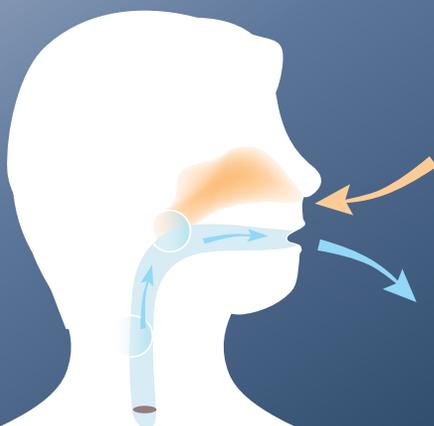


# UNC Research Study Confirms Safe Levels of Exposure for Formaldehyde<sup>1</sup>

Research from the University of North Carolina (UNC) adds to the growing body of science that demonstrates there are safe levels of formaldehyde inhalation exposure that do not cause any health effects. Typical household concentrations are between 16 and 32 ppb, which are approximately 10x lower than the safe level confirmed by this body of research. The UNC research team pioneered unique biomarkers that help us understand potential health impacts from inhaling formaldehyde. The conclusion is clear and supported by data: at environmentally relevant concentrations inhaled formaldehyde does not travel beyond the nose, thus is not able to interact within other parts of the body to cause effects.

**Researchers measured DNA Protein Cross Links (or DPX) and DNA adducts because they have been deemed the most sensitive biomarkers for exposure to formaldehyde – making this study one of the most precise in determining safe exposure limits.**

**No DNA damage detected in any tissue examined from inhaled formaldehyde<sup>2</sup>**



**Findings continue to confirm inhaled formaldehyde doesn't travel beyond the nose, thus limiting its ability to cause any health effects in the rest of the body.**

## University Research is Cutting Edge

Formaldehyde is present in all cells, which previously made it challenging for scientists to evaluate how much inhaled formaldehyde travels beyond the nose when we breathe it in.

Therefore scientists worked to discover new methods to understand the effects of inhaled formaldehyde vs. formaldehyde produced naturally by the human body. Addressing potential risk from environmental exposures is important and this revolutionary research is key in better understanding the role of naturally produced versus inhaled formaldehyde.

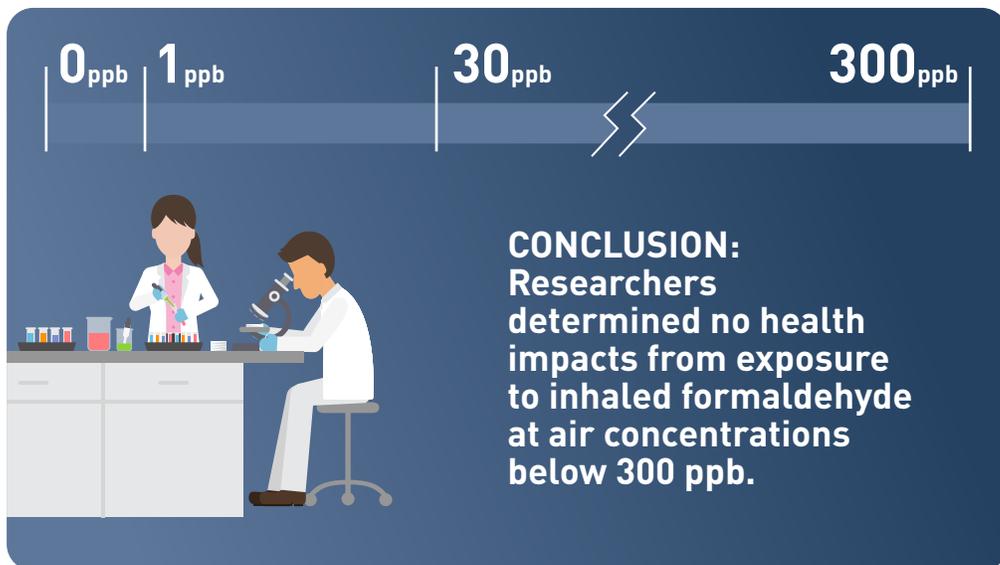
Though this study is not the first to confirm that safe thresholds for formaldehyde inhalation exposure exist, it is by far the most sensitive study and provides definitive scientific results supporting a safe exposure level for formaldehyde.

