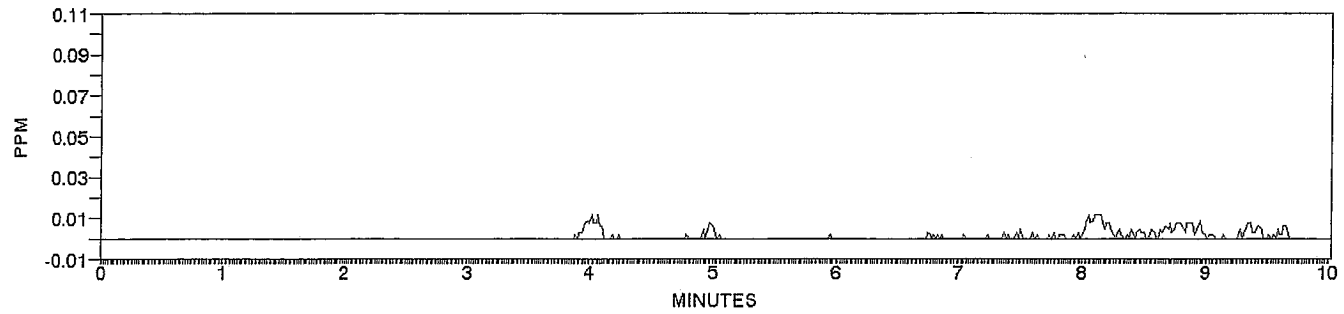
TESTED BY:
BMC

Brian White March 9, 1999

TRACER GAS TEST EVALUATION
REPORT #3, TEN MINUTE TEST

TRACER GAS TEST

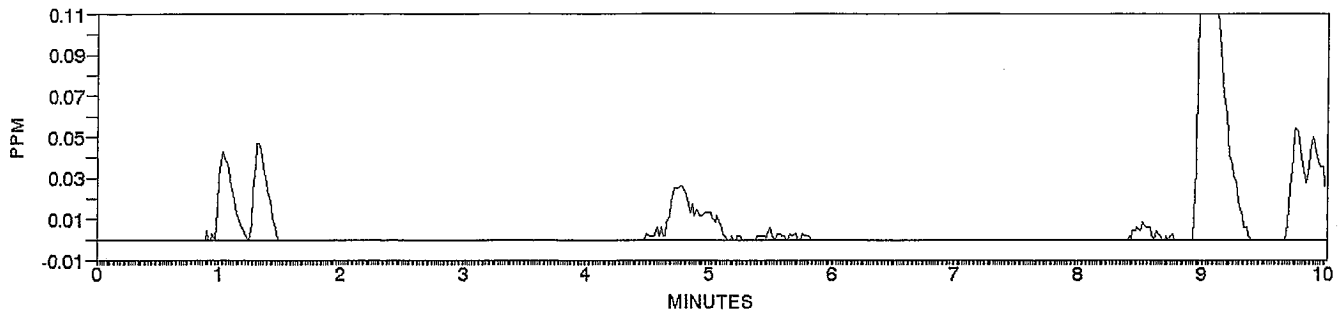
LEFT POSITION



SME AM 0.012

EJECTOR IS LOCATED 12" FROM THE LEFT SIDE OF THE HOOD. THE FRONT OF THE EJECTOR IS 6" FROM THE HOOD FACE.

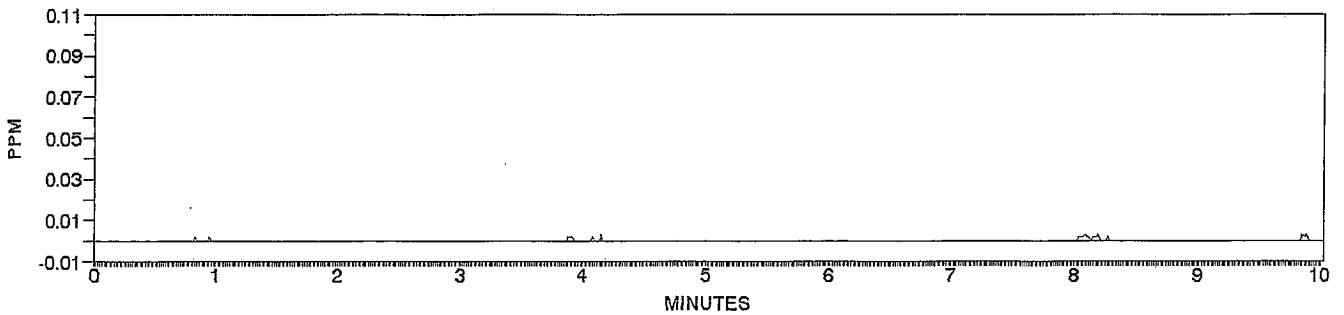
CENTER POSITION



SME AM 0.22

EJECTOR IS LOCATED EQUIDISTANT FROM EITHER SIDE OF THE HOOD. THE FRONT OF THE EJECTOR IS 6" FROM THE HOOD FACE.

RIGHT POSITION



SME AM 0.003

EJECTOR IS LOCATED 12" FROM THE RIGHT SIDE OF THE HOOD. THE FRONT OF THE EJECTOR IS 6" FROM THE HOOD FACE.

HOOD RATING:	
SME AM	0.22

TESTED BY:
BMC

Brian White March 9, 1999