



ARB Fact Sheet: Air Pollution Sources, Effects and Control

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Where does air pollution come from? How does it effect people and the environment? How can we control, or better yet, prevent it? The following table summarizes the sources, effects and prevention and control methods for ten of the most important air pollutants in California.

Pollutant	Sources	Effects	Prevention and Control
Ozone (O3)	Formed when reactive organic gases (ROG) and nitrogen oxides react in the presence of sunlight. ROG sources include any source that burns fuels, (e.g., gasoline, natural gas, wood, oil) solvents, petroleum processing and storage and pesticides.	Breathing Difficulties, Lung Tissue Damage, Damage to Rubber and Some Plastics	Reduce motor vehicle reactive organic gas (ROG) and nitrogen oxide emissions through emissions standards, reformulated fuels, inspections programs and reduced vehicle use. Limit ROG emissions from commercial operations and consumer products. Limit ROG and NOx emissions from industrial sources such as power plants and refineries. Conserve energy.

<p>Respirable Particulate Matter (PM10)</p>	<p>Road Dust, Windblown Dust (Agriculture) and Construction (Fireplaces) Also formed from other pollutants (acid rain, NOx, SOx, organics). Incomplete combustion of any fuel.</p>	<p>Increased Respiratory Disease, Lung Damage, Cancer, Premature Death, Reduced Visibility, Surface Soiling</p>	<p>Control Dust Sources, Industrial Particulate Emissions, Wood Burning Stoves and Fireplaces Reduce secondary pollutants which react to form PM10. Conserve energy.</p>
<p>Fine Particulate Matter (PM2.5)</p>	<p>Fuel Combustion in Motor Vehicles, Equipment and Industrial Sources, Residential and Agricultural Burning. Also formed from reaction of other pollutants (acid rain, NOx, SOx, organics).</p>	<p>Increases Respiratory Disease, Lung Damage, Cancer, Premature Death, Reduced Visibility, Surface Soiling</p>	<p>Reduces Combustion Emissions from Motor Vehicles, Equipment, Industries and Agriculture and Residential Burning. Precursor controls, like those for ozone, reduce fine particle formation in the atmosphere.</p>
<p>Carbon Monoxide (CO)</p>	<p>Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.</p>	<p>Chest Pain in Heart Patients, Headaches, Reduced Mental Alertness</p>	<p>Control motor vehicle and industrial emissions. Use oxygenated gasoline during winter months. Conserve energy.</p>
<p>Nitrogen Dioxide (NO2)</p>	<p>See Carbon Monoxide</p>	<p>Lung Irritation and Damage. Reacts in the atmosphere to form ozone and acid rain</p>	<p>Controls motor vehicle and industrial combustion emissions. Conserve energy.</p>
<p>Lead</p>	<p>Metal Smelters, Resource Recovery, Leaded Gasoline,</p>	<p>Learning Disabilities, Brain and Kidney Damage</p>	<p>Control metal smelters, no lead in gasoline. Replace leaded paint</p>

	Deterioration of Lead Paint		with non-lead substitutes.
Sulfur Dioxide (SO₂)	Coal or Oil Burning Power Plants and Industries, Refineries, Diesel Engines	Increases lung disease and breathing problems for asthmatics. Reacts in the atmosphere to form acid rain.	Reduces the use of high sulfur fuels (e.g., use low sulfur reformulated diesel or natural gas). Conserve energy.
Visibility Reducing Particles	See PM _{2.5}	Reduces visibility (e.g., obscures mountains and other scenery), reduced airport safety, lower real estate value, discourages tourism.	See PM _{2.5}
Sulfates	Produced by the reaction in the air of SO ₂ (see SO ₂ sources), a component of acid rain.	Breathing Difficulties, Aggravates Asthma, Reduced Visibility	See SO ₂
Hydrogen Sulfide	Geothermal Power Plants, Petroleum Production and Refining, Sewer Gas	Nuisance Odor (Rotten Egg Smell), Headache and Breathing Difficulties (Higher Concentrations)	Control emissions from geothermal power plants, petroleum production and refining, sewers, sewage treatment plants.

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ARB Fact Sheet

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