

TSCA Reform Needed Now

Congress Must Provide the EPA with Authority to Regulate Unsafe Chemicals: **Formaldehyde**



Produced at volumes of more than 6 billion pounds per year, formaldehyde is a colorless, flammable gas with a pungent odor that is a known carcinogen. It is used in many consumer products and building materials, including those in mobile trailers. Indoor air concentrations of formaldehyde often exceed outdoor concentrations and present a threat to health. Visit www.takeouttoxics.org.

When the Toxic Substances Control Act (TSCA) was enacted in 1976, it was intended to ensure that chemicals are safe throughout their lifecycle, from manufacture to use and disposal. But weaknesses in the law have left the Environmental Protection Agency (EPA) unable to act on known health dangers. Other laws, such as those setting air, water, and workplace safety standards, do not adequately regulate exposure to most chemicals, nor do they address the hazards a chemical may pose over its entire lifecycle. New legislation is needed to rapidly reduce exposure to

toxic chemicals, such as formaldehyde*, which is still in widespread use, particularly in building materials, binders, resins, and composite wood products, used to make everything in a home from carpets to countertops to cabinets to couches. NRDC urges Congress to update TSCA to protect people and the environment from toxic chemicals.

For more information, please contact:

**Sarah Janssen, M.D.,
Ph.D., MPH**
sjanssen@nrdc.org
(415) 875-6100

Americans are Exposed to Formaldehyde while Sitting on Their Couches at Home—and at Their Desks at School

Formaldehyde has been identified to cause cancer of the upper airways and leukemia, as well as respiratory illness. Most formaldehyde exposures occur by breathing indoor air contaminated by carpets, countertops, cabinets, couches and other furniture. In fact, formaldehyde off-gassing from building materials and other products can lead to indoor formaldehyde concentrations far exceeding outdoor levels. For example, the average formaldehyde concentration in outdoor air in California is 3 to 5 parts per billion (ppb). However, the estimated average formaldehyde concentration in Californian conventional homes is 14 ppb—and in manufactured homes is as high as 37 ppb. In a recent California study, nearly all new single-family homes had indoor formaldehyde concentrations that exceeded guidelines for cancer and chronic lung irritation. And these circumstances are often the same for indoor air quality in schools, exposing children to this cancer-causing toxicant.

Current Federal Laws Regulating Use and Existing Safety Standards Controlling Exposure are Inadequate

Despite the fact that scientists have known about formaldehyde's toxicity for decades, it is still in widespread use and exposure is inadequately regulated. In 1985, the Department of Housing and Urban Development (HUD) set formaldehyde emission limits for particleboard and plywood used in manufactured homes and required that these products be certified by a nationally recognized testing laboratory. However, HUD's limits of 200 ppb for plywood and 300 ppb for particleboard are *80 to 125 times higher* than the California EPA's recommended long-term maximum exposure level of 2.4 ppb. In 2008, the Federal Emergency Management Association (FEMA) issued new procurement specifications requiring newly purchased mobile homes and trailers to have formaldehyde concentrations below 16 ppb, still more than 6 times higher than California's standard. Formaldehyde has recently been recognized by the U.S. Centers for Disease Control and Prevention as potentially causing respiratory illness in hurricane victims housed in FEMA trailers in the Gulf Coast (average level of formaldehyde was 77 ppb and maximum level was 590 ppb). These trailers continue to be used to house clean up workers for the Gulf oil spill disaster.



www.nrdc.org

July 2010

© Natural Resources
Defense Council

* CAS Registry Number 50-00-0.



SOURCES

11th Report on Cancer, National Toxicology Program (NTP). National Institute of Health (NIH). 1998. <http://ntpserver.niehs.nih.gov/index.cfm?objectid=32BA9724-F1F6-975E-7FCE50709CB4C932>

Agency for Toxic Substances and Disease Registry (ATSDR). Toxicological Profile for Formaldehyde. July 1999. www.atsdr.cdc.gov/toxprofiles/tp111.html#bookmark01

California Air Resources Board (CARB). Final Regulation Order, 2008. Airborne Toxic Control Measure To Reduce Formaldehyde Emissions From Composite Wood Products. More information at: www.arb.ca.gov/toxics/compwood/compwood.htm

California Air Resources Board (CARB), 2005. Report to the California Legislature: Indoor Air Pollution in California. www.arb.ca.gov/research/indoor/ab1173/finalreport.htm.

