



Acrolein Air Toxics

Two EnviroAtlas national map layers show 2014 estimates of regional ambient acrolein concentrations in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and non-cancer respiratory risk (expressed as a hazard quotient) by census tract for the conterminous U.S. These maps use data from USEPA's 2014 National Air Toxic Assessment ([NATA](#)).

Why is acrolein in our air important?

[Acrolein](#) air toxics risks to human health may occur from breathing vehicle exhaust, tobacco smoke (or second-hand smoke), and living near oil refineries, oil- or coal-fired power plants, or pulp and paper mills. Acrolein can be formed as a photochemical reaction product in smog or photochemically removed from the air to create carbon monoxide or formaldehyde. Acrolein is toxic to humans following inhalation and oral or skin exposures. Short term inhalation of acrolein can cause upper respiratory tract irritation and congestion. Long term inhalation exposure may cause pulmonary edema or chronic respiratory disease. Acrolein is a suspected carcinogen because of its chemical structure and behavior, but existing laboratory animal cancer data are not sufficient to determine if acrolein is carcinogenic to humans.

Acrolein is known to bind with airborne fine particulates and return to the terrestrial environment as [wet deposition](#). However, acrolein degrades quickly in soil and plant tissues. Acrolein in liquid form is commonly used as a pesticide in irrigation ditches and lakes to control algae and weeds. Though acrolein has been found to dissipate quickly from waterbodies, it is lethal to sensitive fish and aquatic macroinvertebrates and significant quantities of acrolein [herbicide](#) volatilize back into the air (measured in tons per year) in agricultural regions where it is applied. Any environmental effects specific to acrolein air toxics are likely to be local or downwind of industrial or agricultural sources. Overall, acrolein air toxics contribute to the degradation of regional ecosystem values and services, particularly clean air and climate stability.

How can I use this information?

These two EnviroAtlas national map layers provide screening-level information for regional ambient acrolein concentration and non-cancer respiratory risk by census tract for the conterminous U.S. for 2014. The respiratory risk hazard quotient is defined in more detail in the EnviroAtlas interactive map. These data layers can be used with other EnviroAtlas data layers to put regional acrolein 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 acrolein 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. The Centers for Disease Control (CDC) includes [acrolein](#) in its pocket guide to chemical hazards and exposure treatment. To ask specific questions about these data, contact the [EnviroAtlas Team](#).