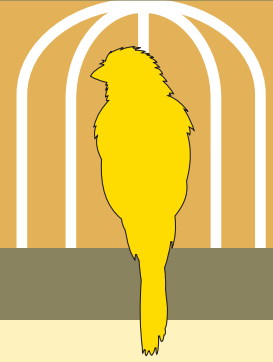


# Volatile organic chemicals

## HEALTH AND SAFETY FACT SHEET

**CUPE** / Canadian Union  
of Public Employees



Volatile organic chemicals (VOCs) are carbon-containing compounds that evaporate easily into air at normal air temperatures.

Common VOCs include benzene, trichloroethylene (TCE), tetrachloroethylene (PERC), vinyl chloride, and styrene. Along with carbon, VOCs contain elements such as hydrogen, oxygen, fluorine, chlorine, bromine, sulfur or nitrogen.

VOCs are found in a wide variety of commercial, industrial and residential products, including:

- Paints and paint strippers
- Varnishes and lacquers
- Wood preservatives
- Craft kits and glues
- Fuels
- Aerosols
- Cleaners
- Pesticides
- Cigarette smoke
- Pressed wood products, and
- Dry-cleaned clothes.

Formaldehyde, benzene, toluene, perchloroethylene and acetone are among the many chemicals that are all considered VOCs.

### Exposure to VOCs

Most workplace exposure results from breathing in VOC vapours in enclosed spaces. Vapours may come directly from stored VOCs, or from contaminated water or soil. Workers can also be exposed by touching or ingesting contaminated water or soil.

### Health effects

Health effects from VOCs are usually temporary. They improve once the source of the exposure is identified and removed. These health effects can include irritation of the eyes, nose, throat and skin. Headache, nausea and dizziness may occur, as well as fatigue and shortness of breath.

Health effects vary depending on the chemicals involved and the duration of the exposure. Prolonged exposure to some chemicals can cause damage to liver, kidney, and central nervous system. Formaldehydes and pesticides are considered probable carcinogens.

Benzene is an especially toxic VOC. Exposure to benzene can result in headaches, dizziness, increased heart rate, tremors, drowsiness and confusion. Benzene can affect the bone marrow by decreasing red blood cells and reducing the body's ability to get oxygen to its cells (anemia). Benzene can also decrease blood platelets that help form clots to stop bleeding. High-level exposure to benzene of a long duration is known to cause leukemia and other cancers of the blood forming organs in humans.

## Preventing exposure

Always follow the hierarchy of control where possible, by:

1. Eliminating the hazard
2. Using engineering controls
3. Using administrative controls
4. Equipping and training workers with personal protective equipment

To eliminate the hazard, remove the chemical from the workplace, or find a replacement chemical that does not contain VOCs or is “low VOC.”

To implement engineering controls, increase the ventilation to prevent the buildup of VOCs in the workplace. Increased ventilation can be obtained by opening doors and windows with fans pushing fresh air in, while other fans can evacuate contaminated air.

Administrative controls include a policy of storing canisters of paint, or any other VOC-containing products, outside the workplace.

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