



PID  
FLOORS

# FORMALDEHYDE INFORMATION

Formaldehyde is a naturally occurring, volatile organic compound (VOC) made of carbon, hydrogen, and oxygen. It enters the air as a by-product of combustion. For example, when we cook, burn wood and gasoline, or use tobacco products, formaldehyde is released. It is also vaporized out of many common products through a process known as off-gassing. Off-gassing is the release of airborne particulates or VOCs into the air from a product. Although formaldehyde is a colorless gas, it has a pungent scent. Therefore, if your new product has a strong scent, it may be off-gassing.

Formaldehyde is found in just about anything. Wood as a natural material contains formaldehyde, therefore, you cannot avoid formaldehyde in wood completely. All wood, even wood that is totally free of any glues or coatings, naturally emits some formaldehyde. Some species of wood naturally emit more than others. A common form of formaldehyde is known as urea formaldehyde resin, which can be found in adhesives. Some materials that may include this adhesive include pressed-wood products are: particleboard and hardwood plywood paneling, foam insulation, wallpaper and paints, clothing, carpets, and rugs. Even personal care products like cosmetics, soaps, shampoos, and lotions can contain formaldehyde-releasing substances such as DMDM hydantoin and imidazolidinyl urea. It can even be found in some vaccines and some foods as a preservative to prevent the growth of bacteria or fungi. This amount of formaldehyde is so small compared to the amount that naturally occurs in our bodies that it does not pose a safety concern.

According to the National Cancer Institute, formaldehyde is usually present in both indoor and outdoor air at levels lower than 0.03 parts per million (ppm), which is well below the threshold of detection.

**The formaldehyde emissions standards vary by type of regulated product. In the table below, the product is aligned with its emissions standard (as of June 1, 2018).**

PRODUCT	EMISSION STANDARD
Hardwood Plywood- Veneer Core	0.05 ppm of formaldehyde
Hardwood Plywood- Composite Core	0.05 ppm of formaldehyde
Medium-Density Fiberboard	0.11 ppm of formaldehyde
Thin Medium-Density Fiberboard	0.13 ppm of formaldehyde
Particleboard	0.09 ppm of formaldehyde

Studies have shown at formaldehyde concentrations between 0.1 ppm and 0.5 ppm, formaldehyde is detectable by smell. Some sensitive people may experience slight irritation to the eyes, nose, and throat. At levels from 0.5 to 1.0 ppm, formaldehyde produces irritation of the eyes, nose, and throat in most individuals. When concentrations are above 1.0 ppm, exposure to formaldehyde produces intense discomfort. At these extremely high levels, exposure to formaldehyde can cause watery eyes, burning sensations in the eyes, nose, and throat, coughing, wheezing, nausea, and skin irritation. More severe ailments include asthma and cancer.

Formaldehyde is ubiquitous and impossible to remove completely from many different products, so despite the negative side-effects it may cause at high levels, it is not banned in the United States or anywhere in the world. However, it is regulated and limited. Limitations depend on federal and state level restrictions as well as the product. Regulations regarding formaldehyde emission standards have continued to change.

As of March 22, 2019, all products containing a composite wood component that are sold in the United States are subject to federal regulation under the Environment Protection Agency's (EPA) Toxic Substance Control Act (TSCA), with regards to formaldehyde content and emissions. Prior to the enactment of this law, such products were not regulated at a federal level, so the industry relied on extremely similar guidelines based on the California Air Resource Board's (CARB) guidelines, known commonly as CARB2. At PID Floors we are pleased and proud to say that ALL of our products that are regulated by these restrictions are compliant.

There are multiple ways you can offset formaldehyde exposure:

- **Ventilate your home:** Open windows when the weather is nice, use fans, and install proper ventilation systems for your oven or stove.
- **Regulate heat and humidity:** Decrease the temperature and humidity in your home with air conditioning and dehumidification. Higher air temperatures and humidity can mean a higher concentration of formaldehyde in the air.
- **Avoid smoking inside your home.**
- **Allow your products to off-gas:** Remove the packaging of your products and keep them in a garage or by a window before fully setting them up in your home.
- **Look for products that are labeled as 'no' or 'low' VOC, or formaldehyde, or made without urea-formaldehyde (UF) glues.**
- **When purchasing wood products, look for those with some of the following labels:** American National Standards Institute (ANSI), California Air Resources Board Air Toxics Control Measure (CARB-ACTM), GreenGuard, WELL, Living Building Challenge, FSC, SCS, MAS Green, TSCA Title VI

#### References:

Abdollahi, Mohammad & Hosseini, Asieh. (2014). Formaldehyde. Encyclopedia of Toxicology. 10.1016/B978-0-12-386454-3.00388-2.

American Cancer Society. (2014). Formaldehyde.  
[www.cancer.org/cancer/cancercauses/formaldehyde.html#references](http://www.cancer.org/cancer/cancercauses/formaldehyde.html#references).

ChemicalSafetyFacts.org (2021). Formaldehyde: Uses, Benefits, and Chemical Safety Facts.  
[www.chemicalsafetyfacts.org/formaldehyde](http://www.chemicalsafetyfacts.org/formaldehyde)

EPA. (2020). Environmental Protection Agency Frequent Questions for Consumers about the Formaldehyde Standards for Composite Wood Products Act.  
<https://www.epa.gov/formaldehyde/frequent-questions-consumers-about-formaldehyde-standards-composite-wood-products-act>

National Cancer Institute. (2019). Formaldehyde and Cancer Risk  
[www.cancer.gov/about-cancer/causes-prevention/risk/substances/formaldehyde/formaldehyde-fact-sheet#what-is-formaldehyde](http://www.cancer.gov/about-cancer/causes-prevention/risk/substances/formaldehyde/formaldehyde-fact-sheet#what-is-formaldehyde).

Salem and Bohom (2013). "Formaldehyde from wood," BioResources 8(3), 4775-4790

*Disclaimer: For your convenience, the above information was compiled from various sources that were available. PID is neither responsible for the accuracy, completeness or the content of the material, nor for different, new or changes to the information. You should directly contact the listed references and other reputable sources for the most current, complete and accurate information. In addition, in all instances, you should consult with your professional installer, the guidelines of the manufacturer of the wood flooring and other products purchased, and the various publications of the National Wood Flooring Association.*