

Questions and Answers Regarding Laminate Flooring

1. Will EPA's rule address laminate flooring featured in the *60 Minutes* story?

Under the EPA rule, the flooring that was the subject of the *60 Minutes* story must be made with composite wood cores or platforms that are certified as compliant with the formaldehyde emission standards.

2. How do I know if the wood products I'm buying are safe?

Beginning a year after publication of the final rule in the Federal Register, when shopping for composite wood products or finished goods containing composite wood products, EPA recommends that consumers look for products that are labeled TSCA Title VI compliant. Composite wood products and finished goods containing regulated composite wood products are required to be labeled as such by one year after the final rule is issued.

3. Should I be concerned about formaldehyde if I have laminate wood flooring in my home?

Not necessarily because the amount of formaldehyde in the laminate flooring, if present, can vary due to how the flooring is made. Formaldehyde is normally present at low levels, usually less than 0.03 parts per million (ppm), in both outdoor and indoor air. The outdoor air in rural areas has lower concentrations while urban areas have higher concentrations (due to sources such as automobile exhaust). Residences or offices that contain products that release formaldehyde into the air can have levels greater than 0.03 ppm. Additionally, formaldehyde levels in indoor air can vary depending on temperature, humidity, and air exchange rate within the indoor space. Formaldehyde levels in a residence may also change with the season, day-to-day, and day-to-night. Levels may be high on a hot and humid day and low on a cool, dry day. Generally as products in the home off-gas formaldehyde over time the levels in the home are reduced. Understanding these factors is important when one is considering how to reduce exposure to formaldehyde in the home.

If you or family members are experiencing symptoms that you believe may be related to laminate flooring or other products in your home you should consult a physician and your state or local health department for assistance.

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4. Should I have my laminate flooring product tested for formaldehyde emissions and where can I send a sample to have it tested? How should I interpret the results? How can I determine if the formaldehyde levels emitted from my laminate flooring product meet EPA's regulatory standards for composite wood products?

If you wish to have a sample of your floor tested, you can contact a laboratory that has experience in this type of testing. The laboratories that participate in California's third-party certification program are capable of performing these tests, although other laboratories may also have this experience. Note that many of these laboratories do not typically offer testing services for individual homeowners and this type of testing is expensive. [Review the list of California laboratories.](#)

The new formaldehyde emissions standards are:

Formaldehyde emissions standards in TSCA Title VI for unfinished composite wood panels.

Hardwood plywood	0.05 parts per million (ppm)
Particleboard	0.09 ppm
Medium-density fiberboard	0.11 ppm
Thin medium-density fiberboard	0.13 ppm

These emissions standards are not directly applicable to finished products, such as the laminate wood flooring in your home. It is important to know that test results for product emissions cannot, without significant additional calculations, be used to predict the indoor air concentrations of formaldehyde in your home.

However, the standards can provide a benchmark for evaluating formaldehyde emissions from a product and a sample of your laminate wood flooring can be tested. The most common test requires a special testing chamber and there are a limited number of firms that are able to perform this test.

For a discussion of testing the indoor air of your home for formaldehyde, see Q&A's #11 and #13).

5. Is EPA aware of the report by the U.S. Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR) that evaluated possible health effects from formaldehyde found in laminated flooring boards sold by Lumber Liquidators®?

EPA reviewed the report released by the U.S. Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR) that evaluated possible health effects from formaldehyde found in laminated flooring boards manufactured in China during 2012-2014 and that were sold at Lumber Liquidators® stores. EPA agrees with CDC/ATSDR's conclusion that lowering formaldehyde levels in indoor air can improve the health of occupants. EPA also agrees with the CDC/ATSDR recommendation that, if formaldehyde exposure is suspected or confirmed to occur in a home, then actions should be taken to reduce formaldehyde levels. Such actions can include increasing air ventilation or choosing home products with low or no formaldehyde for future purchases.

CDC/ATSDR also recommends that residents should see a doctor trained in environmental medicine if they begin to experience symptoms or discomfort after the installation of new laminate flooring (or any product manufactured with formaldehyde) to determine if their symptoms are related to indoor air quality. [More information is available in CDC/ATSDR's report.](#)

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6. I have laminate flooring made in China in my home. Are we safe to stay in our home?

