

# Common Air Pollutants

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## CATEGORIES

**Topics** Health, Air Pollution, Measuring Air Quality, Airborne Toxics, Indoor Air Quality & Exposure, Power Equipment

**Programs** Outdoor Air Quality Standards, Exposure, Community Air, Criteria Pollutant and Toxics Emissions Reporting (CTR)

**Type** Information

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A number of air pollutants, emitted from a variety of sources, impact the health of Californians everyday. Air monitoring data show that over 90 percent of Californians breathe unhealthy levels of one or more air pollutants during some part of the year. The U.S. Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (CARB) establish health-based ambient air quality standards to identify outdoor pollutant levels that are considered safe for the public - including those individuals most sensitive to the effects of air pollution, such as children and the elderly.

U.S. EPA has set National Ambient Air Quality Standards (NAAQS) for six pollutants, including ozone and particulate matter. These are referred to as the “criteria” pollutants. CARB has set California Ambient Air Quality Standards (CAAQS) for the same six pollutants, as well as for four additional pollutants.

CARB also identifies other air pollutants as toxic air contaminants (TACs) - pollutants that may cause serious, long-term effects, such as cancer, even at low levels. Most air toxics have no known safe levels, and some may accumulate in the body from repeated exposures. The Board has identified about 200 pollutants as air toxics, and measures continue to be adopted to reduce emissions of air toxics. Both criteria pollutants and toxic air contaminants are measured statewide to assess the adequacy of programs for cleaning the air. CARB works with local air pollution control districts to reduce air pollution from all sources.

The table below briefly summarizes the most common health and environmental effects for each of the air pollutants for which there is a national and/or California ambient air quality standard, as well as for toxic air pollutants. Follow the links for more detailed

information specific to each pollutant.

<b>Pollutant</b>	<b>Effects on Health and the Environment</b>
Ozone (O <sub>3</sub> )	<ul style="list-style-type: none"> <li>• Respiratory symptoms</li> <li>• Worsening of lung disease leading to premature death</li> <li>• Damage to lung tissue</li> <li>• Crop, forest and ecosystem damage</li> <li>• Damage to a variety of materials, including rubber, plastics, fabrics, paint and metals</li> </ul>
PM2.5 (particulate matter less than 2.5 microns in aerodynamic diameter)	<ul style="list-style-type: none"> <li>• Premature death</li> <li>• Hospitalization for worsening of cardiovascular disease</li> <li>• Hospitalization for respiratory disease</li> <li>• Asthma-related emergency room visits</li> <li>• Increased symptoms, increased inhaler usage</li> </ul>
PM10 (particulate matter less than 10 microns in aerodynamic diameter)	<ul style="list-style-type: none"> <li>• Premature death &amp; hospitalization, primarily for worsening of respiratory disease</li> <li>• Reduced visibility and material soiling</li> </ul>
Nitrogen Oxides (NO <sub>x</sub> )	<ul style="list-style-type: none"> <li>• Lung irritation</li> <li>• Enhanced allergic responses</li> </ul>
Carbon Monoxide (CO)	<ul style="list-style-type: none"> <li>• Chest pain in patients with heart disease</li> <li>• Headache</li> <li>• Light-headedness</li> <li>• Reduced mental alertness</li> </ul>
Sulfur Oxides (SO <sub>x</sub> )	<ul style="list-style-type: none"> <li>• Worsening of asthma: increased symptoms, increased medication usage, and emergency room visits</li> </ul>

**Pollutant****Effects on Health and the Environment**

Lead	<ul style="list-style-type: none"> <li>• Impaired mental functioning in children</li> <li>• Learning disabilities in children</li> <li>• Brain and kidney damage</li> </ul>
Hydrogen Sulfide (H <sub>2</sub> S)	<ul style="list-style-type: none"> <li>• Nuisance odor (rotten egg smell)</li> <li>• At high concentrations: headache &amp; breathing difficulties</li> </ul>
Sulfate	<ul style="list-style-type: none"> <li>• Same as PM<sub>2.5</sub>, particularly worsening of asthma and other lung diseases</li> <li>• Reduces visibility</li> </ul>
Vinyl Chloride	<ul style="list-style-type: none"> <li>• Central nervous system effects, such as dizziness, drowsiness &amp; headaches</li> <li>• Long-term exposure: liver damage &amp; liver cancer</li> </ul>
Visibility Reducing Particles	<ul style="list-style-type: none"> <li>• Reduced airport safety, scenic enjoyment, road safety, and discourages tourism</li> </ul>
Toxic Air Contaminants About 200 chemicals have been listed as toxic air contaminants	<ul style="list-style-type: none"> <li>• Cancer</li> <li>• Reproductive and developmental effects</li> <li>• Neurological effects</li> </ul>

## RELATED RESOURCES

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**Estimating the Health Benefits of Reductions**

**CARB's Methodology for Estimating the**

**Standards Laboratory: Ozone Pre/Post**

**in Emissions of PM2.5  
or its Precursors:  
Short Description**

**Health Effects of Air  
Pollution**

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