## Our Commitment to Communicating the Science Around Formaldehyde

The U.S. Environmental Protection Agency is currently performing a TSCA risk evaluation for formaldehyde. Conducting and communicating the best available scientific information – such as the UNC study – is crucial to ensuring the objective and transparent application of scientific data, as required under TSCA.

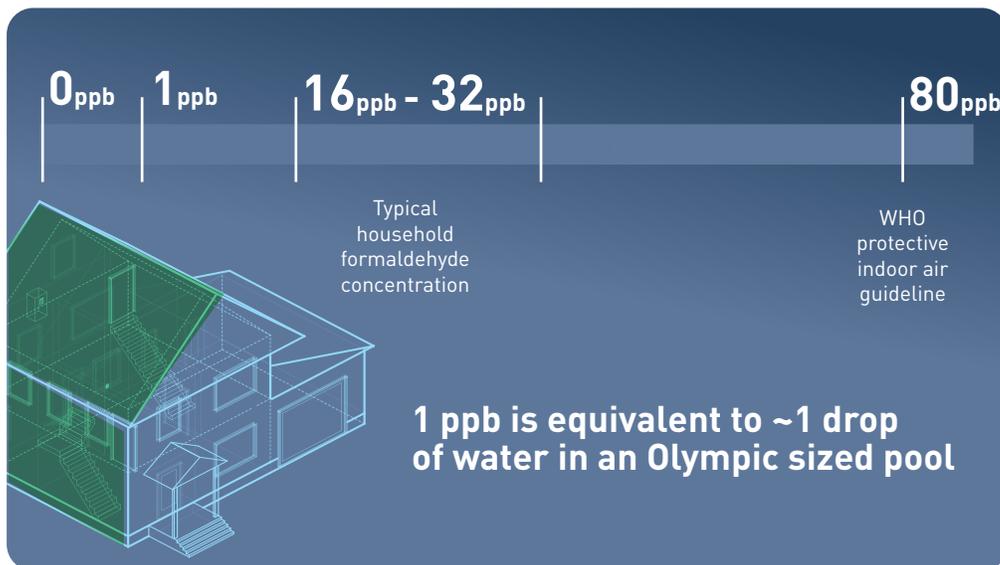
The UNC study builds on over 30 years of research that further demonstrates exposure limits set by international agencies, like the World Health Organization, continue to be protective.

# Findings From UNC Research Confirms Lack of Health Effects From Low Level Formaldehyde Exposures, Such As Those Found In Cars And Homes.<sup>1</sup>



## How is this research relevant?

Researchers focused on evaluating environmentally relevant levels of formaldehyde that would be most comparable to those found in homes, cars, and offices (e.g.  $\leq$  300 ppb).



## Typical Household Formaldehyde Levels Fall Well Below WHO Guidelines

Humans produce about 1.5 ounces of formaldehyde every day as a normal part of our metabolic process. The World Health Organization (WHO) has set protective indoor air guidelines for formaldehyde at 80 ppb. Additionally, the WHO value is well above the typical household concentrations which are on average, around 20 ppb, and well below the safe threshold of 300 ppb. At the WHO guideline, humans inhale less than 0.0001 oz of formaldehyde per day.



## Other Peer-Reviewed Studies Reach Similar Conclusion

Dozens of peer-reviewed research studies confirm a safe exposure level to formaldehyde that is higher than typical concentrations in our homes and is protective of worker health. Learn more about other formaldehyde research at [formaldehyde.americanchemistry.com](http://formaldehyde.americanchemistry.com).