

Children's Potential Exposures to Formaldehyde from Building Furnishings (e.g., laminate flooring) for *Health Professionals*

Children are uniquely susceptible to certain environmental toxicants. Infants, toddlers, and children are disproportionately affected due to their size (smaller body frames/systems), proximity to the toxicant (crawling infants and toddlers have increased exposure to toxicants on the floor), and their bodies are still developing. Crawling or playing on the floor or ground may bring them closer to the hazard.

Formaldehyde:

- Is produced by our bodies as a part of our normal metabolism.
- Is one of the most common indoor air contaminants.
- Can be found in hundreds of household materials, home furnishing, “permanent press” clothing, personal care products and building materials (e.g., laminate flooring, walls, cabinets, carpet).
- Is found in smoke from cigarettes and other tobacco products, from gas stoves, and from open fireplaces.
- Can be found in smog.

Health Effects Associated with Formaldehyde Exposure:

- Very low levels of formaldehyde, as seen with off-gassing from certain building materials or new furnishings made with pressed wood, can irritate and burn the eyes, nose, throat, and skin.
- Those with asthma may have exacerbation of symptoms when exposed to formaldehyde.
- High levels of formaldehyde, as seen in certain occupational settings where adolescent or young adult workers may be exposed, can cause airway inflammation and irritation after exposures of days to weeks.
- In females, exposure may be associated with menstrual disorders.
- Formaldehyde has been identified as a probable human carcinogen based on studies of workplace exposure. Long-term exposure to formaldehyde can elevate the risk of getting cancer.

Recommendations to Reduce Potential Exposure

There are several steps that can be taken to reduce exposure to formaldehyde and other indoor air pollutants. Usually source removal is the first step in industrial hygiene practice to decrease exposure. Additional options include:

- Use products that are urea formaldehyde free.
- Do not smoke, especially indoors because the smoke contains formaldehyde.
- Let new products off-gas somewhere outside of your living space.
- Wash permanent-press curtains and clothing before using them.
- Try to keep temperature and humidity as low as possible because release of formaldehyde is directly associated with increases in temperature and humidity.

- During installation and even shortly thereafter, increase ventilation. (Although if you have asthma and outdoor air pollution or pollen are your triggers, be aware that this might also increase those exposures)

Q: Should children be tested if there is an exposure concern?

A: It is not recommended to test children's blood or urine for levels of formaldehyde or associated breakdown products because the test result is not a good measure of exposure. These levels can vary highly from person to person, and the results of these tests do not have clinical significance. Test results will not be helpful in predicting the most important interventions for reducing/stopping the health effects of exposure, and treating symptomatically (for example, treating asthma symptoms).

Q: Should families conduct indoor air testing?

A: Testing indoor air is generally not necessary. For concerned families, there are simple steps to reduce exposure to formaldehyde and other indoor air pollutants (see "Recommendations" above). For those families desiring testing, your regional pediatric environmental health specialist (www.PEHSU.net) can provide information on testing and interpretation of results.

MORE INFORMATION

[*Pediatric Environmental Health, 3rd Edition*](#)

[ATSDR ToxFAQ: Formaldehyde](#)

[CARB Factsheet](#)

[Protect Against Exposure on Formaldehyde](#) (EPA)

[FAQs from EPA on Laminate Flooring](#)

For additional questions, please contact your pediatrician or the [Pediatric Environmental Health Specialty Units](#)

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