

Air quality standards for particulate matter.

Particulate matter is a mixture of incredibly small particles and liquid droplets of dust, dirt, soot, smoke and other organics and acids. The sizes range large enough to be seen with the naked eye – between 2.5 and 10 micrometers – and small enough to require an electron microscope – anything smaller than 2.5 micrometers. There are two different types of particles, primary particles and secondary particles. Primary particles are ones emitted directly from the original pollutant source while secondary particles are created in the atmosphere upon reaction of primary particles.

Why do we have EPA regulations? There are several reasons. First and foremost would be the health problems associated with breathing in the air-born particulate. Because they're so small, the particles will get far into the lungs, causing lung and heart damage. There is also effects such as visibility reduction, environmental damage and, oddly enough, aesthetic damage. This sounds paltry compared to the health issues, but when 'visibility reduction' is smog, 'environmental damage' can be lakes turning acidic, and the 'aesthetic damage' includes the erosion of the marble faces of buildings due to acid rain. When taken all that into consideration, the other issues become just as bad as the associated health issues.

The Air Pollution Control Act of 1955 was the first legislation involving air pollution, allowing for federal funds to be used to research air pollution. In 1963, the first legislation was introduced to attempt to control air pollution from stationary and mobile sources. In 1967, the Air Quality Act was enacted in order to conduct monitoring studies and source inspections to further help regulate interstate pollution. In the 1970s, the Clean Air Act and it's amendment authorized federal and state regulations to limit air emissions and created a federal standard for air quality. The Environmental Protection Agency (EPA) was created by Executive Order at this time to enforce said regulations. In 1990, another set of amendments were added, increasing the scope of regulation to include acid depositions. This set of amendments also created a permit system requirements for allowable pollution and created a program intended to discontinue ozone-depleting chemicals. ¹

1 [Http://www.epa.gov](http://www.epa.gov)