

ENVIRONMENTAL Fact Sheet



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ARD-41

2008

EPA Criteria Air Pollutants

The following tables provide information on six air pollutants, classified as “criteria air pollutants” by the U.S. Environmental Protection Agency. The first table describes each pollutant, including its sources and effects. The second table lists the current National Ambient Air Quality Standards for these pollutants set by EPA to protect public health and welfare. For more information on air pollution in New Hampshire and steps that the state is taking to address air quality issues, visit www.des.nh.gov and search for “Air Resources.” For current air quality information, visit www.airquality.nh.gov.

EPA CRITERIA AIR POLLUTANTS		
Pollutant	Sources	Health and Environmental Effects
<p>Ozone (ground-level) - A colorless gas that is the major constituent of photochemical smog.</p>	<p>Formed as a result of chemical reactions between volatile organic compounds (VOCs), oxides of nitrogen (NO_x), and oxygen in the presence of heat and sunlight. Sources include motor vehicles, factories, landfills, industrial solvents, and miscellaneous small sources such as gas stations, lawn equipment, etc.</p>	<p>Irritates the respiratory tract, produces impaired lung function such as inability to take a deep breath, aggravates existing conditions like asthma, and causes throat irritation, chest pain, cough, lung inflammation, and possibly susceptibility to lung infection. May reduce yield of agricultural crops and damage forests and other vegetation.</p>
<p>Carbon Monoxide (CO) - An odorless, colorless gas resulting from incomplete fossil fuel combustion.</p>	<p>Sources include motor vehicles (the majority of CO in NH), small engines, some industrial processes, boilers and incinerators. High concentrations can be found in confined spaces like parking garages, poorly ventilated tunnels, or traffic intersections especially during peak hours.</p>	<p>Impairs the ability of blood to deliver oxygen to vital tissues affecting the cardiovascular, pulmonary, and nervous systems. Symptoms include dizziness, headaches, nausea, fatigue, memory and visual impairment, and decreased muscular control.</p>
<p>Nitrogen Dioxide (NO₂) - A brownish gas, belongs to family of reactive gases called oxides of nitrogen (NO_x).</p>	<p>Formed when fuel is burned at high temperatures. Sources include motor vehicles, electric utilities, and industrial boilers.</p>	<p>Irritates the lungs, may cause lung damage and lower resistance to respiratory infections such as influenza. Contributes to the formation of ozone and acidic precipitation (acid rain), and may adversely affect terrestrial and aquatic ecosystems through regional transport and deposition.</p>

<p>Particulate Matter - Mixture of solid particles and liquid droplets in the air; particles may be visible or microscopic.</p>	<p>Formed directly from windblown dust, crushing and grinding operations, unpaved roads and construction, fuel combustion (from motor vehicles, power plants, industrial facilities), wood stoves, and agriculture (plowing, burning off fields). May also be formed in the atmosphere from gases such as SO₂ and NO_x.</p>	<p>Causes eye, nose and throat irritation, lung damage, bronchitis, cancer, alterations in the body's defense system against foreign materials, and premature death. Children, the elderly, and people suffering from heart or lung disease are especially at risk. Serves as a carrier for toxic metals, damages human-made materials, and is a major cause of reduced visibility in many parts of the U.S.</p>
<p>Sulfur Dioxide (SO₂) - A colorless gas, odorless at low concentrations, but pungent at very high concentrations.</p>	<p>Formed when fuel containing sulfur (mainly oil and coal) is burned in industrial, institutional, utility, and apartment-house furnaces and boilers. Other sources include petroleum refineries, smelters, paper mills, and chemical plants.</p>	<p>May cause breathing problems, respiratory illness, alterations in the lungs = defenses, aggravation of existing cardiovascular disease, and permanent damage to lungs. Forms acid aerosols and sulfuric acid, which are associated with acidification of lakes and streams, accelerated corrosion of buildings and monuments, and reduced visibility.</p>
<p>Lead - A heavy metal which can cause adverse health effects either through ingestion or direct inhalation.</p>	<p>Sources include lead-contaminated soil, dust, paint, etc., transportation sources using lead in their fuels, coal combustion, smelters, car battery plants, and combustion of garbage containing lead products.</p>	<p>Elevated levels can cause brain and other nervous system damage and adversely affect kidney function, blood chemistry, and digestion. Children are at special risk due to cumulative effects even at low doses. Lead can also harm wildlife through deposition onto leaves which are a food source for grazing animals.</p>

National Ambient Air Quality Standards for Criteria Pollutants			
Pollutant	Primary Standard	Secondary Standard	Regulation Allowance
Ozone (O₃)¹	1-hour average conc.: 0.120 ppm 8-hour average conc.: 0.075 ppm	Same as primary Same as primary	Not to exceed more than one per year over 3-year average. 3-year average of the annual 4th highest daily maximum concentration at or below the standard.
Carbon Monoxide (CO)	8-hour average conc.: 9 ppm	N/A	Not to be exceeded more than once per year
	1-hour average conc.: 35 ppm	N/A	Not to be exceeded more than once per year
Nitrogen Dioxide (NO₂)	Annual Arithmetic Mean: 100 µg/m ³	Same as primary	
Particulate Matter (PM₁₀)²	24-hour conc.: 150 µg/m ³	Same as primary	3-year average of 99th percentile conc. at or below the standard ³
	Annual Arithmetic Mean: 50 µg/m ³	Same as primary	3-year average at or below the standard
Particulate Matter (PM_{2.5})³	24-hour average conc.: 35 µg/m ³	Same as primary	3-year average of 98th percentile conc. at or below the standard
	Annual Arithmetic Mean: 15 µg/m ³	Same as primary	3-year average at or below the standard
Sulfur Dioxide (SO₂)	Annual Arithmetic Mean: 0.03 ppm (80 µg/m ³)		
	Maximum 24-hour conc.: 0.14 ppm (365 µg/m ³)	Maximum 3-Hour conc.: 1300 µg/m ³	Not to be exceeded more than once per year
Lead	Maximum Arithmetic Mean: 1.5 µg/m ³	Same as primary	