



## **Emission Rates of Volatile Organic Compounds from Selected Indoor Materials**

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Humans spend on average more than 90% of time in the built environment so it is important to understand the chemical and microbiological processes influencing its air quality and chemical exposure. Volatile organic compounds (VOCs) are emitted from various indoor sources associated both with human activities and materials in the built environment. Bacteria and fungi produce microbial VOCs (mVOCs) and water availability is a critical factor for the microbial growth and activity on indoor surfaces such as carpet, wood, or drywall.

Chemistry of Homes – Environmental Microbes and Moisture (CHEMM) project was funded by Alfred P Sloan Foundation and the overarching goal is to understand how humidity of air affects chemical activity of microbiome grown on indoor substrates. In a first step we will characterize non-microbial VOC emissions from new carpets and other materials using a proton transfer reaction time-of-flight mass spectrometer (PTR-QiTOF-MS) and demonstrate how the primary VOC emissions change as a function of time and relative humidity of air. These results will form a useful base line which will be useful for the next step of the project when inoculating these materials with indoor dusts and incubating them at different humidities. This will result in broader understanding of microbial chemical activity on indoor surfaces.