

VOC Emissions vs. VOC Content

Volatile organic compound (VOC) emissions are present in higher levels indoors, rather than outdoors, because their sources primarily originate from indoor furnishings and construction materials. This means that limiting VOCs from indoor products is critical to reducing VOC exposure and improving indoor air quality (IAQ). Various ecolabels and IAQ certification programs require that products and materials—including adhesives and sealants—meet low chemical emission requirements.

Many manufacturers have traditionally measured and reported their product's VOC content according to various state and federal VOC content regulations, like SCAQMD (South Coast Air Quality Management District). The problem is that these content-based VOC regulations were developed to reduce *outdoor* VOC emissions, which contribute to the formation of ground ozone, smog, and outdoor pollution. None of these regulations were developed to address or reduce *indoor* VOC emissions or chemical exposure to building occupants. Similarly, since not all VOCs contribute to ozone and smog formation, products claiming to be “low-VOC” or “no-VOC” may still contain VOCs that can off gas into the indoor environment.

VOCs are organic chemicals, like toluene or formaldehyde, which are emitted from certain solids or liquids. Certain VOCs interact to form pollutants and odors, and VOC exposure can have implications on human health. The Environmental Protection Agency provides an introduction to VOCs at this link: <http://www.epa.gov/iaq/voc.html>.

Environmental chamber testing is used to measure chemical emissions and to identify specific VOC emissions associated with the products. A variety of key test methods leverage this technology, including the [ISO 16000 series](#), [GREENGUARD Standard Method for Measuring and Evaluating Chemical Emissions TM.P066](#), [California Department of Public Health Section 01350 Method](#), and many sustainable building codes and regulations. Product emissions testing according to these methods can help manufacturers ensure their products fulfill the appropriate emissions requirements and are acceptable for indoor use.



Adhesive sample inside of a small environmental chamber.
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Leading manufacturers often incorporate these tests into their product development processes before a product goes to market. This proactive approach provides the manufacturer with insights into their product formulations and supply chain, and helps the manufacturer meet marketplace demands. To learn more about VOC emissions and environmental chamber testing, visit www.agqs.com, or browse the “premium content” section at www.aerias.org. For information on IAQ and health, or to see a listing of low-emitting products, please visit www.greenguard.org.