

## **Mycotoxins and Mold VOCs**

I often get questions about mycotoxins and how they are different from mold VOCs. Although both are produced by molds they have very different characteristics.

Mycotoxins are chemicals that are produced during various parts of the mold life cycle and often evoke a toxic response (e.g., severe allergic reactions and respiratory irritation and exacerbation of asthma symptoms or other respiratory ailments) in people and animals. Mycotoxins have low volatility, meaning they have relatively low concentrations in air, so contact or ingestion rather than inhalation is often the main route of exposure for these chemicals.

Mold VOCs (MVOCs) are produced during the metabolic, or digestive, processes of molds and therefore can be used as an indicator of actively growing mold. They are usually inhaled as a gas separately from mold spores, so a high level of MVOCs does not necessarily indicate a high level of spores and vice versa. Mold VOCs are also typically produced at different times or in different situations than mycotoxins.

The listing below highlights some of the differences between MVOCs and mycotoxins.

### MVOCs

- Volatile
- Travel freely through the air
- Primary metabolite
- Produced only during active mold growth
- Hundreds of compounds from many chemical classes (e.g., furans, ketones, alcohols, aldehydes, terpenes, hydrocarbons, etc.)
- Cannot determine mold species; specific compounds depend on mold species, growth substrate, and environmental conditions
- Usually responsible for 'moldy' odor
- Typically irritants; can cause more significant symptoms or conditions in certain situations or individuals

(Mycotoxins listed on page 2.)

### **About Prism Analytical Technologies, Inc.**

Prism Analytical Technologies, Inc. is a leading consultative air testing laboratory in the United States that is devoted to the chemical identification and analysis of contaminants in the air. We are a recognized leader in the development and deployment of ambient air testing methodologies for Fortune 100 and 500 companies, industrial hygienists, and environmental consultants. Prism's science-based technologies and wide range of air testing support help clients solve indoor air quality, process control, industrial, and environmental challenges.

## Mycotoxins

- Semivolatile or nonvolatile
- Travel mostly on surfaces or attached to spores or dust, which are then inhaled
- Secondary metabolite
- Produced at different growth stages; typically as a response to a threat
- Hundreds of compounds divided into several general families/categories that have many members (e.g., trichothycenes, aflatoxins, etc.)
- Specific mycotoxin families/categories often associated with specific mold genus/species; however, one mold species may produce multiple mycotoxins and one mycotoxin may be produced by multiple mold species
- Not typically associated with odor
- Typically causes more severe symptoms or conditions
- Airborne particulate or surface testing; agricultural is most common purpose of testing

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