

(<http://www.health.state.mn.us/index.html>)



Minnesota Department of Health

Volatile Organic Compounds in Your Home

Volatile Organic Compounds (VOCs) are a large group of chemicals that are found in many products we use to build and maintain our homes. Once these chemicals are in our homes, they are released or “off-gas” into the indoor air we breathe. They may or may not be able to be smelled, and smelling is not a good indicator of health risk.

Common examples of VOCs that may be present in our daily lives are: benzene, ethylene glycol, formaldehyde, methylene chloride, tetrachloroethylene, toluene, xylene, and 1,3-butadiene.

Sources of VOCs

Building Materials	Home & Personal Care Products	Activities
Paint, varnishes, caulks, adhesives	Air fresheners, cleaning products	Smoking
Carpet, vinyl flooring	Cosmetics	Dry cleaning, photocopiers
Composite wood products	Fuel oil, gasoline	Cooking, hobbies
Upholstery and foam		Burning wood

Individuals can check the [Household Products Database \(https://www.whatsinproducts.com/\)](https://www.whatsinproducts.com/) to learn more about what’s in common household items.

Health effects of VOC exposure

The risk of health effects from inhaling any chemical depends on how much is in the air, how long and how often a person breathes it in.

Breathing in low levels of VOCs for long periods of time may increase some people’s risk of health problems. Several studies suggest that exposure to VOCs may make symptoms worse for people with asthma or who are particularly sensitive to chemicals. These are much different exposures than occupational exposures.

It is important to remember that VOCs refer to a group of chemicals. Each chemical has its own toxicity and potential for causing different health effects.

Common symptoms of exposure to HIGH levels of VOCs include:

Acute/short term exposures
(hours to days)

Chronic exposures
(years to a lifetime)

Eye, nose & throat irritation

Cancer

Headaches

Liver & kidney damage

Nausea/vomiting

Central nervous system damage

Dizziness

Worsening of asthma symptoms

What is a safe level of VOCs?

To protect your health, it is best to limit your exposure to products and materials that contain VOCs. If you think you may be having health problems caused by VOCs, try reducing levels in your home. If symptoms persist, consult with your doctor to rule out other serious health conditions that may have similar symptoms.

Most health related studies have been conducted on single chemicals. Less is known about the health effects of exposure to combinations of chemicals. Because the toxicity of a VOC varies for each individual chemical, there is no Minnesota or federal health-based standard for VOCs as a group.

Are some people at greater risk from VOC exposure?

People with respiratory problems such as asthma, young children, the elderly and people with heightened sensitivity to chemicals may be more susceptible to irritation and illness from VOCs.

How do I reduce the levels of VOCs in my home?

First, conduct an inspection of your home for the common sources of VOCs. Look for supplies of unused chemicals, such as paints, varnishes, solvents, adhesives and caulks. Household furnishings like carpet, upholstered furniture or items made from composite wood tend to off-gas more VOCs when they are new.

Some steps to reduce your exposure include:

Source Control: Remove or reduce the number of products in your home that give off VOCs.

Only buy what you need when it comes to paints, solvents, adhesive and caulks. Unused chemicals stored in the home can sometimes “leak” and release VOCs into the air.

Store unused chemicals in a garage or shed where people do not spend much time.

Dispose of unused chemicals that are stored in your home or garage. Check with your city or county for [household hazardous waste collection sites \(https://www.pca.state.mn.us/living-green/find-your-household-hazardous-waste-collection-site\)](https://www.pca.state.mn.us/living-green/find-your-household-hazardous-waste-collection-site).

Consider purchasing low-VOC options of paints and furnishing.

When buying new items, look for floor models that have been allowed to off-gas in the store. Solid wood items with low emitting finishes will contain less VOCs than items made with composite wood.

Ventilation and Climate Control: Increasing the amount of fresh air in your home will help reduce the concentration of VOCs indoors.

Increase ventilation by opening doors and windows. Use fans to maximize air brought in from the outside.

Keep both the temperature and relative humidity as low as possible or comfortable. Chemicals off-gas more in high temperatures and humidity.

Try to perform home renovations when the house is unoccupied or during seasons that will allow you to open doors and windows to increase ventilation.

Should I test my home for VOCs?

There are no federal or state standards for VOC levels in non-industrial settings. If you are concerned about VOCs, it is best to try and reduce or eliminate the products that bring VOCs into your home.

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