

FORMALDEHYDE

Questions and Answers

What is formaldehyde? Formaldehyde is a chemical that is widely present in our environment as a result of both natural and man-made processes. It can be found in common commercial products including glue, plastics and cosmetics. Formaldehyde resins are often used in making manufactured wood products and carpets. Many pollutants break down to create formaldehyde in ambient air.

How much formaldehyde am I exposed to? Outdoor air typically contains around 0.003 - 0.020 mg/m³ formaldehyde. Indoor air levels can be greater than outdoor levels. The primary contributors to inhalation exposure of formaldehyde are smoking and breathing indoor air.

Is formaldehyde dangerous? Formaldehyde can, at exposure levels of 0.1 – 4 mg/m³, cause irritation of the upper airways, and tearing and burning of the eyes. At higher exposure levels, formaldehyde can inflame the lower respiratory tract that could result in narrowing of the bronchi, pneumonitis, and pulmonary edema. Asthma has been reported to occur in sensitive individuals.

How does the DAO toxics program protect the public from formaldehyde? The Toxics Program is designed to protect public health by limiting emissions of toxic air pollutants such as formaldehyde from man-made sources. Health protective acceptable ambient level (AAL) guidelines for toxic air pollutants have been established using established risk assessment methods. Regulated pollution sources are then required to demonstrate that AALs have not been exceeded outside of their property boundaries.

What is the AAL for formaldehyde? The current formaldehyde AAL is 0.15 mg/m³, based on a one-hour average concentration. This guideline is based on formaldehyde's irritating properties. A one-hour averaging time lowers short-term releases of formaldehyde that might result in acute exposures to nearby residents. In 2010, the North Carolina Science Advisory Board for Toxic Air Pollutants is scheduled to review the formaldehyde AAL.

Is the formaldehyde AAL protective for other health effects? There is evidence that formaldehyde may cause nasal cancers in laboratory rats. However, when the North Carolina Academy of Sciences recommended the AAL for formaldehyde they decided that a 1-hour averaging time would be most protective since it would prevent short-term releases of formaldehyde. Other adverse effects from formaldehyde occur at levels above the AAL.

Where can I go if I have more questions about formaldehyde or the toxics program? For more information please call Lori Cherry, Toxics Protection Branch Supervisor at (919) 733-1476 or Reginald Jordan, Industrial Hygienist at (919) 733-1475.

¹ ATSDR (1999), Toxicological Profile for Formaldehyde.