



Fact Sheet

South Carolina Department of Health and Environmental Control • www.scdhec.gov

National Ambient Air Quality Standards (NAAQS)

What are the National Ambient Air Quality Standards (NAAQS)?

The National Ambient Air Quality Standards (NAAQS) are air quality standards set by the U.S. Environmental Protection Agency (EPA) for six “criteria pollutants” which are among the most harmful to public health and the environment.

Since the amendment of the Clean Air Act (CAA) in 1990, EPA is required to set NAAQS for the criteria pollutants. The law requires EPA to review these standards once every five years to determine if they are appropriate or if new standards are needed to protect public health. In South Carolina, DHEC is the agency responsible for monitoring air quality and reporting to EPA the levels of each of these pollutants in our air.

What are the “criteria pollutants” and where do they come from?

Ground-level **ozone** forms in the air when two other types of pollutants, volatile organic compounds (VOCs) and **nitrogen oxides**, react in the presence of sunlight. The VOCs that form ozone come from vehicle and industrial exhaust as well as evaporated gasoline, solvents, paints and many other sources.

Particulate matter and **nitrogen oxides** come from diesel cars, trucks and buses, power plants, industries and many other sources.

Carbon monoxide results from the incomplete burning of fuels from cars, buses, trucks, small engines, boilers and some industrial processes.

Sulfur dioxide is generated by coal-fired power plants, industrial sources, residential heating and motor vehicles.

The main sources of **lead** in humans and other animals are tainted foods and beverages, airborne lead and non-food substances such as paint chips containing lead.

More information on each of the criteria pollutants can be found online at <http://www.epa.gov/air/airpollutants.html>

What kinds of NAAQS do we have, and what do they mean?

The 1990 CAA amendments established two types of standards for each criteria pollutant:

- **Primary standards:** these protect public health, including the health of “sensitive” populations such as asthmatics, children and the elderly.
- **Secondary standards:** these protect public welfare and include protection against lower visibility and damage to animals, crops, vegetation and buildings.

What are the standards for each of the criteria pollutants?

The NAAQS for each of the six criteria pollutants are listed on the next page of this fact sheet. Units of measure for the standards are parts per million (ppm) by volume, milligrams per cubic meter of air (mg/m^3), and micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$). (1 ppm = 1 drop of water diluted into 50 liters or 1 second of time in roughly 11.5 days.)

National Ambient Air Quality Standards		
POLLUTANT	STANDARD VALUE	STANDARD TYPE
Carbon Monoxide (CO)		
8-hour Average ⁽¹⁾	9 ppm (10 mg/m ³)	Primary
1-hour Average ⁽¹⁾	35 ppm (40 mg/m ³)	Primary
Nitrogen Dioxide (NO₂)		
Annual Average	0.053 ppm (100 µg/m ³)	Primary & Secondary
Ozone (O₃)		
8-hour Average ⁽²⁾	0.075 ppm	Primary & Secondary
1-Hour Average ⁽³⁾	0.12 ppm (235 µg/m ³)	Primary & Secondary
Lead (Pb)		
Quarterly Average ⁽⁴⁾	0.15 µg/m ³	Primary & Secondary
Fine Particulate (PM_{2.5})		
Annual Average ⁽⁵⁾	15 µg/m ³	Primary & Secondary
24-hour Average ⁽⁶⁾	35 µg/m ³	Primary & Secondary
Coarse Particulate (PM₁₀)		
Annual Average ⁽⁷⁾	Revoked	Primary & Secondary
24-hour Average ⁽⁸⁾	150 µg/m ³	Primary & Secondary
Sulfur Dioxide (SO₂)		
Annual Average	0.03 ppm	Primary
24-hour Average ⁽¹⁾	0.14 ppm	Primary
3-hour Average ⁽¹⁾	0.50 ppm	Secondary

- (1) This standard cannot be exceeded more than once per year.
- (2) To meet this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone levels measured at each monitor within an area each year cannot exceed 0.075 ppm.
- (3) The standard is met when there are no days in a calendar year with maximum hourly average levels above 0.12 ppm.
- (4) The standard is met when the maximum 3-month mean concentration for a 3-year period is less than or equal to 0.15 µg/m³.
- (5) To meet this standard, the 3-year average of the weighted annual average PM_{2.5} levels from samplers must not exceed 15.0 µg/m³. Daily PM_{2.5} levels are averaged by calendar quarter. Each quarterly average is then averaged to determine the weighted average.
- (6) To meet this standard, the 3-year average of the 98th percentile of 24-hour levels at each population-oriented sampler within an area cannot exceed 35 µg/m³. The 98th percentile is what 98 percent of all levels measured in a calendar year fall below.
- (7) Due to a lack of evidence linking health problems to long-term exposure to PM₁₀ pollution, EPA revoked the annual PM₁₀ standard effective December 17, 2006.
- (8) This standard cannot be exceeded more than once per year on average over 3 years.