Only certain types of laminate flooring made in China and that were sold in the U.S. during 2012-2014 by Lumber Liquidators® were evaluated by CDC and ATSDR; other laminate flooring made in China were not evaluated. [More information is available in CDC/ATSDR's report.](#)

If you or family members are experiencing symptoms that you believe may be related to laminate flooring or other products in your home, you should consult a physician and your state or local health department for assistance. You should also consider taking precautionary steps to minimize formaldehyde levels in the home (e.g., minimizing sources of formaldehyde, increasing ventilation, keeping temperature and humidity levels low and other steps outlined in the [CPSC booklet](#)).

7. Did EPA investigate the sale of the laminate wood flooring as featured in the 60 Minutes segment?

No, because EPA's rule establishing national formaldehyde emissions standards was not final when this event occurred.

8. Lumber Liquidators® is providing test kits for formaldehyde in indoor air to customers who purchased their laminate flooring. In a letter to some of those customers, Lumber Liquidators references a draft EPA toxicological review on formaldehyde to support Lumber Liquidator's conclusion that the formaldehyde levels in those consumer's homes were similar to typical levels in other U.S. homes. Does EPA support Lumber Liquidator's testing program and conclusions?

EPA has not taken a position on the Lumber Liquidators® testing program but cautions the public that air testing may not provide useful information due to the uncertainties of home air testing, the lack of widely accepted health based standards for formaldehyde levels in indoor air to compare test results, and because air testing does not provide information on specific sources of formaldehyde, such as laminate flooring.

The "normal indoor air" levels cited in the Lumber Liquidators' letter to its customers originate from a paper published in 2010 entitled *Formaldehyde in the Indoor Environment*, by Dr. Tunga Salthammer. This document is one of many studies referenced in EPA's external draft document, *Toxicological Review of Formaldehyde Inhalation Toxicity: In Support of Summary Information on the Integrated Risk Information System (IRIS)*. This draft toxicological review does not represent a conclusion by the Agency on the safety of formaldehyde levels in homes. [Read an electronic copy of the Salthammer study.](#)

9. Does the formaldehyde dissipate over time?

Yes, typically emissions from composite wood products decrease over time.

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10. Are there long term effects from formaldehyde exposure over time?

Formaldehyde exposure may potentially cause a variety of symptoms and adverse health effects, such as eye, nose, throat, and skin irritation, coughing, wheezing, and allergic reactions. Long-term exposure to high levels of formaldehyde has been associated with cancer in humans and laboratory animals. Formaldehyde can affect people differently. Some people are very sensitive to formaldehyde at a certain level while others may not have any noticeable reaction to the same level. Formaldehyde is just one of several gases present indoors that may cause adverse health effects and illnesses. Many other gases, as well as respiratory illnesses (e.g., colds and the flu), can cause similar symptoms to those caused by formaldehyde.

If you or family members are experiencing symptoms that you believe may be related to formaldehyde from laminate flooring or other products in your home you should consult a physician and your state or local health department for assistance.

11. Should I have the indoor air of my home tested for formaldehyde if I have laminate flooring? If so, how should I interpret the results?

While there are several options for testing the indoor air in your home for formaldehyde, all of them have some drawbacks, ranging from cost and unknown reliability of the tests to the difficulty of interpreting the test results and the inability of the tests to differentiate among the many potential sources of formaldehyde in the home. Should you decide to have indoor air testing performed, you should consult the [CPSC booklet](#) for guidance.

12. Can EPA suggest a home test kit for formaldehyde that is affordable to the consumer and that will provide accurate results?

No, because EPA has not tested or verified the accuracy of home test kits for formaldehyde.

13. I had my home's indoor air tested for formaldehyde and I received a lab report on the results. What level is considered safe? Has EPA established a safe level for formaldehyde in indoor air?

EPA has not established a safe level of formaldehyde for indoor air. There are a wide range of known or suspected potential health effects from formaldehyde exposure but the levels at which these effects may cause symptoms or disease in individuals depends on many factors, including the type of health effect and individual susceptibility. A number of guideline levels have been established by a variety of organizations, although none have been adopted by EPA. [Review a table of some of the current guidelines for formaldehyde.](#)

Since formaldehyde is present in most indoor environments, many organizations, including EPA, advise that formaldehyde levels be kept as low as reasonably achievable. In practice this means being aware of potential formaldehyde sources in the home and taking steps to reduce them, increasing ventilation if strong formaldehyde sources are present, and keeping temperature and humidity levels low, as this reduces formaldehyde emissions from some products (e.g., composite wood).