



Indoor Air Quality (IAQ): Volatile Organic Compounds (VOC's)

What are Volatile Organic Compounds (VOCs) and where do they come from?

Volatile Organic Compounds (VOCs) are gases given off by a number of indoor sources. Concentrations of most volatile organic compounds is higher in indoor than outdoor air.

Formaldehyde is one of the most common VOCs. Formaldehyde is a colourless gas with an unpleasant smell. It is common in many building materials such as plywood, particleboard, and glues. Formaldehyde can also be found in some drapes and textiles, in addition to certain types of foam insulation.

Other sources of VOCs include the burning of fuels such as gas, wood and kerosene, as well as tobacco products. VOCs can also come from personal care products (perfume and hair spray), cleaning agents, dry cleaning fluid, paints, lacquers, varnishes, hobby supplies, and from copying and printing machines.

VOCs can be released from products while you are using them, and to some degree while they are in storage. However, the amounts given off tend to decrease as the product ages and dries out.

What health concerns do VOCs cause?

VOCs include a variety of chemicals that can cause eye, nose and throat irritation, headache, nausea, dizziness, and skin problems. Higher concentrations may cause irritation of the lungs, as well as damage to the liver, kidney, or central nervous system.

Some VOCs are suspected to cause cancer in humans and have been shown to cause cancer in animals. The health effects caused by VOCs depend on the level and length of exposure.

How can exposure to VOCs be avoided?

The best way to avoid VOCs is to control the source by using materials and products that do not give off VOCs. Examples are listed below.

- Some building products give off fewer VOCs than others. Try to select products that are suitable for indoor use.
- If it is not possible to remove the source, reduce exposure by sealing exposed surfaces, such as particle board or paneling, with an impermeable sealant such as polyurethane varnish or latex paint.
- Allow gases from new furnishings and building materials to be given off in storage for at least a few weeks *before* you bring them into your home. If this is not possible, increase the ventilation by opening windows and doors for at least a few days.
- Buy only enough paints, cleaners and solvents for immediate use. Follow instructions on the product label. Keep lids on tightly. Store products in separate buildings or in areas with proper ventilation.
- Do not mix different household cleaners or solvents together. This can be dangerous.

- Recycle old or unnecessary tins or bottles. Ensure safe and proper disposal of unused products-do not simply throw them away with your household garbage.
- Do not allow smoking in or near the house.
- Do not bring recently dry cleaned clothing into the home if it still has a strong smell. Leave it at the shop, or take it out of its plastic wrapping and hang it in a well-ventilated area until it is properly dried out.
- Keep products out of reach of children and pets.

New carpets:

- Roll out new carpets and allow them to air out in storage before installation.
- If glues are necessary, select ones that are suitable for indoor use.
- Leave the premises during carpet installation.
- Ventilate - use fans, and open windows and doors as much as possible during and after installation for at least several days.

Ventilation:

- Make sure you are getting enough fresh, clean air into your home.
- Increase ventilation by opening windows and doors after you bring new VOC sources into your house, such as new carpets, furniture, or drapes.
- Follow manufacturers' labels when using household chemicals. If the labels says "use in a well ventilated area" go outdoors or in an area where an exhaust fan or open window will provide extra ventilation.

Can air cleaners be used to remove pollutants?

Air cleaners can be used as along with source control and improved ventilation to reduce levels of pollutants in indoor air.

Air cleaning systems use electrical attraction, mechanical filters or ion generation to remove particles from the air. They vary in their cost and how well they work. No air cleaners will remove *all* pollutants from indoor air.

If you are planning to buy some type of air cleaning system, make sure you get the device that best meets your needs.

For more information

- The Canada Mortgage and Housing Corporation (CMHC). Call toll-free 1-800-668-2642, or see: www.cmhc-schl.gc.ca/en/co/
- The British Columbia Lung Association. Call toll-free 1-800-665-LUNG (5864), or see: www.bc.lung.ca/
- Health Canada. Visit the It's Your Health section at: www.hc-sc.gc.ca/english/iyh/index.html



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For deaf and hearing-impaired assistance, call 7-1-1 in B.C.

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