New National Ambient Air Quality Standards for Particulate Matter

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Overview

- On September 21, 2006 EPA completed its review of the National Ambient Air Quality Standards (NAAQS) for particulate matter.

- **The final rule addresses two categories of particle pollution:**
  - *fine particles* (PM$_{2.5}$), which are 2.5 micrometers in diameter and smaller;
  - *inhalable coarse particles*, which are larger than 2.5 micrometers and smaller than 10 micrometers in diameter.

- **In the final rule EPA :**
  - revised the fine particle standards to better protect public health and visibility, and
  - retained the 24-hour PM$_{10}$ standard to protect against exposure to inhalable coarse particles.

- For more information go to [http://www.epa.gov/air/particles](http://www.epa.gov/air/particles)
PM Components: fine and coarse

**Fine Particles**
*Combustion, gases to particles*
Sulfates/acids
Nitrate
Ammonium
Organics
Carbon
Metals
Water

**Sources:**
Coal, oil, gasoline, diesel, wood combustion
Transformation of SOx, NOx, organic gases including biogenics
High temperature industrial processes
(smelters, steel mills)
Forest fires

**Exposure/Lifetime:**
Lifetime days to weeks, regional distribution over urban scale to 1000s of km

**Inhalable Coarse Particles**
*Crushing, grinding, dust*
Resuspended dusts
(soil, street dust)
Coal/oil fly ash
Aluminum, silica, iron-oxides
Tire and brake wear
Inhalable Biological Materials
(e.g., from soils, plant fragments)

**Sources:**
Resuspension of dust tracked onto roads
Suspension from disturbed soil (farms, mines, unpaved roads)
Construction/demolition
Industrial fugitives
Biological sources

**Exposure/Lifetime:**
Coarse fraction (2.5-10) lifetime of hours to days, distribution up to 100s km
Many scientific studies have linked breathing particle pollution to a series of significant health problems, including:

- Aggravated asthma
- Increases in respiratory symptoms like coughing and difficult or painful breathing
- Chronic bronchitis
- Decreased lung function
- Premature death in people with heart and lung disease
### EPA’s PM Standards: Old and New

<table>
<thead>
<tr>
<th></th>
<th>Previous Standards</th>
<th>2006 Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annual</td>
<td>24-hour</td>
</tr>
<tr>
<td><strong>PM$_{2.5}$</strong> (Fine Particles)</td>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
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<tr>
<td></td>
<td>15 µg/m$^3$</td>
<td>65 µg/m$^3$</td>
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<tr>
<td></td>
<td>Annual arithmetic mean, averaged over 3 years (established in 1997)</td>
<td>24-hour average, 98$^{th}$ percentile, averaged over 3 years (established in 1997)</td>
</tr>
<tr>
<td><strong>PM$_{10}$</strong> (Coarse Particles)</td>
<td><img src="image5.png" alt="Image" /></td>
<td><img src="image6.png" alt="Image" /></td>
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<tr>
<td></td>
<td>50 µg/m$^3$</td>
<td>150 µg/m$^3$</td>
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<tr>
<td></td>
<td>Annual average</td>
<td>24-hr average, not to be exceeded more than once per year on average over a three year period</td>
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Expected nonattainment areas  24 hour standard
## Expected Timeline for Revised PM$_{2.5}$ NAAQS

<table>
<thead>
<tr>
<th>Milestone</th>
<th>2006 PM$_{2.5}$ Primary NAAQS</th>
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<tbody>
<tr>
<td>Promulgation of Standard</td>
<td>Sept. 2006</td>
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<tr>
<td>State Recommendations to EPA</td>
<td>Dec. 2007 (based on 2004-2006 monitoring data)</td>
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<tr>
<td>Final Designations Signature</td>
<td>Dec. 2009</td>
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<tr>
<td>Effective Date of Designations</td>
<td>April 2010</td>
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<tr>
<td>SIPs Due</td>
<td>April 2013</td>
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<tr>
<td>Attainment Date</td>
<td>April 2015 (based on 2012-2014 monitoring data)</td>
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<tr>
<td>Attainment Date with Extension</td>
<td>April 2020</td>
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