International Agency for Research on Cancer (IARC). Monographs on the Evaluation of Carcinogenic Risks to Humans Volume 88, 2006 and volume 100, 2009. <http://monographs.iarc.fr/ENG/Monographs/PDFs/index.php>

Offermann, F. J. 2009. *Ventilation and Indoor Air Quality in New Homes*. California Air Resources Board and California Energy Commission, PIER Energy-Related Environmental Research Program. Collaborative Report. CEC-500-2009-085. www.arb.ca.gov/research/apr/past/04-310.pdf

Rumchev, K. B., et al. (2002). "Domestic exposure to formaldehyde significantly increases the risk of asthma in young children." *Eur Respir J* 20(2): 403-408.

State of Maine, Department of Environmental Protection (DEP). Chemicals of High Concern List. Published June, 2009. www.maine.gov/dep/oc/safechem/highconcern/index.htm

U.S. Environmental Protection Agency (US EPA). TEACH Formaldehyde chemical summary. 2007. www.epa.gov/teach/chem_summ/Formaldehyde_summary.pdf

Formaldehyde

Products Where Formaldehyde is Found

Formaldehyde is found in a wide range of consumer products, including antiseptics, medicines, cosmetics, nail polish, dish-washing liquids, fabrics and fabric softeners, shoe-care agents, carpet cleaners, wallpaper, glues and adhesives, lacquers, paper, paints and coatings, and plastics. Formaldehyde is also used as a preservative in foods (e.g. certain cheeses, dried food, and fish), though these are not considered major sources of exposure. But the main reason it contaminates indoor air quality is because it's used in building materials, binders, resins, and composite wood products—all used in carpeting, furniture, cabinets, countertops, insulation, and paneling.

Exposure and Health Risks

Formaldehyde is a volatile organic chemical (VOC); products made with formaldehyde will emit this chemical as a vapor for a long time. Formaldehyde off-gassing from building materials and other products can lead to indoor formaldehyde concentrations far exceeding outdoor levels, though formaldehyde is also produced during combustion and can be found as an outdoor air contaminant. Childhood exposure is common, due to indoor air contamination.

Long-term exposure to formaldehyde is known to cause cancer of the nasal passages and throat, leukemia, and other cancers of the respiratory tract. Short-term effects of formaldehyde exposure include irritation in the eyes, nose, throat, and skin, nausea, and headaches. In children who are exposed to elevated levels of formaldehyde, researchers report the development of allergic responses and a significant increase in asthma.

How Formaldehyde is Designated and Regulated Now



In 2006, the International Agency for Research on Cancer (IARC) classified formaldehyde as a known human carcinogen due to sufficient evidence of a link between formaldehyde exposure and nasopharyngeal cancer. In 2009, IARC concluded that formaldehyde causes leukemia in people.



Congress recently passed legislation placing limits on the amount of formaldehyde released from composite wood items, including many common types of furniture, to meet an average formaldehyde emissions level of 0.09 parts per million by 2012. Although this law will help reduce formaldehyde emissions, it does not eliminate them and allows exemptions for many different types of building products.

In the Clean Air Act Amendments of 1990, Congress defined formaldehyde as a toxic air pollutant subject to regulatory action and, as such, it is regulated by the EPA. The EPA also considers formaldehyde to be one of the major toxic constituents of smog.

After 12 years of delay, the EPA's most recent assessment made the preliminary determination that formaldehyde is a known human carcinogen.

The National Institute of Health's National Toxicology Program is considering reclassifying formaldehyde as a known human carcinogen based on a 2009 expert panel recommendation.



Formaldehyde is listed on California's Prop 65 list of chemicals known to cause cancer.

The California Air Resources Board (CARB) considers it a toxic air contaminant with no safe level of exposure. And California has issued regulations, similar to those just passed in Congress, limiting formaldehyde emissions from composite wood products.



Formaldehyde is listed as a "chemical of high concern" for its carcinogenic effects under Maine's law on Toxic Chemicals in Children's Products.



NRDC would like to acknowledge Dr. Caroline Baier-Anderson, formerly of the Environmental Defense Fund, and Julie Silas, formerly of the Healthy Building Network, for reviewing this fact sheet.