

# Formaldehyde occurs naturally and is all around us

Formaldehyde is found in every living system -- from plants to animals to humans. It metabolizes quickly in the body, breaks down rapidly, is not persistent and does not accumulate in the body.

## Humans Produce Formaldehyde

Formaldehyde is a naturally occurring substance made of carbon, hydrogen and oxygen. Humans produce about 1.5 ounces of formaldehyde a day as a normal part of our metabolism. Inhaled formaldehyde is rapidly metabolized and ultimately converted to carbon dioxide and exhaled. Formaldehyde does not accumulate in the body.

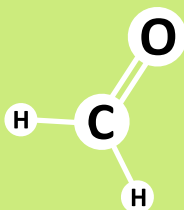
## A Natural By-Product

Formaldehyde also occurs as a by-product from all combustion processes, such as forest fires, automotive exhaust and cooking. Low levels of formaldehyde occur naturally in a variety of fruits and vegetables, including apples, carrots and bananas. It does not accumulate in the environment or within plants and animals.



## Human Exposure to Formaldehyde

The general effects of formaldehyde on the human body are well-known. Everyday exposures to inhaled formaldehyde do not reach the lungs or other distant sites in the body. According to the large body of research available, the levels of formaldehyde to which most people are exposed are not high enough to cause adverse health effects.



## One of the Most Studied Chemicals In Use Today

Formaldehyde is found naturally in, rural, urban, and indoor air, and can be found at very low levels in many household products such as latex paint, furniture, and cabinets. Formaldehyde levels in typical indoor environments are well below concentrations that could trigger sensory irritation in most people. **WHO has set protective indoor air guidelines for formaldehyde at 80 ppb.** Typical household formaldehyde concentration levels are between 16 and 32 ppb.

As one of the most-studied chemicals in use today, formaldehyde has been researched extensively to scientifically support that the current standards and safeguards are protective.

- a. Division of Toxicology and Environmental Medicine. (2008, September). Public Health Statement Formaldehyde CAS # 50-00-0. Atlanta, GA. Agency for Toxic Substances and Disease Registry. Retrieved from <https://www.atsdr.cdc.gov/ToxProfiles/tp111-c1-b.pdf>.
- b. Centre for Food Safety. (2017, May 2). Foods Known to Contain Naturally Occurring Formaldehyde. Hong Kong. The Government of the Hong Kong Special Administrative Region. Retrieved from [https://www.cfs.gov.hk/english/programme/programme\\_rafs/programme\\_rafs\\_fa\\_02\\_09.html](https://www.cfs.gov.hk/english/programme/programme_rafs/programme_rafs_fa_02_09.html);  
European Food Safety Authority. (2014). Endogenous formaldehyde turnover in humans compared with exogenous contribution from food sources. Parma, Italy. EFSA Journal, 12(2), 3550. Retrieved from <https://efsa.onlinelibrary.wiley.com/doi/pdf/10.2903/j.efsa.2014.3550>.
- c. Nielsen, G. D., Larsen, S. T., & Wolkoff, P. (2017). Re-evaluation of the WHO (2010) formaldehyde indoor air quality guideline for cancer risk assessment. Archives of toxicology, 91(1), 35-61. Retrieved from <https://link.springer.com/article/10.1007/s00204-016-1733-8>;  
Salthammer et al. (2010). American Chemical Society. Graphic adapted from NRC, 2011. Review of the EPA Draft Iris Assessment of Formaldehyde, 13. Washington, DC. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK208227>;  
World Health Organization. (2010). WHO guidelines for indoor air quality: selected pollutants. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK138711>.
- d. Agency for Toxic Substances and Disease Registry. (1999, July). Toxicological Profile for Formaldehyde. Washington, DC. U.S. Department of Health and Human Services, p. 290. Retrieved from <https://www.atsdr.cdc.gov/ToxProfiles/tp111.pdf>.
- e. Thermo Scientific. (2007). The Measurement of Methanol and Formaldehyde in Automobile Exhaust Using Fourier Transform Infrared (FT-IR) Spectroscopy. Madison, WI. Thermo Electron Scientific Instruments LLC. Retrieved from <http://www.bkinstruments.co.kr/su2/AN50652-E-Measurement-Methanol-Formaldehyde-Auto-Exhaust.pdf>.