

## Formaldehyde Facts

### What is Formaldehyde?

Formaldehyde is a common chemical that has a strong pickle-like odor. It is currently used in thousands of products as an adhesive, bonding agent and solvent. Formaldehyde may also be formed when other chemicals break down. Formaldehyde is classified as a volatile organic compound (VOC). VOC's are chemicals that become a gas at room temperature. As a result, products made with formaldehyde will release the gas into the air. This is called off-gassing. If high concentrations of formaldehyde are off-gassed and breathed in, it could cause health problems.

### Where is it found?

Formaldehyde is found in many products such as particle board, plywood, paneling, pressed-wood products and urea formaldehyde foam insulation. Some synthetic fabrics, especially permanent press, shampoos and cosmetics may also contain small amounts. Formaldehyde is also a product of combustion. When you burn materials such as natural gas, wood, gasoline or tobacco, formaldehyde gas is released. Formaldehyde in small concentrations is a normal part of our environment. Outdoor air levels are usually between 0.002 to 0.006 parts per million (ppm) in suburban areas.

### What are the health effects?

The health effects of formaldehyde exposure vary from one person to another. The most common symptoms are eye, nose and throat irritation, coughing, headaches, dizziness, and nausea. Human eyes are especially sensitive to formaldehyde. Many people describe the eye irritation as a burning sensation much like when cutting an onion or when you get soap in your eyes.

The effects of long-term exposure are not well known. Long-term exposure to high levels of formaldehyde has been shown to cause cancer. The United States Environmental Protection Agency (EPA) has listed formaldehyde as a "probable human

carcinogen," while the International Agency for Research on Cancer (IARC) has classified formaldehyde as "carcinogenic to humans" based on nose and throat cancers in working populations.

### Isn't the use of formaldehyde banned?

No, formaldehyde is still used in many consumer products. Since 1985, Minnesota has regulated the sale of wood products made with urea formaldehyde. Some common building materials have specific product standards that limit the amount of formaldehyde that can be released. Minnesota law requires that there is a written warning attached to certain building materials made with urea formaldehyde. New furniture is not covered by these product standards.

### How do I know if I have a formaldehyde problem?

You may want to measure the formaldehyde level in your home if you have:

- symptoms similar to those described in the health effects section of this paper; and
- recently purchased a new home, furniture or cabinets, or have remodeled within the past year.

Some products and construction materials may emit formaldehyde at levels above 0.10 ppm especially when they are new. Products that are a few years old have off-gassed much of their formaldehyde and usually do not pose a health threat.

### How can I measure the level of formaldehyde?

The easiest way to measure formaldehyde is with a passive formaldehyde monitor. After keeping the monitor in the home for the amount of time recommended by the company, you send it back to a lab for analysis.

Test kits can be ordered from various vendors. You can search for "formaldehyde test kit" on the internet or call a company who does VOC testing.



Indoor Air Unit  
P.O. Box 64975  
St. Paul, MN, 55164-0975  
651-201-4601 or 800-798-9050  
[www.health.state.mn.us/divs/eh/air](http://www.health.state.mn.us/divs/eh/air)

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A list of residential service providers can be found at:

<http://www.health.state.mn.us/divs/eh/indoorair/iaq/serviceprovider.pdf>

If you test your home for formaldehyde, follow the directions given by the manufacturer.

The most common guideline for acceptable formaldehyde levels is 0.10 ppm. Few people will have health problems at levels below 0.10 ppm. However, some people are sensitive to formaldehyde and may experience health effects at levels below 0.10 ppm. If you have levels of formaldehyde that exceed 0.10 ppm it is recommended that you take steps to reduce the levels by removing the source if feasible and increase ventilation to bring in more air from the outdoors.

### What can be done to reduce the formaldehyde level?

To minimize formaldehyde, ensure that combustion sources are properly maintained and vented outdoors. Avoid smoking indoors.

If you are sensitive to formaldehyde, try to avoid products that contain formaldehyde. Durable press fabrics can contain formaldehyde. Wash the fabric before use.

If you purchase products made of composite wood, you may be able to purchase a floor model where the chemicals, including formaldehyde, have already off-gassed.

Other methods to lower the level of formaldehyde in a home include:

- **Allow products to off-gas:** Before bringing any formaldehyde-containing products into your home, allow them to off-gas outside the home. Leave the new products in your garage or ask the manufacturer to leave the product unsealed in the warehouse for a few days.
- **Ventilate:** By increasing ventilation you can lower the concentration of formaldehyde. This may be accomplished by opening windows or bringing in fresh air through a central ventilation system. Fans can be used to circulate the fresh air.

- **Control the climate:** Formaldehyde is water soluble and reacts to temperature changes. This means that as the temperature and humidity go up so does the amount of formaldehyde released from a product. By keeping the temperature and humidity low, you can decrease the amount of formaldehyde off-gassing into the air.

Finally, another less preferable technique is sealing the source of formaldehyde. Formaldehyde containing products may be sealed by using airtight sealers such as oil based paint, polyurethane varnish, shellac, vinyl wallpaper or special sealers. This technique has been used with limited success when there are large areas of exposed pressed-wood products such as those found in cabinets and shelving. This method is less preferable than those listed above because more new chemicals are introduced into the indoor environment.

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