



Investigational Procedures for VOCs (TO-15)

Off-gassing of bulk samples via Environmental Chamber, Specialty Glass Jars and Tedlar Bags

EMSL uses various environmental chamber techniques to study materials suspected of off-gassing volatile organic compounds (VOCs): environmental chambers, head-space jars with specialized lids and Tedlar bags are the most common.

We provide this investigational service to help clients isolate and identify the source of odors or other volatile emissions from construction materials or furnishing products suspected of causing negative impacts on indoor air quality.

The primary purpose of these studies is to identify the compound(s) present that are responsible for the odor or IAQ issue. The qualitative identifications will assist the end data user in isolating the source of the problem. The quantitative aspects of the data are only relative, and should be used in that context.

Uncertainties regarding the material and/or space under study mean that truly quantitative results often remain elusive. Samples may absorb compounds during transport and handling. There may be interactions between samples and packaging materials, if not carefully selected. Laboratories have variable air quality due to ongoing professional activities which may release volatile compounds into the air.

Experience also tells us that small amounts of contaminants are often present, for example, on the inner surfaces of the Tedlar bags we use to do small-scale chamber (bag) testing.

To minimize these variables insofar as is practical, various means are used to try to reduce and quantify any and all background levels. The specific laboratory in which off-gassing studies are performed is under positive pressure in order to minimize VOC in the air stream.

The Tedlar bags we use to do small-scale chamber (bag) testing are triple-rinsed with high-purity nitrogen prior to loading the samples. The Glass jars are flushed with nitrogen for one minute prior to inserting the sample.

Also, our small (10 ft³) Environmental Chamber has a charcoal filter on the air intake, and an inline organic removal cartridge on the humidity intake.

Even with all these precautions, we still need to accurately account for background levels of organic compounds. Part of our procedure for performing these studies is the preparation of blank or background samples.

We may report low levels of common laboratory chemicals in our blank reports, which are included with your sample reports. We do not subtract or exclude blank sample results from your results, in order to give you as much information as possible to understand what may be occurring in your bulk samples.

If compounds are subsequently discovered in both the material sample and the blank, a background correction can be easily made, and the compound reduced or eliminated from further consideration. Compounds found in the material sample but absent (or only weakly present) in the blank are assumed to predominantly or exclusively originate in the material sample submitted.