

# Formaldehyde Roundtable Summary

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This document summarizes a recent roundtable discussion on formaldehyde, a common air contaminant, among a diverse group of stakeholders including academia, governmental organizations, professional indoor air organizations, practicing building and health scientists, retail and furnishing organizations and finished product manufacturers. This initial workshop was held by Underwriters Laboratories Inc. during its annual meeting on May 3, 2016, 9AM-4PM, at the Westin North Shore, Wheeling, IL. The objective was to enable a high level leadership science-based discussion on a key public health topic impacting safe living and working environments.

## ***Attendees***

Participants including research and topic experts from the American Industrial Hygiene Assoc. and Geosyntec, RAD Consultants, the state of California, the Sustainable Furnishings Council, Georgia State University, Cadmus Group, Indoor Sciences, Inc. and the Indoor Air Quality Association, Lawrence Berkeley National Laboratories, Yale University, Shaw Industries Inc., Wilsonart, Room and Board, and the Consumer Product Safety Commission (CPSC). Three members of UL's Environmental Public Health Council were in attendance. The roundtable was facilitated by Dr. Marilyn Black with the assistance of Dr. Aika Davis (Post Doc) of Underwriters Laboratories Inc.

## ***Background***

Currently, there are no regulated standards for acceptable airborne levels of formaldehyde in non-occupational environments (such as residential occupancies). There is a recent regulation from the state of California (Composite Wood Products Airborne Toxic Control Measure-ATCM) addressing formaldehyde emissions from raw composite wood boards that go into the manufacturing of flooring and other interior construction and furnishing products, and a similar law will soon be implemented on a US Federal basis for raw composite wood boards. The Federal Law (Formaldehyde Standards for Composite Wood Products Act) will be the first updated regulation of formaldehyde emissions from composite wood boards since 1984 when they were first regulated by HUD (the U.S. Department of Housing and Urban Development) for use in manufactured housing (i.e. mobile homes). Recent public incidents involving measured formaldehyde emissions from composite wood boards and their relationship to emissions for finished flooring has brought some confusion to the consumer marketplace. Retailers in particular expressed concern about how to differentiate formaldehyde emissions for raw composite wood boards used in manufacturing of products like flooring and cabinetry from the emissions of finished products being sold to the retail market. Consumers expressed concern over not knowing what level of formaldehyde to expect in a residential environment and how to interpret formaldehyde emission or airborne test results that they might obtain. The current regulatory actions for composite wood boards do not address the emissions performance of finished products or the acceptable levels of airborne formaldehyde in residential environments.

## **Roundtable**

The roundtable agenda was designed to collectively discuss state of the art science on this topic, better define the market challenges, and outline collective goals for advancing market clarifications, consumer education and/or practical ways of advancing technologies for solutions. Agenda items included discussion of health knowledge and research, regulations, residential formaldehyde and ventilation, new residential construction, formaldehyde measurement tools, and interpretation of data. Some of the key takeaways included:

- Formaldehyde is an irritant/asthma trigger/carcinogen, but studies are limited for non-occupational health impact. More research is needed for low dose exposure coupled with everyday conditions and personal sensitivities.
- Current formaldehyde emissions standards address raw composite wood boards and not performance of finished products (i.e. Furniture, cabinetry, flooring, and shelving) and hence cannot be directly related to expect indoor formaldehyde exposure levels.
- Formaldehyde reference levels and guidelines for airborne exposure vary significantly across organizations from low to high part-per –million levels and address acute, chronic or defined occupational exposures.
- Programs like NIST’s net-zero house have shown that low formaldehyde levels can be obtained and low emission products are available.
- Studies of new homes find that air exchange rates (ACH) can be below the 0.35 ACH recommended by ASHRAE and adopted by many building codes.
- Low air exchange rates, often the result of energy conservation measures, may cause modest formaldehyde emissions to reach health relevant airborne formaldehyde levels
- An indoor furnishing industry survey shows that 88% of consumers are concerned about IAQ.
- Active and passive sampling techniques exist for formaldehyde, but measurement levels can vary significantly based on activities, environmental conditions and application of the monitoring. More guidance is needed in using and interpreting data from these measurement tools.

## **Next Steps**

Participants will provide any relevant articles or documents for the topics discussed so that UL Inc. can share on its science site. In addition, considerations and processes will be explored among stakeholders for advancing and sharing the following knowledge:

1. Evaluating acute/chronic indoor exposure guidelines for consumers based on irritancy.
2. Summarizing all available standards for formaldehyde and identifying gaps.
3. Evaluating available data and conducting research that can link raw composite product emissions to finished products and indoor air concentrations.
4. Producing a summary of current formaldehyde levels in homes and identifying parameters that can impact levels.
5. Evaluating formaldehyde sinks and their impact of exposure in residential environments.
6. Identifying primary sources of formaldehyde in a residential environment and recommending processes for reduction including product selection, modification, or replacements.

7. Exploring product emission level education for consumers on understanding ranges of emission rate measurements (i.e. silver, gold, platinum levels) so that consumers can make a choice.
8. Evaluating measurement devices sold to consumers.
9. Providing an on-line consumer tool that enables interpretation of test and air data and helping understand associated science terms.

UL Inc. will follow up with stakeholders on action items. Thank you to all.