
Particulate Matter (PM₁₀ and PM_{2.5})

PM₁₀ refers to particles with an aerodynamic diameter of 10 microns or smaller. For comparison, the diameter of a human hair is about 50 to 100 microns. PM₁₀ is a mixture of substances that includes elements such as carbon, lead, and nickel; compounds such as nitrates, organic compounds, and sulfates; and complex mixtures such as diesel exhaust and soil. These substances occur in the form of solid particles or as liquid droplets. Some particles are emitted directly into the atmosphere. Other particles, referred to as secondary particles, result from gases that are transformed into particles through physical and chemical processes in the atmosphere.

PM₁₀ includes a subgroup of finer particles called PM_{2.5}. The fine particles pose an increased health risk because they can deposit deep in the lung and contain substances that are particularly harmful to human health. The United States Environmental Protection Agency promulgated national PM_{2.5} standards in 1997. However, the transition to the PM_{2.5} standards is just beginning and, therefore, the PM₁₀ standards are the primary focus of this almanac.

State PM₁₀ Standards:

50 µg/m³ for 24 hours *and*
30 µg/m³ annual geometric mean,
neither to be exceeded.

National PM₁₀ Standards:

150 µg/m³ for 24 hours,
not to be exceeded, based on
the 99th percentile concentration
averaged over 3 years *and*
50 µg/m³ annual arithmetic mean
averaged over 3 years.

National PM_{2.5} Standards:

65 µg/m³ for 24 hours,
not to be exceeded, based on
the 98th percentile concentration
averaged over three years *and*
15 µg/m³ annual arithmetic mean
averaged over 3 years.

Table 1-3