



## Acetaldehyde Air Toxics

Three EnviroAtlas national map layers show 2014 estimates of 1) regional acetaldehyde concentrations in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ); 2) non-cancer respiratory risk (hazard quotient); and 3) cancer risk (probability of occurrence of cases per million people) by census tract for the conterminous U.S. These maps use data from USEPA's 2014 National Air Toxic Assessment ([NATA](#)).

### Why is acetaldehyde in our air important?

Acetaldehyde is formed from both natural processes and human activities. Globally, oceans and forests are major producers along with human biomass burning. In U.S. metropolitan areas, the highest acetaldehyde emissions come from autos and lawn and garden equipment, followed by construction, mining, and industrial equipment. Acetaldehyde is a reaction product of the mixing of volatile organic compounds in smog. It, in turn, reacts with other chemicals to produce nitrates, nitric acid, and carbon monoxide as well as ozone and methane, both [greenhouse gases](#) implicated in global warming.

The EPA has classified acetaldehyde as a probable human carcinogen, but conclusive human studies are lacking. Short term exposure can cause eye, skin, and respiratory tract irritation. Long-term symptoms from chronic exposure can resemble those of alcoholism. Animal studies have reported tumors following inhalation exposure to acetaldehyde.

Toxic air pollutants may bind with airborne fine particulates and enter the terrestrial environment as [wet](#) or [dry deposition](#). Acetaldehyde generally does not move between systems (e.g., between soil, water, sediment), but it is considered moderately mobile in soil because it does not adhere to soil particles, meaning that it can affect ground water. Fish and aquatic invertebrates are [sensitive](#) to acetaldehyde in waterbodies. There is little information about the effects of acetaldehyde on terrestrial vegetation or wildlife. Overall, acetaldehyde contributes to the degradation of ecosystem values and services, particularly climate stability, biodiversity, and clean air and water.

### How can I use this information?

These three EnviroAtlas national map layers provide screening-level information for regional ambient concentration, non-cancer respiratory risk, and cancer risk for acetaldehyde by census tract for the conterminous U.S. for 2014. Cancer risk and the respiratory hazard quotient are defined in more detail in the EnviroAtlas interactive map.



These data layers can be used with other EnviroAtlas data layers to put regional acetaldehyde values in the context of other community information. These maps may be overlaid and compared with other EnviroAtlas maps depicting demographic distributions, vulnerable populations, and the physical locations of other air pollution point sources (see EnviroAtlas EPA Regulated Facilities) to assess overall public exposure to air pollutants in general and acetaldehyde specifically. EnviroAtlas users can access NATA information through the Compare My Area tool found in the interactive map. The tool generates summary information for a selected area of interest and compares it to the surrounding county and state.

### What are the limitations of these data?

NATA data is best used as a screening tool for broad areas rather than specific places and applied to larger groups of people. More detailed information on proper data use may be found on the [NATA limitations](#) website.

### How can I access these data?

EnviroAtlas data can be viewed in the interactive map, accessed through web services, or downloaded. The entire 2014 NATA database can be accessed from the [NATA Assessment Results](#) website.

### Where can I get more information?

For additional information on the data creation process, access the [metadata](#) found in the layer list drop-down menu on the interactive map and visit the NATA Assessment [methods](#) discussion. To ask specific questions about these data, contact the [EnviroAtlas Team](#).