

TESTING SUMMARY



EMSL Analytical Laboratories analyzed the contents of canisters containing air samples from a test room using a gas chromatograph/mass spectrometer (GC/MS).

Purpose of Testing:

To determine if the sample AirGorilla PCO/UV device reduces volatile organic compounds and in so doing produces byproducts that are elevated above an established baseline level.

Description of Testing:

A test room with typical furnishings and with added VOC producers was established (see Methods below). Air samples were taken from the room and quantitatively analyzed for VOC content. The conditions were replicated and retested but with use of the sample PCO/UV device.

Methods:

Test room was 1326 cubic feet. Conditions were created to simulate typical home/office environments as well with reference to conditions described in recent published testing using building material VOC mixtures and cleaning chemical VOC mixtures. The test room contained typical furnishings and fixtures as found in most homes/offices - painted sheetrock walls; synthetic carpet; wood, metal, plastic, and vinyl furnishings; paper and cardboard printed materials; etc. In addition, the following articles were placed in the test room: vinyl tile with adhesive backing; rug with rubberized backing; and a 2' x 2' piece of plywood recently purchased. The following chemicals were also added to the room: 20cc of pine oil based cleaner; 20cc of orange oil based cleaner; 20cc of ammonia; 10cc of formaldehyde. Each solution was placed onto open trays for normal evaporation into the atmosphere.

The test room was sealed for “worst case” conditions so no gases could escape or be diluted through ventilation. Air within the room was circulated through a stand-alone ventilation chamber operating at 600 cfm that created air speed at the PCO filter equivalent to 1500 cfm in a 20” x 25” air duct.

Air Sampling:

Air samples for analysis of VOCs were collected in a sealed stainless steel canister over a continuous 6-hour time period and evacuated in the laboratory for analysis with a gas chromatograph/mass spectrometer (GC/MS). Formaldehyde was sampled separately using SKC Silca Gel Sorbent Tubes cat. #226-119.

Conclusions:

Comparing the quantities of VOCs collected during the 6 hour collection period in the test room without the PCO/UV device operating, against the quantities collected while using the PCO/UV device, laboratory analysis indicates a 57% reduction in VOCs during the 6 hours of sampling. In addition, comparing the formaldehyde levels in the test room with and without the PCO/UV device showed no increase in formaldehyde levels while using the PCO/UV device to reduce the VOC levels. In fact, there was an overall reduction in formaldehyde levels of 41%.