Since the 1990s, published research has consistently demonstrated that safe thresholds for formaldehyde exposure exist. In 2011, the National Academy of Sciences (NAS) pointed out that understanding the effects of inhaled formaldehyde vs. formaldehyde produced naturally by the human body was a key area for additional research. New research by the University of North Carolina (UNC) has clearly identified the scientifically-based safe formaldehyde threshold. This pioneering research provides indisputable data showing levels similar to what is present in homes cause no increased risk. Based on this cutting-edge research and past peer-reviewed science – a safe exposure level for formaldehyde has been consistently demonstrated.

Researchers measured DNA Protein Cross Links (or DPX) because they have been deemed the most sensitive biomarkers for exposure to formaldehyde. The result: UNC’s research is the most accurate measure demonstrating that current safe exposure limits are more than adequately protective.

No DNA damage detected in any tissue examined from inhaled formaldehyde

Findings confirm biologically implausible to cause leukemia

University Research is Cutting Edge

Formaldehyde is present in all cells, which makes it challenging to evaluate how much inhaled formaldehyde travels beyond the nose when we breathe it in. Unique biomarkers have been pioneered by the UNC research team that help us understand potential impacts from inhaling formaldehyde.

The UNC research is revolutionary – differentiating between inhaled formaldehyde exposures from the environment and those that the human body is naturally producing – allowing scientists to precisely determine how each source of formaldehyde affects the body. The UNC research shows that inhaled formaldehyde does not travel beyond the nose, thus limiting its ability to cause adverse effects.

A Safe Exposure Level for Formaldehyde

Safe exposure levels for formaldehyde, known as thresholds, have been clearly demonstrated by years of scientific study.

Federal and international agencies developing chemical assessments and evaluating chemical risk must consider the entire weight-of-evidence on formaldehyde when establishing exposure levels. The current science demonstrates that exposure limits set by international agencies, like the World Health Organization, continue to be protective against potential adverse effects.

Footnotes:
1. Evaluation of Inhaled Low Dose Formaldehyde Induced DNA Adducts and DNA-Protein Cross-Links by Liquid Chromatography-Tandem Mass Spectrometry, Lu, K et al.
2. Data from the UNC research shows that endogenous adducts are present in all tissues analyzed, but exogenous adducts are not detectable in any tissue samples, including the most susceptible nasal epithelium. The methods used in this study are capable to detect both endogenous and exogenous formaldehyde-induced DNA adducts or DPX. These methods are highly sensitive, accurate and precise as shown by extensive validation.
Researchers evaluated levels of formaldehyde that would be most relevant to those found in homes and workplaces. Research confirms inhaled formaldehyde causes no adverse effects at current exposure levels.

Humans produce about 1.5 ounces of formaldehyde a day as a normal part of our metabolism. The WHO has set protective indoor air guidelines for formaldehyde at 80 ppb. This protective standard is below the highest air concentration found to be without any health effects. Typical household formaldehyde concentration levels are between 16 and 32 ppb.

CONCLUSION: No impacts demonstrated at these air concentrations

1 ppb is equivalent to ~1 drop of water in an Olympic sized pool

1984 30+ YEARS OF ADVANCED STUDY 2019

Research Continues to Support the Same Conclusion

Dozens of peer-reviewed studies - ALL support a safe exposure level to formaldehyde that is higher than typical concentrations in our homes and protective of worker health.