Smoke Generators

Smoke generators provide an inexpensive method for determining the effectiveness of a fume hood, monitoring air movement or tracing the path of an exhaust system. The Flinn Smoke Generator produces a non-toxic smoke which leaves no residue to stain your clothing or the interior of buildings. The smoke is generated by chemical reaction and varies in color from white to gray, depending on density and lighting.

Two sizes of generators are listed. The 30-second type will generate approximately 4,000 ft^3 of smoke. This size should be adequate to test air movements within the laboratory or in your fume hood. The 3-minute generator will provide almost 40,000 ft^3 of smoke. This generator would be your choice if you wish to trace the exhaust path from your hood or exhaust to a remote, outdoor roof stack.

Safety Precautions

All smoke, including nontoxic smoke from the Flinn Smoke Generators can irritate breathing passages without respiratory protection. The smoke generator generates a lot of heat and a small amount of residue directly at the site of the smoke generator. It is best to place the smoke generator in a Pyrex® Petri dish, on a piece of wood, or on a piece of cardboard to avoid damage to the tabletop. If the 3-minute smoke generator is being used, notify the school administration and the fire department of your test. This may prevent the fire department from responding to a report of "smoke billowing from the high school" from a concerned neighbor. Wear chemical splash goggles when lighting and using the smoke generator.

Fume Hood Effectiveness

Place a 30-second smoke generator in a Pyrex Petri dish, on a piece of wood, or on a piece of cardboard in the middle of the hood. Turn on the fume hood. Light the smoke generator and lower the sash to its optimum working level, usually 4–6 inches from the floor of the hood. Observe the smoke: Does any smoke come out of the fume hood through the front, sides or top? How long does it take the smoke to be removed? Does the smoke appear to be "sucked out" evenly? If the fume hood does not work efficiently, adjust the baffle and retest. If adjusting the sash and/or baffles does not improve the performance of the fume hood, it should be repaired. After the test, check adjacent classrooms for the presence of smoke.

Determine the proper sash height by lowering and raising the sash during the test. Make a mark on the fume hood signifying optimum sash height.

Room Ventilation

Use the 30-second smoke generator to test the overall ventilation in a classroom or laboratory. Activate the normal ventilation system (purge fan, room ventilation, open windows, etc.), then light the smoke generator. Time how long it takes the smoke to clear. Clearing a room of smoke within 5 minutes is a good goal. Installation of a wall-mounted purge fan greatly increases air exchange in a laboratory. After the test, check adjacent classrooms for the presence of smoke.

Studying Air Flow

Sometimes, fume hood and room ventilation is adequate, but the exhaust from these systems is too close to the fresh air supply for the building. To study the air flow and its exit location, use a 3-minute smoke generator and have someone on the roof monitoring the smoke and its dispersement into the atmosphere. Again, inspect adjacent classrooms for smoke.

Other materials are available from Flinn Scientific to check fume hoods and improve ventilation.

Catalog No.	Description
SE5010	Smoke Generator, 30-second
SE5011	Smoke Generator, 3-minute
SE4055	Velometer
AP1688	Flinn Purgit™ Exhaust Fan

Consult your *Flinn Scientific Catalog/Reference Manual* for current prices.

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