



FORMALDEHYDE AND INDOOR AIR

The Issue

Formaldehyde is released from a variety of indoor sources, and is present at low levels in the air inside Canadian homes.

Background

Formaldehyde (CH₂O) is a colorless gas. It is irritating and has a sharp odour. Formaldehyde is widely produced around the world for use as a disinfectant and preservative. It is also used in textile finishing and in the production of resins that act as adhesives and binders for wood products, pulp, paper, glasswool and rockwool, as well as some plastics, coatings, paints and varnishes, and industrial chemicals.

Formaldehyde also enters the Canadian environment through natural sources (e.g., forest fires) and certain human activities, such as smoking tobacco, burning automotive and other fuels, and residential wood burning.

How Formaldehyde Gets into the Air inside Canadian Homes

Sources of formaldehyde in indoor air include tobacco smoke, and smoke that may leak from wood-burning appliances, such as wood stoves and fireplaces.

Also, many of the products found inside Canadian homes contain and release very small amounts of formaldehyde into the air. Examples include:

- furniture, cabinets and building materials made from particleboard, medium density fibreboard and certain moulded plastics;

- consumer products, including some latex paints, wallpapers, cardboard and paper products, dishwashing liquids, fabric softeners, shoe-care agents, carpet cleaners, glues, adhesives, lacquers and some cosmetics, such as nail polish and nail hardener;
- some permanent press fabrics (e.g., certain curtains, sheets, clothing, etc.).

As a result of releases from these sources, formaldehyde is present at low levels in all Canadian buildings. For example, in 2002–2003, Health Canada measured levels of formaldehyde in the air inside a number of homes in Prince Edward Island and in Ottawa. The levels ranged from roughly 2 to 81 parts per billion (ppb).

The Health Effects of Formaldehyde

Formaldehyde causes cancer of the nasal cavity in laboratory animals and in workers exposed to formaldehyde in their jobs, but only at very high levels of exposure (thousands of ppb, or higher). The levels of formaldehyde in Canadian homes are well below levels of concern for cancer.

Exposure to moderate levels of formaldehyde (hundreds of ppb or greater) can cause a number of irritant symptoms, including temporary burning of the eyes or nose, and a sore throat.

Some studies have suggested that people exposed to formaldehyde levels ranging from 50 to 100 ppb for long periods of time are more likely to experience asthma-related respiratory symptoms, such as coughing and wheezing. The evidence for such effects is not conclusive. However, it is still a good idea to follow some simple steps that will help lower your exposure to formaldehyde.



Minimizing Your Risk

You can reduce the level of formaldehyde in the air inside your home by following these steps:

- Do not let anyone smoke inside your home.
- If you use wood burning appliances, keep them in good repair. Make sure the chimney is not blocked and that there are no leaks that would let smoke seep into your home. Also, consider installing an "advanced combustion" wood stove or fireplace insert to reduce toxic emissions. (See the Need More Info? section below for more on this topic.)
- If you buy furniture or cabinets made from particleboard or medium density fibreboard, try to buy items that are covered with plastic laminate or coated on all sides. Sealing any unfinished sides will also reduce the amount of formaldehyde released by these products. Another option is to look for products made with glues that do not contain formaldehyde.
- Control moisture levels inside your home. When humidity levels are high, products tend to release formaldehyde into the air at a faster rate.
- Wash permanent press clothing and sheets before you use them, and air out such products as permanent press drapes before bringing them into your home.
- If you use consumer products that may contain formaldehyde (see the list earlier in this article), be sure there is adequate ventilation.
- Do not run engines (e.g., vehicles, lawnmowers, snow blowers, etc.) in spaces attached to your home (e.g., a garage or workshop), or near the entrance or windows of your home. Engine exhaust contains a number of toxic chemicals, including formaldehyde.

Government of Canada's Role

The Government of Canada has been working to reduce exposure to formaldehyde for many years and has put controls on a number of sources. For example, urea formaldehyde foam insulation was banned in the 1980s. More recently, actions have been directed at other sources of formaldehyde, including residential wood burning appliances, gasoline engines and tobacco smoke. There are also labelling programs (e.g., tobacco packages) to help consumers identify sources of formaldehyde.

These and other actions have brought positive results. Recent studies show that concentrations of formaldehyde indoors are generally lower than in the past.

Health Canada is also proposing new guidelines on acceptable levels for short and long term exposure to formaldehyde. The proposed guideline was developed by Health Canada scientists, with input by other federal, provincial and international experts. Canadians are welcome to comment on the proposed guideline before it is finalized. For information on how to comment, see the Need More Info section below.

Health Canada continues to track new science on the health effects and sources of formaldehyde, and takes action to change guidelines, controls or labelling requirements when the science indicates it is needed. As part of this work, Health Canada is conducting new studies to determine the levels and sources of a number of chemicals, including formaldehyde, inside Canadian homes.

Need More Info?

For more information about the health effects of formaldehyde, and air pollution in general, contact:
Air Health Effects Division
Health Canada
400 Cooper Street
Ottawa, ON, K1A 0K9
Telephone: (613) 957-1876

Or visit Health Canada's Health and Air Quality Web site at:
http://www.hc-sc.gc.ca/ewh-semt/air/index_e.html

For more on the health effects of smoking, see Go smokefree! at :
http://www.hc-sc.gc.ca/hl-vs/tobac-tabac/index_e.html

For advice about safe and healthy ways to use wood stoves and fireplaces, contact:

Burn it Smart! Natural Resources Canada at :
<http://www.burnitsmart.org/english/index.html>

Sir William Logan Building
11th Floor, 580 Booth Street
Ottawa, ON K1A 0E4

Also, see the following publications:

Combustion Gases in Your Home
Canada Mortgage and Housing Corporation at:
http://www.cmhc-schl.gc.ca/en/burema/gesein/abhose/abhose_ce02.cfm

Human Health and the Canadian Environmental Protection Act (CEPA) - It's Your Health, Health Canada at:
http://www.hc-sc.gc.ca/iyh-vsv/environment/cepa-lcpe_e.html

To comment on Health Canada's new proposed guidelines please go to Canada Gazette Part 1 at:
<http://canadagazette.gc.ca/part1/2005/20050820/html/notice-e.html#i3>

For additional articles on health and safety issues go to the It's Your Health Web site at:

www.healthcanada.gc.ca/iyh
You can also call toll free at 1-866-225-0709 or TTY at 1-800-267-1245*